Bio SB

BIOSCIENCE FOR THE WORLD

Products for Molecular Pathology

Volume 5

Bio SB
BIOSCIENCE FOR THE WORLD

Bio SB, Inc. Mission Statement

At Bio SB our passion is providing biomedical laboratories with the tools to improve the diagnosis, prognosis and therapy prediction that benefit patients worldwide.

Bio SB is proud to develop, manufacture and distribute unique products for Immunohistochemistry (IHC), Immunocytochemistry (ICC), Immunofluorescence (IF), Fluorescent in situ Hybridization (FISH) and Chromogenic in situ Hybridization (CISH) technologies that meet the highest international standards for applications in Molecular Pathology. With a network of over 60 distributors that represent Bio SB in the Americas, Europe, Africa, Asia, Australia and the Middle East, Bio SB can ensure that our products can reach clinicians, pathologists, researchers, and patients worldwide.

Bio SB has a talented, dedicated, and vibrant team of professionals that excel in the R&D, Production and Marketing of immunochemicals and nucleic acids for Cancer Diagnostics and Research, Microbiology, Immunology and Immunotherapy. Bio SB is a CE/IVDD and ISO 13485:2016 certified company that manufactures and develops products in accordance with USA FDA QSR 21 CFR Part 820 cGMP. These guidelines enable us to produce IVD products that meet the highest *in vitro* diagnostic standards.

Our mission is to develop and supply high-quality products, while providing outstanding technical service to our customers. We develop rabbit and mouse monoclonal antibodies and detection systems for Immunohistochemistry, Immunocytochemistry and Immunofluorescence using proprietary technologies. Our ImmunoDetector, PolyDetector, PolyDetector Plus and TintoFast Mohs PolyDetector systems are unique, high-sensitivity detection systems already in use in laboratories worldwide.

The robotic automated TintoStainer Plus system enables Bio SB to offer the most reliable, flexible, and open automated system for use in IHC, ICC and IF applications. The Bio SB TintoStainer Plus is an automated system for use in laboratories that need to implement a wide variety of protocols yet need to maintain low operating costs. The Bio SB TintoStainer Plus is a fast, flexible, open and affordable solution which allows for fast implementation of laboratory protocols.

Bio SB continues to innovate a new line of innovative, sensitive, specific, and cost effective IVD Mouse and Rabbit Monoclonal Antibodies to help laboratories worldwide improve patient care. This allows Bio SB to have one of the largest selections of Rabbit Monoclonal antibodies for use in Diagnostic IHC.

Our strategic alliance with ZytoVision of Germany has added a complete range of products for Chromogenic and Fluorescent in situ hybridization. These technologies are designed for the evaluation and detection of genetic aberrations such as translocations, deletions, amplifications, chromosomal aneuploidy and gene amplifications. We also offer outstanding fast detection and discrimination of human pathogenic viruses in formalin-fixed, paraffin-embedded tissue sections, cell samples, blood or bone marrow smears, and metaphase chromosome spreads.

As industry research, genetic sequencing, and explosive growth in genomics pushes molecular pathology forward, Bio SB will continue to offer a large portfolio of products at a competitive price to Laboratories, Clinicians, Researchers and patients worldwide.

Dr. Alfonso Heras
President & CEO

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Products for Molecular Pathology

Antibodies for IHC

YAP1- MMab
PD-L1 - RMab
ARID1A - MMab
p16 - RMab
HEG1 - MMab
FGFR-3- MMab
HER-2 neu - RMAb

Ancillaries for IHC

TintoDeparaffinator Citrate
Tween 20
ChromoProtector
FluoroMounter
TintoHematoxylin Automation

CISH & FISH

ZytoLight FISH
ZytoLight FlexISH
ZytoDot CISH
ZytoFast CISH
Ancillaries & Equipment

Detection Systems

ImmunoDetector HRP with DAB
PolyDetector HRP with AEC
PolyDetector Plus HRP with DAB
AmpliDetector Plus FITC
Mohs PolyDetector with DAB
Mohs PolyDetector Plus with DAB

Microarrays & Control Slides

11-Core NH-TMA
7-Core NH Lymphoid TMA
31-Core Multi Cancer CLMA
7-Core EGFR Cell Line
H.Pylori ID-Array (2-Core)

Equipment

TintoDetector
TintoDetector Mini
TintoStainer Plus
TintoRetriever Pressure Cooker

BIO SB manufactures and develops products in accordance with FDA QSR 21 CFR Part 820 cGMP and ISO 13485:2016. These guidelines enable us to produce an IVD product that meets the highest in vitro diagnostic standards.

United States
Phone: 1-800-561-1145

International
Phone: 1-805-692-2768

Global Distribution
www.biosb.com/distributors

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IVD For *in Vitro* Diagnostic Use

ASR Analyte Specific Reagent
Analytical and performance characteristics are not established.

RUO For Research Use Only

IVD For *in Vitro* Diagnostic Use

ASR Analyte Specific Reagent
Analytical and performance characteristics are not established.

RUO For Research Use Only


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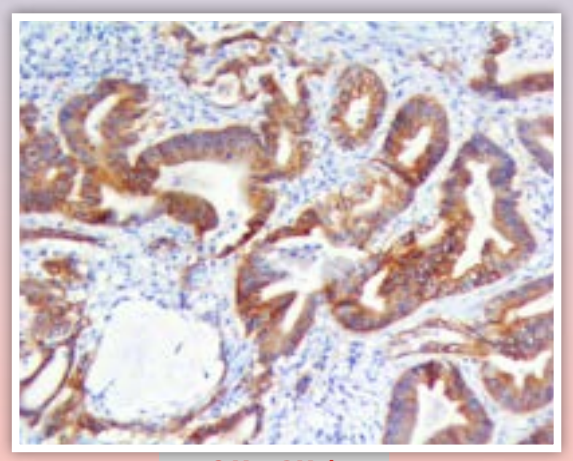
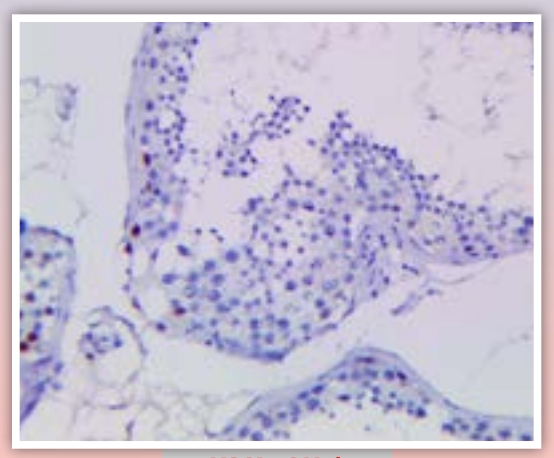
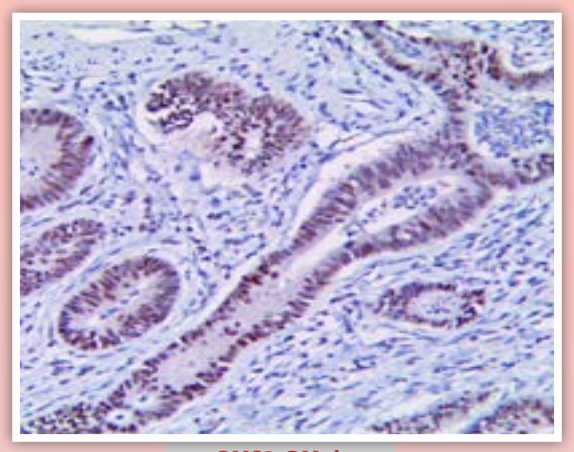
New Antibodies for Molecular Pathology



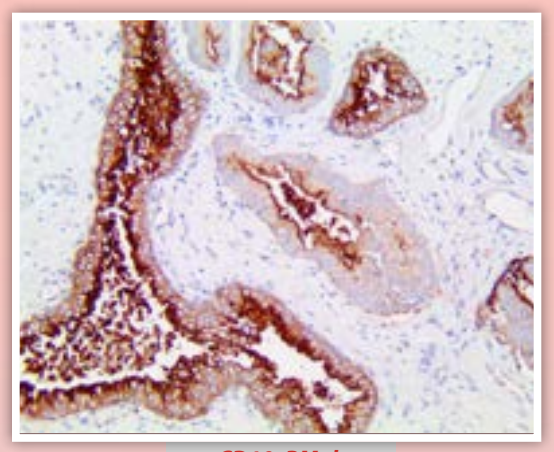
C-Met, RMab



MDM2, RMab



PMS2, RMab



CD10, RMab

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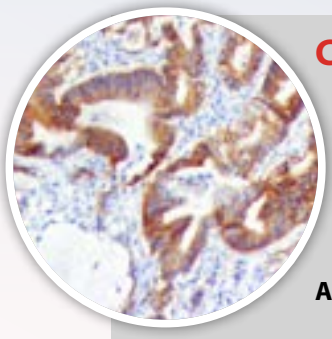
New Antibodies Optimized for Automated IHC

Bio SB is proud to announce our new line of antibodies for immunohistochemistry. As well as developing new biomarkers for immunohistochemistry applications, we have developed new clones for currently existing antibodies that are specifically designed for use in automated IHC systems. Along with increased sensitivity and overall clearer picture, our highly concentrated, high quality antibodies have a much higher dilution factor compared to our competitors, allowing you to run more tests per mL of concentrated antibody!

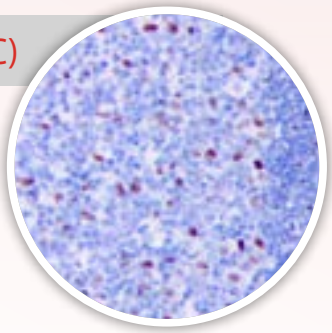


C-Met / HGFR, RMab (RBT-C-Met/HGFR)

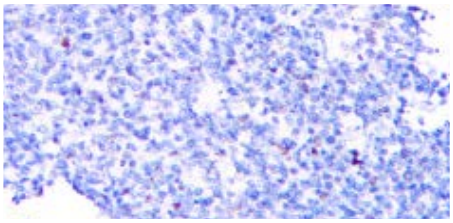
C-Met is deregulated in many types of human malignancies, including cancers of kidney, liver, stomach, breast, and brain. Normally, only stem cells and progenitor cells express MET, which allows these cells to grow invasively in order to generate new tissues in an embryo or regenerate damaged tissues in an adult. However, cancer stem cells are thought to hijack the ability to express MET, and thus become the cause of cancer persistence and spread to other sites in the body (metastasis).

Application: Kidney & Urothelial Cancer, Liver Cancer, Breast Cancer, Neural & Neuroendocrine Cancer, Colon & Gastrointestinal Cancer, Lung Cancer

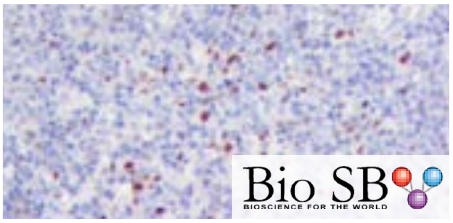
c-Myc, RMab (RBT-CMYC)



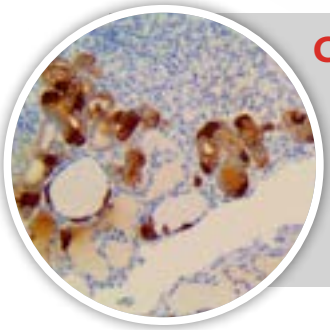
c-Myc (RBT-CMYC) Clone Comparison



c-Myc (EP121) on Tonsil Tissue



c-Myc (RBT-CMYC) on Tonsil Tissue



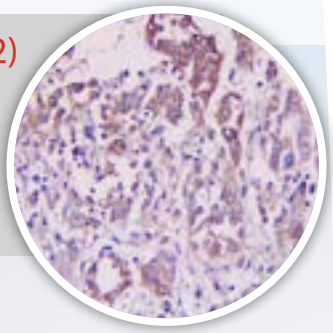
Calcitonin, RMab (RBT-Calcitonin)

Immunohistochemical staining with Calcitonin antibody has proven to be an effective way of demonstrating the existence of Calcitonin-producing cells in the thyroid. C-cell Hyperplasia and Medullary Thyroid Carcinomas stain positive for Calcitonin. Studies of Calcitonin have resulted in the identification of a wide spectrum of C-cell proliferative abnormalities.

Application: Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Head & Neck Cancer, Cytopathology

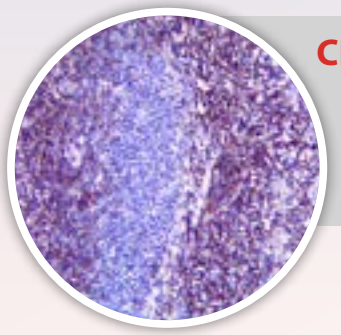
New Antibodies Optimized for Automated IHC

Calretinin, RMab (RBT-CALB2)



Calretinin antibody has been shown to be useful in differentiating Mesothelioma from Adenocarcinomas of the lung and other sources. It is also useful in differentiating adrenal-cortical neoplasms from Pheochromocytomas.

Application: Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Head & Neck Cancer, Cytopathology

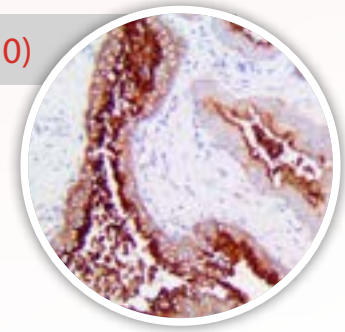


CD4, MMab (BSB-179)

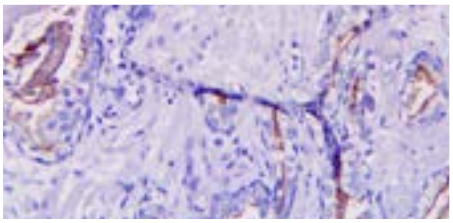
CD4 antigen is involved in the recognition of Type II Major Histocompatibility Complex antigens (MHC-II). CD4 is also the receptor for Human Immunodeficiency Virus (HIV). It is present on most T-helper cells and normal thymocytes.

Application: Melanoma & Skin Cancer, Lymphoma

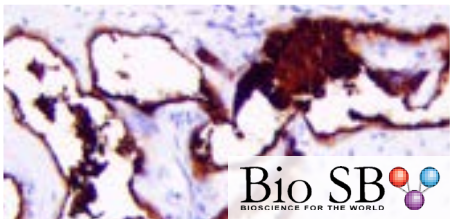
CD10, RMab (RBT-CD10)



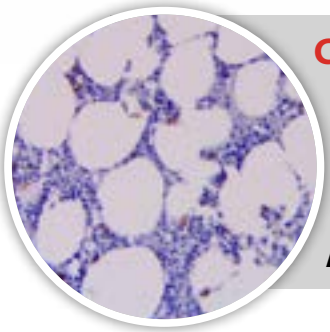
CD10 (RBT-CD10) Clone Comparison



CD10 (EP195) on Prostate Tissue



CD10 (RBT-CD10) on Prostate Tissue



CD138, RMab (RBT-CD138)

CD138/syndecan-1 is a useful marker for labeling normal and neoplastic plasma cells and Plasmacytoid Lymphomas. It is a selective marker for B-cell Lymphoblastic Leukemia and Lymphoplasmacytoid Leukemia. It is lost from the apoptotic myeloma cells, and thus, is a useful marker for viable Myeloma cells. Various forms of Hodgkin's Disease have also shown positive staining with this antibody.

Application: Hematopoietic, Lymphoma, Rejection & Autoimmunity

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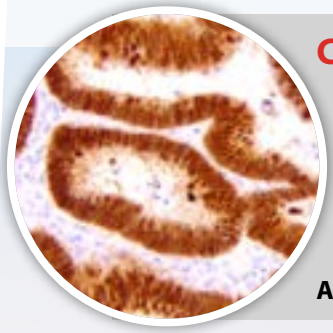
New Antibodies Optimized for Automated IHC



CDX2, RMab (RBT-CDX2)

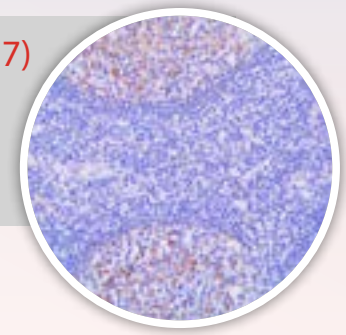
The CDX2 protein is expressed in Primary and Metastatic Colorectal Carcinomas and has also been demonstrated in the intestinal metaplasia of the stomach and intestinal-type gastric cancer. It is not expressed in the normal gastric mucosa. Anti-CDX2 antibody has been useful in distinguishing the gastrointestinal origin of Metastatic Adenocarcinomas and carcinoids. A high percentage of Mucinous Carcinomas of the Ovary also stain positively with this antibody, as well as Carcinomas from the upper gastrointestinal tract.

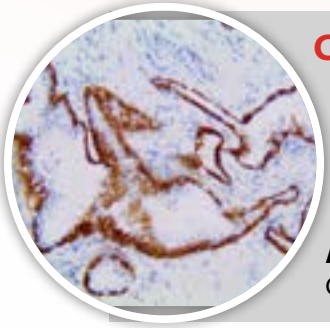
Application: Colon & GI Cancer

Clusterin / Apolipoprotein J, RMab (RM437)

Clusterin is expressed in a wide variety of hematopoietic and non-hematopoietic tumors. Overexpression of Clusterin is associated with poor prognosis in breast cancer and chemosensitivity in cervical cancer.

Application: Rejection & Autoimmunity





Cytokeratin 5 & 6 , RMab (RM431)

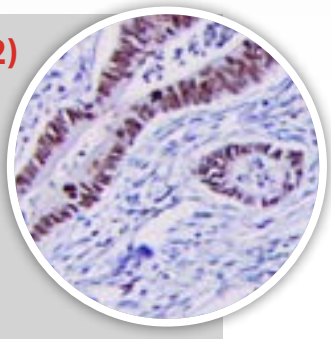
Cytokeratin 5 & 6 antibody is positively seen in nearly 100% of Malignant Mesotheliomas and are rarely seen in Lung Adenocarcinomas. CK 5 and 6 can positively be seen in undifferentiated Large-cell Carcinoma as well as Squamous Carcinoma. Fewer than 10% of Carcinomas of the breast, colon, and prostate stain positively for this marker. Cytokeratin 5 & 6 antibody has also been used successfully as a myoepithelial cell marker in the prostate to determine malignancy.

Application: Mesothelioma, Lung Cancer, Prostate Cancer, Breast Cancer, Melanoma & Skin Cancer

EZH2, RMab (RBT-EZH2)

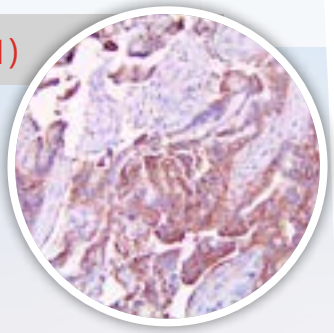
EZH2 may inhibit apoptosis in ectopic Breast Cancer, overexpression is correlated with poor clinical outcome in Prostate and Gastric Cancer. EZH2 overexpression is positively correlated with epithelial-mesenchymal transition, tumor size, lymphatic invasion and TNM stage, and poor disease-free survival and overall survival of patients. EZH2 regulates ADAR1 expression, and EZH2 and BET inhibitors show synergistic inhibition in pancreatic cancer. EZH2 expression is significantly higher in BAP1-mutant renal clear cell carcinoma patients with progressed stage, grade, nodal invasion, and metastasis.

Application: Breast Cancer, Gastric Cancer

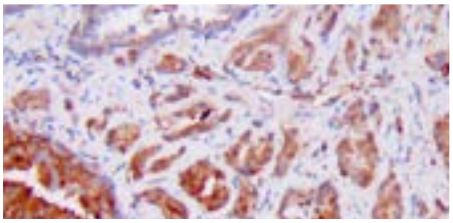


New Antibodies Optimized for Automated IHC

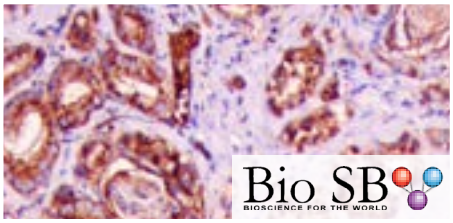
GLUT1, RMab (RBT-GLUT1)



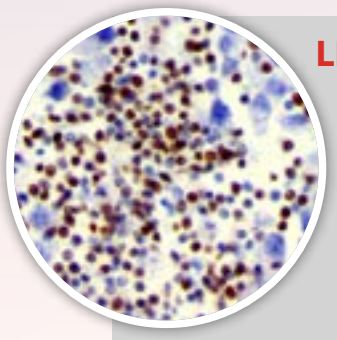
GLUT1 (RBT-GLUT1) Clone Comparison



GLUT1 (EP141) on Prostate Adenocarcinoma Tissue



GLUT1 (RBT-GLUT1) on Prostate Adenocarcinoma Tissue

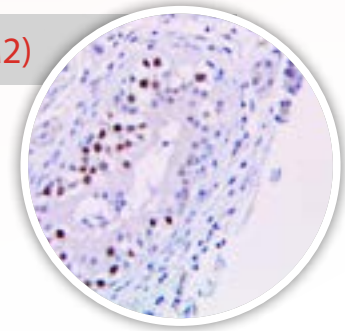


LEF1, RMab (RBT-LEF1)

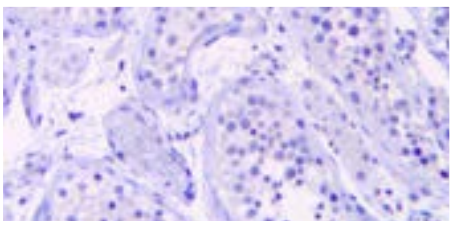
LEF1 is highly overexpressed and associated with disease progression and poor prognosis in B-cell chronic lymphocytic leukemia. Strong nuclear expression of LEF1 has been observed in the majority of chronic lymphocytic leukemia/small lymphocytic lymphoma cases and LEF1 is not detected in other small B cell lymphomas. Gene expression profiling revealed overexpression of LEF1 in chronic lymphocytic leukemia (CLL)/small lymphocytic lymphoma (SLL). LEF1 immunostaining has been detected in all neoplastic cells of CLL/SLL cases. LEF1 was identified in 50% of high grade follicular lymphoma and 38% of diffuse large B-cell lymphoma, but not in mantle cell lymphoma or marginal zone lymphoma.

Application: Leukemia & Histiocytic, Lymphoma, Colon & Gastrointestinal Cancer, Brain Cancer

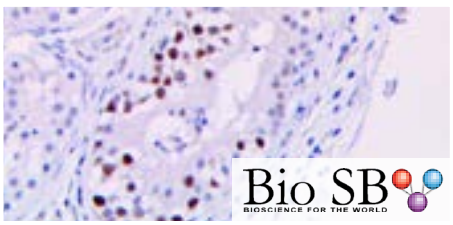
MDM2, RMab (RBT-MDM2)



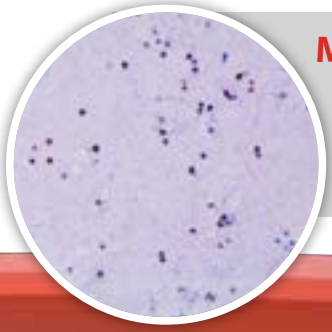
MDM2 (RBT-MDM2) Clone Comparison



MDM2 (BSB-64) on Testis Tissue



MDM2 (RBT-MDM2) on Testis Tissue



Myeloperoxidase / MPO, MMab (BSB-180)

Myeloperoxidase detects granulocytes and monocytes in blood and precursors of granulocytes in the bone marrow. This antibody can detect myeloid cell populations of the bone marrow as well as in other sites.

Application: Leukemia & Histiocytic

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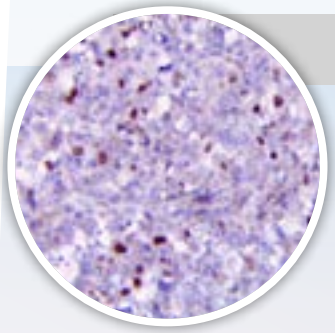
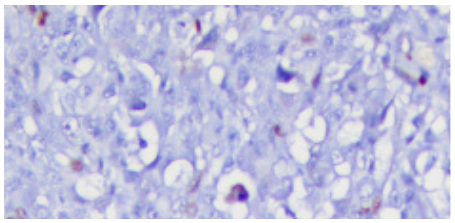
New Antibodies Optimized for Automated IHC

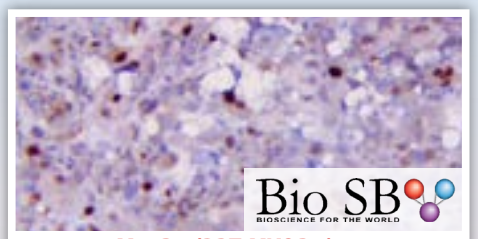


MyoD1, RMab (RBT-MYOD1)

MyoD1 (RBT-MYOD1) Clone Comparison

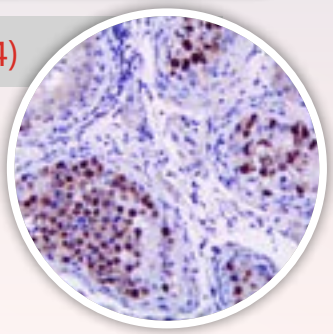


MyoD1 (EP212) on Rhabdomyosarcoma Tissue

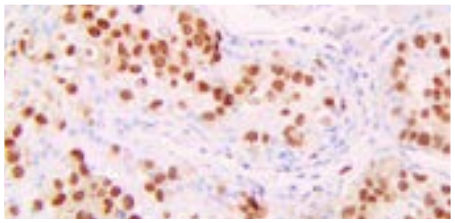


MyoD1 (RBT-MYOD1) on Rhabdomyosarcoma Tissue

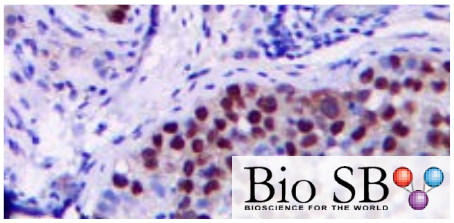
OCT4 / POU5F1, RMab (RBT-PCT4)



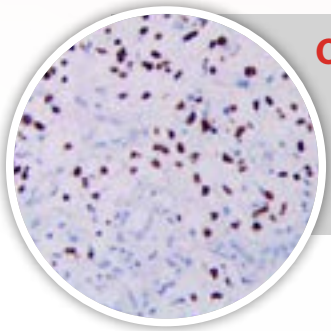
OCT4 (RBT-OCT4) Clone Comparison



OCT4 (EP141) on Testis Tissue



OCT4 (RBT-OCT4) on Testis Tissue

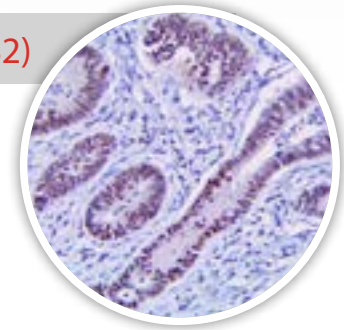


OLIG2, RMab (RBT-OLIG2)

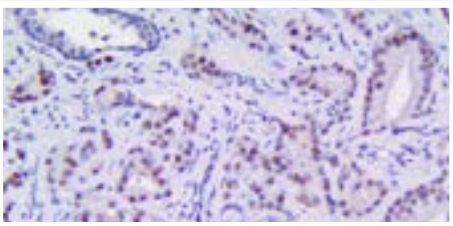
OLIG2 is universally expressed in glioblastoma and other diffuse gliomas (astrocytomas, oligodendrogliomas and oligoastrocytomas), and is a useful positive diagnostic marker of these brain tumors.

Application: Neural and Neuroendocrine Cancer

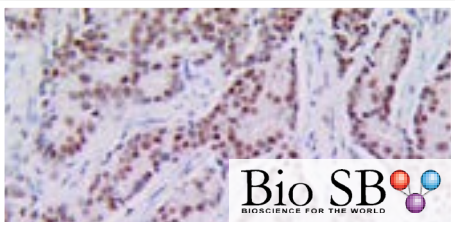
PMS2, RMab (RBT-PMS2)



PMS2 (RBT-PMS2) Clone Comparison



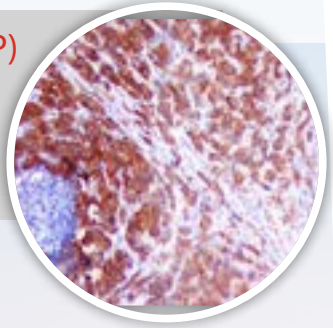
PMS2 (EP51) on Prostate Adenocarcinoma



PMS2 (RBT-PMS2) on Prostate Adenocarcinoma

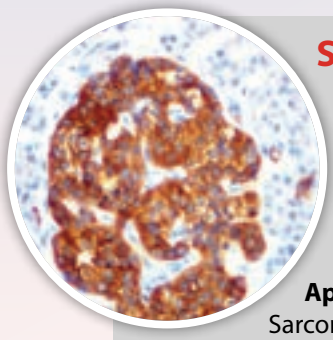
New Antibodies Optimized for Automated IHC

S100P, RMab (RBT-S100P)



S100P antibody is an early development marker of pancreatic carcinogenesis and can be used as a marker for pancreatic ductal adenocarcinoma. It may also serve as a predictor of distant metastasis and poor survival in non-small cell lung carcinomas.

Application: Pancreatic Cancer, Lung Cancer

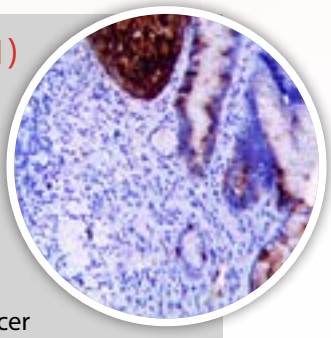


Synaptophysin, RMab (RBT-Synaptophysin)

Synaptophysin reacts with neuroendocrine cells of human adrenal medulla, carotid body, skin, pituitary, thyroid, lung, pancreas and gastrointestinal mucosa. Positive staining is seen in neurons of the brain, spinal cord, retina, and Paneth's cells in the gastrointestinal tract and gastric parietal cells. This antibody identifies normal neuroendocrine cells and neuroendocrine neoplasms. Synaptophysin is an independent broad-range marker of neural and neuroendocrine differentiation.

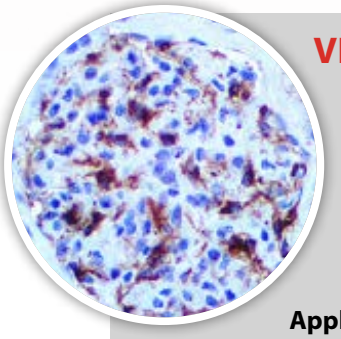
Application: Lung Cancer, Colon & Gastrointestinal Cancer, Gall Bladder & Pancreatic Cancer, Sarcoma & Soft Tissue, Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Undifferentiated Tumor, Carcinomas Of Unknown Primary Site

TFF3, MMab (BSB-181)



TFF3 has been identified as an indicator of Barrett's Esophagus, a premalignant condition indicating predisposition to esophageal adenocarcinoma. In cases of acid reflux, TFF3 and p53 can be used to help identify likely cases of dysplasia. Overexpression of TFF3 has been found to promote proliferation and invasion in Cervical Cancer cells, through the regulation of E-Cadherin. Expression of TFF3 has also been found to be decreased in Colorectal Cancer, and may be a prognostic indicator with less TFF3 expression indicating higher pathologic stages of the tumor.

Application: Colon & Gi Cancer, Cervical Cancer



VEGFA, RMab (RBT-VEGFA)

VEGFA has been implicated with poor prognosis in breast cancer. The overexpression of VEGFA may be an early step in the process of metastasis, a step involved in the "angiogenic" switch. Although VEGFA has been correlated with poor survival, its exact mechanism of action in the progression of tumors remains unclear. VEGFA is also released in rheumatoid arthritis in response to TNF-alpha, increasing endothelial permeability and swelling and also stimulating angiogenesis (formation of capillaries). Once released, VEGFA may elicit several responses. It may cause a cell to survive, move, or further differentiate.

Application: Angiosarcoma, Angioma

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New Antibodies Optimized for Automated IHC

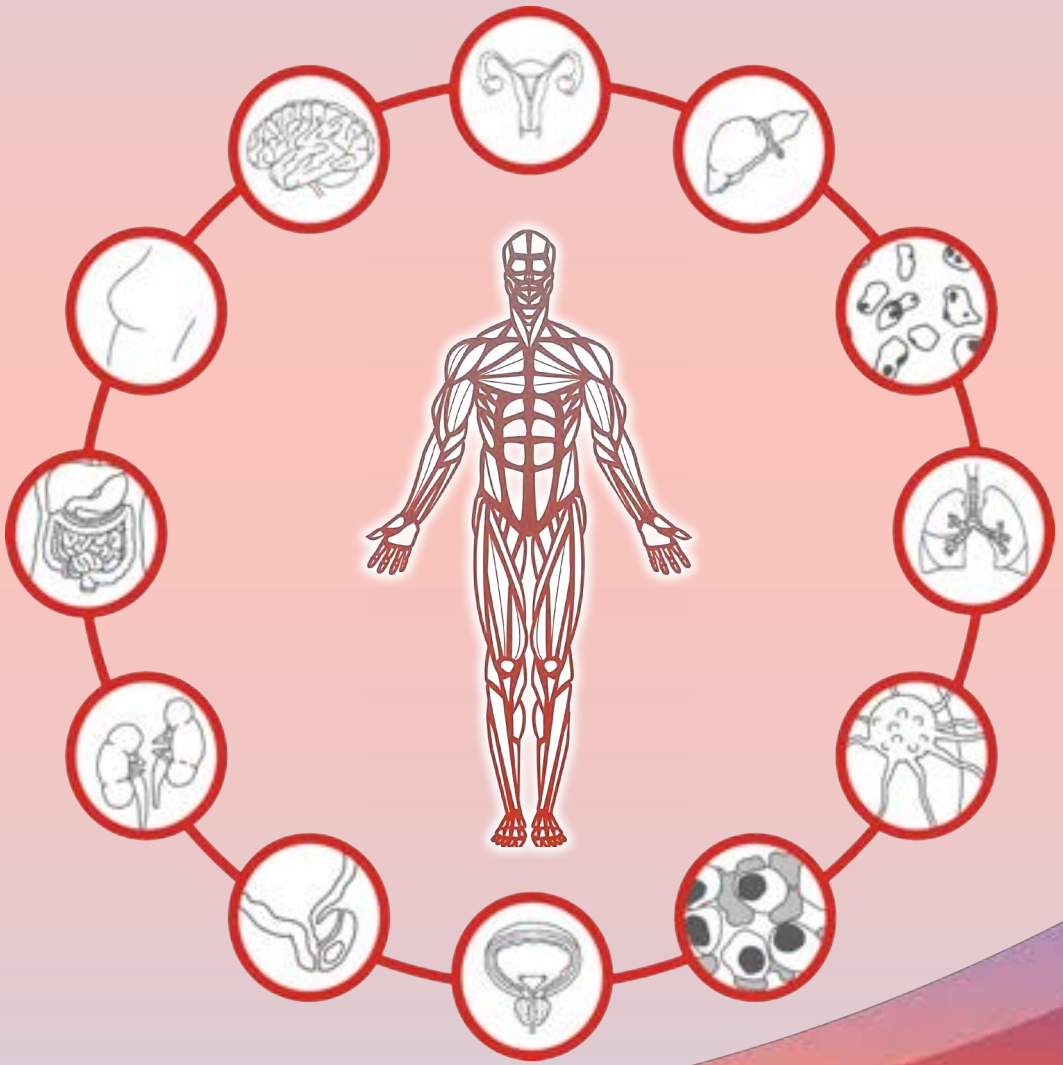
Antibody	Clone	Application
c-Met/HGFR	RBT-c-Met/HGFR	Kidney & Urothelial Cancer, Liver Cancer, Breast Cancer, Neural & Neuroendocrine Cancer, Colon & Gastrointestinal Cancer, Lung Cancer
c-Myc	RBT-CMYC	Leukemia & Histiocytic, Lymphoma, Prostate Cancer
Calcitonin	RBT-Calcitonin	Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Head & Neck Cancer, Cytopathology
Calretinin	RBT-CALB2	Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Head & Neck Cancer, Cytopathology
CD10	RBT-CD10	Hodgkin's & Non-Hodgkin Lymphoma, Lymphoma, Kidney & Urothelial Cancer, Liver Cancer, Gall Bladder & Pancreatic Cancer, Endometrial & Genital Cancer, Breast Cancer
CD138	RBT-CD138	Hematopoietic, Lymphoma, Rejection & Autoimmunity
CD4	BSB-179	Melanoma & Skin Cancer, Lymphoma
CDX2	RBT-CDX2	Colon & GI Cancer
Clusterin/Apolipoprotein J	RM437	Rejection & Autoimmunity
Cytokeratin 5 & 6	RM341	Mesothelioma, Lung Cancer, Prostate Cancer, Breast Cancer, Melanoma & Skin Cancer
EZH2	RBT-EZH2	Breast Cancer, Gastric Cancer
GLUT1	RBT-GLUT1	Colon & Gi Cancer, Breast Cancer, Mesothelioma
LEF1	RBT-LEF1	Leukemia & Histiocytic, Lymphoma, Colon & Gastrointestinal Cancer, Brain Cancer
MDM2	RBT-MDM2	Sarcoma, Testicular Cancer
Myeloperoxidase/MPO	BSB-180	Leukemia & Histiocytic
MyoD1	RBT-MYOD1	Rhabdomyosarcoma
OCT4/POU5F1	RBT-OCT4	Ovarian Cancer, Testicular Cancer, Germ Cell Tumor
OLIG2	RBT-OLIG2	Neural and Neuroendocrine Cancer
PMS2	RBT-PMS2	Colon & GI Cancer
S100P	RBT-S100P	Pancreatic Cancer, Lung Cancer
Synaptophysin	RBT-Synaptophysin	Lung Cancer, Colon & Gastrointestinal Cancer, Gall Bladder & Pancreatic Cancer, Sarcoma & Soft Tissue, Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer
TFF3	BSB-181	Colon & Gi Cancer, Cervical Cancer
VEGFA	RBT-VEGFA	Angiosarcoma, Angioma

Bio SB performs R&D, production, distribution and marketing of unique products for IHC, ICC, FISH, CISH and PCR technologies that meet the highest international standards for applications in Molecular Pathology, Cancer Diagnostics & Research, Microbiology, Immunology and Genetics.

BIO SB manufactures and develops products in accordance with FDA QSR 21 CFR Part 820 cGMP, CE/IVD and ISO 13485:2016 standards. These guidelines enable us to produce an IVD product that meets the highest in vitro diagnostic standards.

Antibodies by Application

All Bio SB Antibodies Organized by Application



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Alzheimer's Disease

APOE4, MMab	BSB-170
pTau Phospho/Thr 181, MMab	BSB-176

Breast Cancer Antibodies

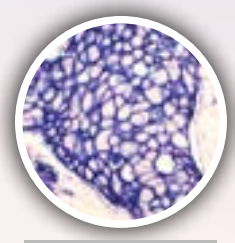
Actin, Smooth Muscle, MMab	BSB-15
Annexin VII, RMab	EP367
ARID1A, RMab	EP303
ATM, RMab	EP327
Aurora B, RMab	RM278
Bax, RMab	E63
Bcl-x, RMab	EP94
Beta-Catenin,MMab	14
CA 15-3, MMab	DF3
Cathepsin K, MMab	BSB-172
CA-125, RMab	EP48
Caldesmon, MMab	BSB-19
Calponin, MMab	BSB-20
CD142 / TF, MMab	BSB-143
CD146 / MUC18 / Mel-CAM, MMab	BSB-122
CDK2, RMab	RBT-CDK2
CITED1,MMab	BSB-177
Claudin-1, RPab	Polyclonal
Claudin-7, RMab	EP399
Collagen IV, RMab	RBT-COL4
CXCL12 / SDF-1, MMab	BSB-165
CXCR4 / CD184 / Fusin, RMab	EP394
Cyclin D3, MMab	BSB-171
Cytokeratin 14, MMab	LL002
Cytokeratin 35BH11, MMab	35betaH11
Cytokeratin 8, RMab	EP17
Cytokeratin LMW/AE1, MMab	AE1
E-Cadherin, RMab	EP6
EGFR Phospho, RMab	EP11
EMA, MMab	E29
Estrogen Receptor, MMab	BSB-1
Estrogen Receptor, RMab	RBT11
Estrogen Receptor, RMab	RM292
Estrogen Receptor Alpha, RMab	EP1
EZH, RMab	RBT-EZH2
FOXA1/HNF-3A, RPab	Polyclonal
GAB1 / GRB2-associated binding protein 1, MMab	BSB-155

Breast Cancer Antibodies

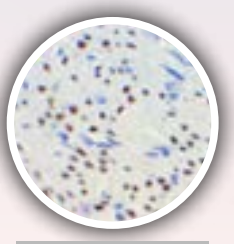
GATA3, MMab	L50-823
GATA3, RMab	EP368
GCDFP-15, MMab	23A3
HER-2 neu, RMab	EP3
HER-2 neu, MMab	BSB-3
HER-2 neu, RMab	RBT-HER2
HER-2 neu Phospho, RMab	EP123
HER-3, RMab	RBT-HER3
HLA-DR Alpha Chain, RMab	EP96
Ki-67, RMab	EP5
Ki-67, RMab	RM360
Laminin-R / RPSA, MMab	BSB-144
Mammaglobin, RMab	EP249
Maspin, MMab	BSB-92
MCM3, RMab	EP202
MDR-1, MMab	JSB-1
MDR-1, RMab	EP271
MGMT / AGAT, RMab	EP337
MUC1, RMab	EP85
Myosin Smooth Muscle Heavy Chain, MMab	BSB-17
Nestin, RMab	EP287
NGFR, MMab	BSB-18
NKX3.1, RMab	RM430
P120 Catenin, RMab	EP66
p27, MMab	SX53G8
p53, MMab	DO7
p63, RMab	EP174
p63, MMab	4A4
p120, RMab	EP66
PELP1, RMab	RBT-PELP1
PRAME, RMab	RBT-PRAME
Progesterone Receptor, RMab	EP2

Breast Cancer Antibodies

Progesterone Receptor, MMab	BSB2
Progesterone Receptor RBT22, RMab	RBT22
PTEN, RMab	RM265
PTEN, RMab	RBT-PTEN
TRPS1,RMab	EP392
TAG-72, MMab	BSB-21
TDP-43 / TARDBP, MMab	BSB-166
Topoisomerase II alpha, RMab	RBT-Topo 2a



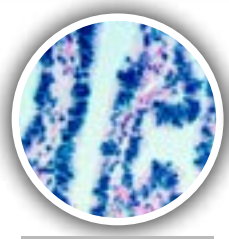
HER-2



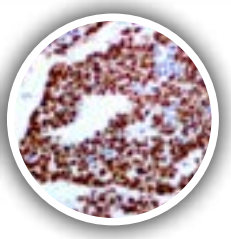
Progesterone Receptor

Carcinoma of Unknown Primary Site

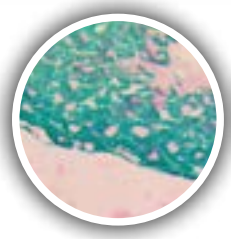
Cytokeratin 7, RMab	RM284
Cytokeratin 20, MMab	Ks20.8
Cytokeratin Cocktail, AE1 & AE3, MMab	AE1&AE3
Cytokeratin MNF116, MMab	MNF116
Cytokeratin Oscar, MMab	OSCAR
Napsin A, RMab	EP205
S100 Beta, RMab	EP32



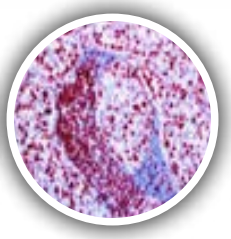
Estrogen Receptor



GATA-3



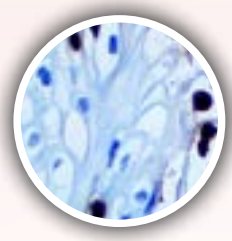
CK MNF116



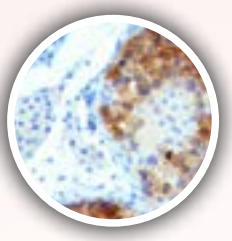
Ki-67

Cervical Cancer Antibodies

Cyclin B1, RMab	RBT-B1
Cyclin B1, RMab	RM281
Cyclin E1, RMab	EP126
Cytokeratin 17, MMAb	BSB-33
Cytokeratin 17, RMab	EP98
FGFR-3, MMab	BSB-150
FOXL2, RPab	Polyclonal
HIF-1a, RMab	EP118
HPV, MMab	BSB-66
HPV16, MMab	CAMVIR-1
HSP-27, MMab	G3.1
HSP70, RMab	RM432
MCM2, RMab	RBT-MCM2
MCM5, RMab	RBT-MCM5
p14 ARF/CDKN2A, RMab	RBT-p14
p16, MMab	16P04,JC2
p16, RMab	RBT-p16
p16, RMab	RM267
Stathmin, RMab	EP247
Topoisomerase IIa, RMab	RBT-Topo2a
VEGFA, RMab	RBT-VEGFA



HPV



p16

Endometrial Cancer

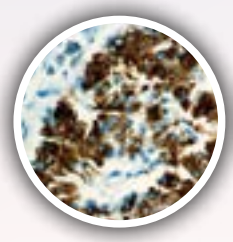
bcl-2, RMab	EP36
hPL, RPab	Polyclonal
Inhibin Alpha, MMab	R1
Inhibin Alpha, RMab	EP378
LIN28, RMab	EP150
p21, MMab	DCS-60.2
PELP1, RMab	RBT-PELP1
Retinoblastoma, MMab	1F8

Colon & G.I. Antibodies

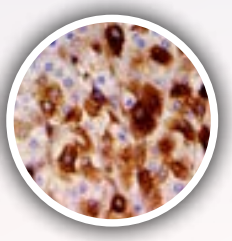
ATM, RMab	EP327
Beta-Catenin, RMab	RM276
BRAF V600E, RMab	RM8
CA 19-9, MMab	121SLE
Cadherin 17/ Li-Cadherin, RMab	EP86
CD44, MMab	BSB-12
CD45RA, MMab	4KB5
CD73 / NT5E, RMab	RM431
CDX2, RMab	RBT-CDX2
CDX2, RMab	EP25
CEA, MMab	BSB-13
CEACAM7, MMab	BSB-168
Claudin-1, RPab	Rabbit Policlonal
COX-2, RMab	RBT-COX2
COX-2, RMab	EP293
Cytokeratin 8 & 18, RMab	B22.1/B23.1
Cytokeratin 18, RMab	EP30
Cytokeratin 19, MMab	BSB-34
Cytokeratin 20, RMab	EP23
Cytokeratin LMW CAM5.2, MMab	CAM5.2
Gastrin, RPab	Polyclonal
GLUT1,RMab	RBT- GLUT1
ICOS / CD278, RMab	RM417
IgG4, MMab	BSB-96
Lamin-B1, RMab	RBT-LMNB1
MLH1, MMab	G168-728
MMP-9, RMab	EP127
MSH2, MMab	BSB-147
MSH2, RMab	RBT-MSH2
MSH6, MMab	44
MSH6, RMab	EP49
MUC1, MMab	BSB-44
MUC2, MMab	BSB-45
MUC2, RMab	EP187
MUC5AC, MMab	CLH2
MUC6, MMab	CLH5

Colon & G.I. Antibodies

NPM1/B23, MMab	BSB-124
p14 ARF/CDKN2A, RMab	RBT-p14
PMS2,RMab	RBT-PMS2
PMS2, RMab	EP51
SATB2, RMab	EP281
SOX-9, RMab	EP317
TIM-3 / HAVCR2 / CD366, MMab	BSB-163
TFF3, MMab	BSB-181
Villin, MMab	CWWB1
Villin, RMab	EP163



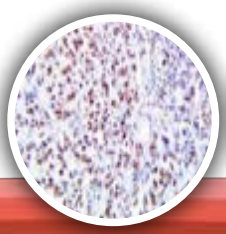
Insulin



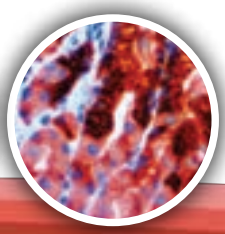
Osteonectin / SPARC

Gall Bladder & Pancreatic Cancer Antibodies

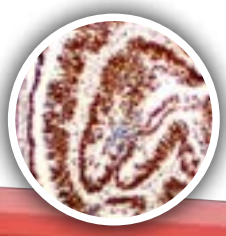
DDR1, MMab	BSB-173
Collagen IV, RMab	RBT-COL4
Collagen IV, MMab	CIV22
Glucagon, RMab	EP74
IgG4, RMab	EP138
IMP-3/1GF2BP3, RMab	EP286
Insulin, MMab	BSB-42
Insulin, RMab	EP125
Islet-1/ISL1, RMab	EP283
LRG1, MMab	BSB-174
MUC4, MMab	8G7
MUC4, RMab	EP256
Osteonectin/SPARC, MMab	BSB-93
PAX-6, RMab	EP341
PDX1, RMab	EP139
S100A8, RMab	EP90
S100P, RMab	RBT-S100P
S100P, RMab	EP186
SMAD4/DPC4, MMab	BSB-63
SMAD4/DPC4, RMab	RBT-SMAD4
Somatostatin, RMab	EP130



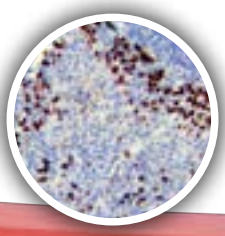
PELP1



MUC5AC



MSH2



PMS2

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Germ Cell Tumor Antibodies

Alpha-Fetoprotein, MMab	BSB-23
LIN28, RMab	EP150
MAGEC2, RMab	EP405
Nanog, RMab	EP225
p57, MMab	Kp10
PLAP, MMab	BSB-47
SALL4, RMab	EP299
SF-1 / Steroidogenic Factor 1, MMab	BSB-149
SOX-2, RMab	EP103

GIST Antibodies

CD117, RMab	EP10
CD117, RMab	RM359
DOG-1, RMab	RBT-DOG1
DOG-1, RMab	EP332

Hematopoetic Antibodies

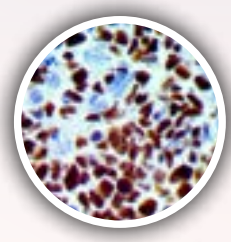
CD41/Integrin alpha IIB, RMab	EP178
Clusterin/Apoloprotein J, RMab	RM437
Clusterin/Apoloprotein J, RMab	EP181
Tryptase, MMab	G3
Tryptase, RMab	EP259

Immunotherapy Antibodies

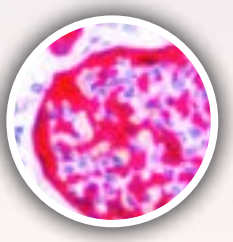
B7H3 / CD276, RMab	RBT-B7H3
CTLA-4 / CD152, MMab	BSB-88
CTLA-4 / CD152, RMab	RBT-CTLA4
FOXP3, RPab	Polyclonal
ICOS / CD178, RMab	RM417
IFN-a, MMab	BSB-158
IFN-y, MMab	BSB-161
LAG-3/CD223, RMAB	EP294
OX-40/CD134, MMab	BSB-90
PD-1/CD279, MMab	NAT-105
PD-1/CD279, RMab	EP239
PD-L1/CD274, RMab	RBT-PDL1
PD-L1/CD274, RMab	28-8
TIGIT, MMab	BSB-152
TIM-3 / HAVCR2 / CD366, MMab	BSB-163

Hodgkin's & NHB Lymphoma Antibodies

bcl-6, MMab	BSB-26
bcl-6, RMab	EP278
bcl-6, RMab	RBT-bcl6
BOB.1, RMab	RBT-BOB1
CD3, RMab	RBT-CD3
CD10, RMab	EP195
CD15, MMab	BSB-119
CD19, MMab	BSB-97
CD20, MMab	L26
CD23, MMab	1B12
CD23, RMab	EP75
CD30, MMab	Ber-H2
CD57, MMab	BSB-10



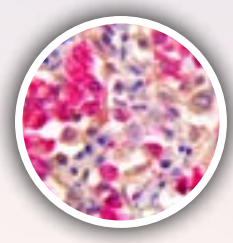
bcl-6



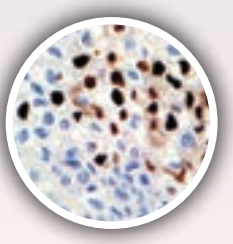
CD10

Hodgkin's & NHB Lymphoma Antibodies

CD137 / TNFRSF9, MMab	BSB-159
Fascin, MMab	BSB-36
FOXO1, RMab	EP290
FOXP3, RMab	EP340
Granzyme B, RPab	Polyclonal
MUM-1, RMab	EP190
OCT-2, RMab	EP115
PAX-5, RMab	RBT-PAX5
PD-L1/CD274, RMab	28-8
TIA-1, RMab	RBT-TIA1



SARS-CoV-2 & CD163 (Dual IHC)



HPV

Infectious Disease Antibodies

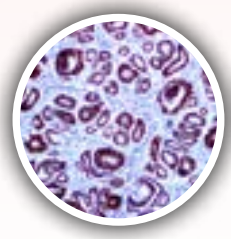
Aspergillus, RMab	RBT-A.fumi
ACE2, MMab	BSB-135
Adenovirus. MMab	20/11 & 2/6
CD147, MMab	BSB-137
Candida Albicans, RMab	RBT- C.alb
Cytomegalovirus, MMab	8B1.2, 1G5.2 & 2D4.2
Epstein Barr Virus, LMP-1, MMab	CS1-4
Factor H / Complement Factor H, MMab	BSB-164
Helicobacter pylori, MMab	BSB-37
Helicobacter pylori, RPab	Polyclonal
Helicobacter pylori, RMab	EP279
Hepatitis B Virus Core Antigen, RPab	Polyclonal
Hepatitis B Virus Surface Antigen, MMab	A10F1
Herpes Simplex Virus 1, RPab	Polyclonal
Herpes Simplex Virus 2, RPab	Polyclonal
Herpes Simplex Virus I, MMab	10A3
Herpes Simplex Virus I & II, MMab	10A3/BSB-116

Infectious Disease Antibodies

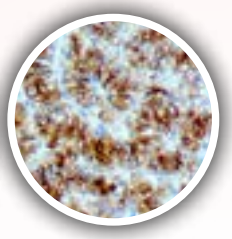
Herpes Simplex Virus I & II, RPab	Polyclonal
Herpes Simplex Virus II, MMab	BSB-116
HHV-8, MMab	13B10
HHV-8, RMab	RBT-HHV8
HPV, MMab	BSB-66
HPV16, MMab	CAMVIR-1
IFN-a, MMab	BSB-158
IFN-y, MMab	BSB-161
Mycobacterium Tuberculosis	Polyclonal
Parvovirus, MMab	R92F6
Pneumocystis Jirovecii, MMab	3F6
SARS-CoV-2, MMab	BSB-134
SV40, MMab	Pab101
TMPRSS2, MMab	BSB-136
Toxoplasma gondii, RPab	Polyclonal
Treponema Pallidum, RPab	Polyclonal
Varicella Zoster Virus, MMab	SG1, SG1-1, SG2-2E6, SG3, SG4, NCP-1 & IE-62

Kidney Cancer & Urothelial Antibodies

Amyloid A, RMab	EP335
Cadherin-6, RMab	EP217
Carbonic Anhydrase 9, RMab	EP161
CD147, MMab	BSB-137
c-Met/HGFR, RMab	RBT-c-Met/HGFR
FGFR-3, MMab	BSB-150
Ksp-Cadherin,MMab	4H6/F9
Parvalbumin, RMab	EP300
PAX-2, RMab	EP235
PAX-8, RMab	ZR-1
PLA2R1, MMab	BSB-129
Renal Cell Carcinoma, MMab	PN-15
S100A1, RMab	EP184
S100A6, RMab	EP313
SDHB, MMab	BSB-131
Smoothelin, MMab	R4A
STAR, RMab	EP226
Survivin, RMab	EP119
TFE3, RMab	EP285
Thrombomodulin, RMab	EP175
Uroplakin III, RPab	Polyclonal
Uroplakin III, RMab	EP321
WT1, MMab	6F-H2



PAX-2



Renal Cell Carcinoma

Liver Cancer Antibodies

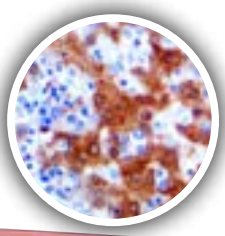
Alpha-Fetoprotein, RMab	EP209
Arginase-1, RMab	EP261
CEA, RPab	Polyclonal
Glutamine Synthase, MMab	GS-6
Glypican-3, MMab	1G12
HEG1, MMab	SKM9-2
Hepatocyte Specific Antigen / Hep Par 1, MMab	OCH1E5
Prealbumin / Transthyretin, MMab	BSB-125

Leukemia/Histocytic Antibodies

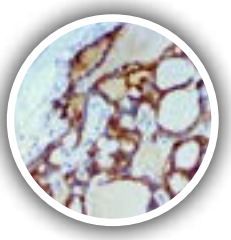
A-1-Antichymotrypsin, RMab	EP384
Alpha1-Antichymotrypsin, RPab	Polyclonal
Alpha-1-Antitrypsin, RPab	Polyclonal
Annexin A1, MMab	BSB-95
c-Myc, RMab	RBT-CMYC
c-Myc, MMab	9E10
c-Myc, RMab	EP121
Caspase-3, RMab	RM250
CD1a, RMab	EP80
CD5, RMab	RM314
CD7, MMab	LP15
CD8, RMab	EP334
CD11b, RMab	EP45
CD11c, RMab	EP157
CD13, MMab	38C12
CD14, MMab	7
CD16, RMab	EP364
CD25, MMab	4C9
CD33, RMab	RBT-CD33
CD34, MMab	QBEnd/10
CD34, RMab	EP88
CD38, MMab	SPC32
CD42b, RMab	EP409
CD61, MMab	2f2
CD61, RMab	EP65
CD68, MMab	BSB-8
CD68, MMab	KP1
CD71, MMab	10F11
CD99, MMab	BSB-9
CD103/ITGAE, RMab	EP206
CD163, MMab	10D6
Factor XIIIa, RMab	EP292
Glycophorin A, MMab	GA-R2
Hemaglobin A, RMab	EP124
IDH R132H, RMab	RBT-IDH1

Leukemia/Histocytic Antibodies

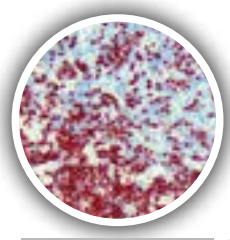
IgA, MMab	BSB-39
IgG, MMab	BSB-40
IgM, MMab	BSB-41
Langerin, MMab	12D6
Langerin/CD207, RMab	EP349
LEF1,RMab	RBT-LEF1
LEF-1, RMab	EP310
Lysozyme, MMab	Polyclonal
Lysozyme, RMab	EP134
Macrophage/HAM-56, MMab	HAM-56
MNDA, MMab	BSB-157
Musashi 2, RMab	RM422
Myeloperoxidase, RPab	Polyclonal
Myeloperoxidase, RMab	EP151
Myeloperoxidase MPO,MMab	BSB-180
NPM1/B23, MMab	BSB-124
NPM1 / B23, MMab	BSB-124
PDGFR-B, RMab	RBT-PDGFRB
PU.1, RMab	EP18
Spectrin, MMab	RBC2/3D5
T-Bet/TBX-21, RMab	EP263
TCL-1, RMab	EP105
TCR Alpha, MMab	BSB-126
TCR Beta, MMab	BSB-117
TCR Delta, MMab	BSB-127
TdT, MMab	Polyclonal
TdT, RMab	RBT-TdT
TdT, RMab	EP266
TIA-1, MMab	TIA-1
TIM-3 / HAVCR2 / CD366, MMab	BSB-163
TRAcP, MMab	9C5
Zap-70, MMab	2F3.2



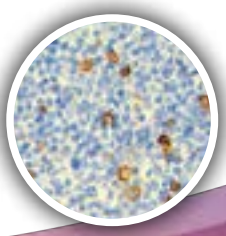
Arginase-1



Glypican-3



LEF-1



TCR Delta

Bio SB
BIOSCIENCE FOR THE WORLD

Lung Cancer Antibodies

ALK, RMab	EP302
BAP1, MMab	BSB-109
BG8 Lewis Y, MMab	F3
BRG-1 / SMARCA4, MMab	BSB-154
c-Met / HGFR, RMab	EP1454Y
Calretinin, RMab	RBT-CALB2
CD142 / TF / Coagulation Factor III . Thromboplastin, MMab	BSB-143
CD73 / NT5E, RMab	RM431
CXCL12 / SDF-1, MMab	BSB-165
CXCR5 / CD185, RPab	Polyclonal
Cytokeratin 6, RMab	EP67
Cytokeratin 7, MMab	OV-TL 12/30

Lymphoma Antibodies

ALK-1, RMab	RBT-ALK1
bcl-2, MMab	BSB-5
bcl-6, RMab	RBT-bcl6
bcl-10, MMab	BSB-22
c-Myc, RMab	EP121
CD2, MMab	AB75
CD3 Epsilon, RMab	RBT-CD3e
CD4, RMab	RBT-CD4
CD5, RMab	RBT-CD5
CD5, RMab	RM324
CD6, MMab	BSB-54
CD7, RMab	EP132
CD8, MMab	C8/144B
CD10, MMab	56C6
CD14, RMab	EP128
CD21, RMab	EP64
CD25, RMab	RBT-CD25
CD35, MMab	BSB-132
CD38, RMab	EP135
CD43, MMab	MT1
CD45R, MMab	MB1
CD45RO, MMab	UCHL-1
CD74, MMab	N2
CD75, MMab	LN1
CD79a, MMab	JCB117
CD123 / IL-3Ra, MMab	BSB-59
CD137 / TNFSFR9, MMab	BSB-159

Lung Cancer Antibodies

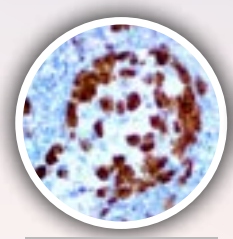
Cytokeratin LMW/ AE1, MMab	AE1
Desmoglein-3, RMab	EP306
EGFR, MMab	31G7
ERCC1, RMab	EP219
GLUT-1, RMab	EP141
INSM1, MMab	BSB-123
INSM1, RMab	RBT-INSM1
Lamin-B1, RMab	RBT-LMNB1
Musashi 2, RMab	RM422
Napsin A, MMab	BSB-112
pan-TRK, RMab	RM423
pan-TRK, RMab	RBT-TRK
PGP 9.5, MMab	BSB-46
Pygopus 2 / Pygo 2, MMab	BSB-156

Lymphoma Antibodies

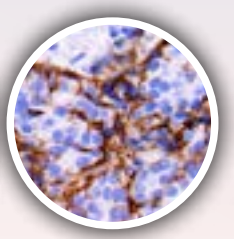
CD138, MMab	B-A38
CD138, RMab	EP201
CXCR5 / CD185, RPab	Polyclonal
Cyclin D1, RMab	RBT-14
Cyclin D1, RMab	RM241
FOXP1, RMab	EP137
Granzyme B, RMab	EP230
hGAL / GCET, RMab	EP316
Histone H3 Phospho, RPab	Polyclonal
Histone H3 Phospho, RMab	EP233
IgD, MMab	Polyclonal
IgD, RMab	EP173
Kappa Light Chains,MMab	BSB-58
Lambda, MMab	BSB-16
LMO2, RMab	RBT-LMO2
MNDA, MMab	BSB-157
NPM1 / B23, MMab	BSB-124
PD-1 / CD279, MMab	NAT-105
PD-1/ CD279, RMab	EP239
PD-L1 / CD271, RMab	28-8
PU.1, RMab	EP18
SOX-11, MMab	CL0142
SOX-11, MMab	BSB-167
TCR Alpha, MMab	BSB-126
TCR Delta, MMab	BSB-127
Tri-Methyl-Histone H3(Lys27)/H3K27Me3,RMab	RBT-H3K27Me3

Lung Cancer Antibodies

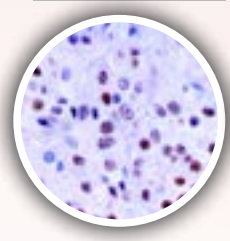
ROS-1, RMab	EP282
S100A9, RMab	EP185
Somatostaton Receptor 2, RMab	EP149
SOX-2, RMab	EP103
SOX-2, RMab	RM427
Surfactant Protein D / SP-D, MMab	BSB-162
Synaptophysin,RMab	RBT-Synaptophysin
Thymidylate Synthase / TS, MMab	BSB-160
TTF-1, MMab	8G7G3/1
YAP1, MMab	BSB-146



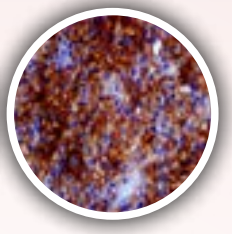
ALK



Desmoglein



FOXO1



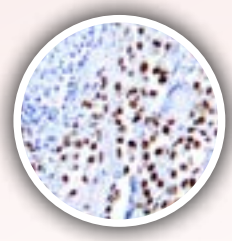
PD-L1

Melanoma & Skin Cancer Antibodies

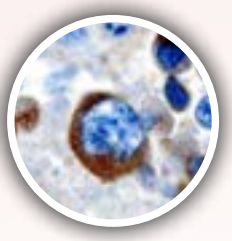
Adipophilin/ADRP, MMab	BSB-91
CD4, MMab	BSB-179
CD63, MMab	NKi/C3
Cytokeratin 5 & 6, RMab	EP24 & EP67
Cytokeratin 10, RMab	EP97
Cytokeratin 14, RMab	RM328
Cytokeratin MNF116, MMab	MNF116
HSP70, RMab	RM432
MART-1 / Melan-A, M2-7C10, MMab	M2-7C10
MART-1 / Melan-A, A103, MMab	A103
Melanoma / KBA.62, MMab	KBA6.2
Melanoma / PNL2, MMab	PNL2
Melanoma Cocktail, MMab	HMB-45, A103 & BSB-6
Melanosome, MMab	HMB-45

Melanoma & Skin Cancer Antibodies

MiTF, MMab	C5/D5
MLH1, MMab	G168-728
MTAP, RMab	RBT-MTAP
NRAS (Q61R), RMab	RBT-NRAS
PRAME, RMab	RBT-PRAME
S-100, MMab	4C4.9
S100B, RMab	EP32
SOX-10, RMab	EP268
SOX-10, MMab	BSB-62
TDP-43 / TARDBP, MMab	BSB-166
TIGIT, MMab	BSB-152
TORC3/CRTC3, MMab	BSB-175
Tyrosinase, MMab	BSB-6



PRAME



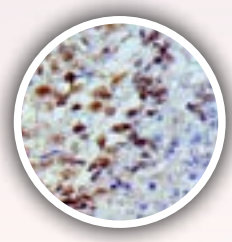
Melanosome

Neural & Neuroendocrine Cancer Antibodies

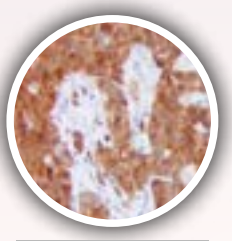
Alpha Synuclein, MMab	BSB-114
Amyloid Beta, RMab	RBT-A4
ATRX, MMab	BSB-108
ATRX, RMab	RBT-ATRX
Brachyury, RMab	RBT-TBXT
Calcitonin, RMab	RBT-Calcitonin
Calcitonin, RMab	EP92
CD56, MMab	123C3.D5
Chromogranin A,MMab	LK2H10
CXCR4 / CD184 / Fusin, RMab	EP394
GFAP, MMab	G-A-5
GFAP, RMab	RM246
GH, RMab	EP267
Glucagon, MMab	BSB-111
IDH1 R132H, MMab	IHC132

Mesothelioma Antibodies

BAP1, MMab	BSB-109
Calretinin, RMab	EP1798
Calretinin, RMab	RM324
Caveolin 1, RMab	EP353
Claudin-4, RMab	EP417
Cytokeratin 5, RMab	EP24
Cytokeratin 5 & 6, RMab	RM341
Cytokeratin 5 & 6, MMab	D5/16B4
EpCAM / Epithelial Specific Antigen, MMab	Ber-EP4
EpCAM / Epithelial Specific Antigen, MMab	MOC-31
HEG1, RMab	SKM9-2
Mesothelial Cell, MMab	HBME-1
Mesothelin, RMab	EP140
MTAP, RMab	RBT-MTAP



BAP1



MTAP

Neural & Neuroendocrine Cancer Antibodies

IDH1 R132H, RMab	RBT-IDH1
INI-1, RMab	RBT-INI1
INSM1, MMab	BSB-123
INSM1, RMab	RBT-INSM1
MGMT / AGAT, RMab	EP337
Myelin Basic Protein, RPab	Polyclonal
Myelin Basic Protein, RMab	EP207
NeuN, MMab	A60
NeuN, RMab	RBT-NeuN
Neurofilament, MMab	2F11
Neurofilament, RMab	EP79
NSE, MMab	BSB-94
OLIG2,RMab	RBT-OLIG2
OLIG2, RMab	EP112
pan-TRK, RMab	RM423
panTRK, RMab	RBT-TRK
PAX-7, RMab	BSB-145
PHOX2B, RMab	EP312
Prealbumin/ Transthyretin, MMab	BSB-125

Ovarian Cancer Antibodies

ARID1A, RMab	EP303
CA-125, MMab	OC125
hCG, MMab	BSB-38
HE4, RMab	EP370
hPL, RMab	EP241
LIN28, RMab	EP150
Nanog, RMab	EP225
OCT4/POU5F1, RMab	RBT-OCT4
SF-1 / Steroidogenic Factor 1, MMab	BSB-149
STAR, RMab	EP226
Surfactant Protein D / SP-D, MMab	BSB-162

Pituitary Antibodies

ACTH, MMab	BSB-25
FSH, RMab	EP257
FSH, MMab	BSB-55
GH, MMab	BSB-99
GH, RPab	Polyclonal
HMGA2, RMab	EP398
Luteinizing Hormone, MMab	BSB-53
Prolactin, MMab	PRL02
SDHB, MMab	BSB-131
STAR, RMab	EP226
TSH, MMab	BSB-56

Neural & Neuroendocrine Cancer Antibodies

Prolactin, RMab	EP193
Pygopus 2 / Pygo 2, MMab	BSB-156
SDHB, MMab	BSB-131
Somatostatin, MMab	BSB-113
Somatostatin Receptor 2, RMab	EP149
SOX-2, RMab	RM427
Synaptophysin, RPab	Polyclonal
Synaptophysin, RMab	EP158
Tau, MMab	BSB-115
TSH, RMab	EP254
ZFAND3, MMab	BSB-169

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Prostate Cancer Antibodies

ALDH1A1, RMab	EP168
AMACR / P504S, RMab	13H4
Androgen Receptor,MMab	BSB-4
Annexin VII, RMab	EP367
Aurora B, RMab	RM278
Caspase-3, RMab	RM250
Cytokeratin 5, 6 & ERG, RMab	EP24/EP67/EP111
Cytokeratin HMW / 34BE12, MMab	34BE12
FOXA1 / HNF-3A, RMab	EP277
NKX3.1, RMab	EP356
NKX3.1, RMab	RM430
p40, RMab	ZR8
p63, RMab	EP174
Prostein / P501S, RMab	EP381
PSA, MMab	BSB-7
PSA, RMab	RBT-PSA
PSAP, MMab	PASE/4LJ
PSAP, RMab	EP53
PSMA, RMab	EP192
PSP94 / MSMB, RMab	EP203

Sarcoma & Soft Tissue Antibodies

Actin, Muscle Specific, MMab	HHF35
BCOR, MMab	BSB-128
CD13, RMab	EP117
CD35, RMab	EP197
CD99, MMab	BSB-9
CDK4, RMab	EP180
Desmin, MMab	D33
Desmin, RMab	EP15
Fumarate Hydratase, MMab	BSB-151
HHV-8, MMab	13B10
HHV-8, RMab	RBT-HHV8
INI-1, MMab	25
INI-1, RMab	RBT-INI1
MDM2,RMab	RBT-MDM2
MDM2, MMab	BSB-64
MyoD1, RMab	RBT-MyoD1
MyoD1, RMab	EP212
Myogenin, MMab	F5D
Myoglobin, MMab	BSB-104
Myoglobin, RMab	EP87
NKX2.2, RMab	EP336
NUT / NUTM1, RMab	RBT-NUTM1
PAX-7, MMab	BSB-145
SS18-SSX, RMab	RBT-SS18-SSX
STAT6, RMab	EP325
TLE1, RMab	RBT-TLE1
TLE-1, MMab	1F5
TLE-1, MMab	BSB-142
Vimentin, RMab	EP21

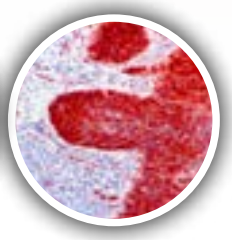
Thyroid & Parathyroid Antibodies

Calcitonin, RPab	Polyclonal
Cytokeratin 19, RMab	RM364
Galectin-3, MMab	9C4
HMGA2, RMab	EP398
panTRK, RMab	RBT-TRK
Parafibromin, MMab	BSB-50
Parathyroid (PTH), MMab	BSB-24
Thyroglobulin, MMab	BSB-49
Thyroglobulin, RMab	EP250
Thyroid Peroxidase, RMab	EP159
Trop-2 / EGP-1, MMab	BSB-148

Undifferentiated Tumor Antibodies

CD45, MMab	2B11 & PD7/26
Cytokeratin AE1/AE3, MMab	AE1 & AE3
PLAP, RMab	EP194
S-100, MMab	4C4.9
SOX-10, MMab	EP298
SOX, RMab	BSB-62
Synaptophysin, RPab	Polyclonal
Vimentin, MMab	V9

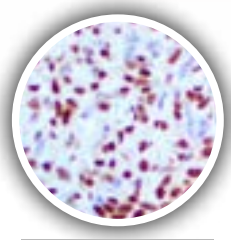
PSA, RMab



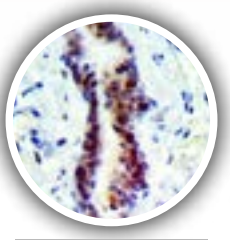
CDK4, RMab

Rejection & Autoimmunity Antibodies

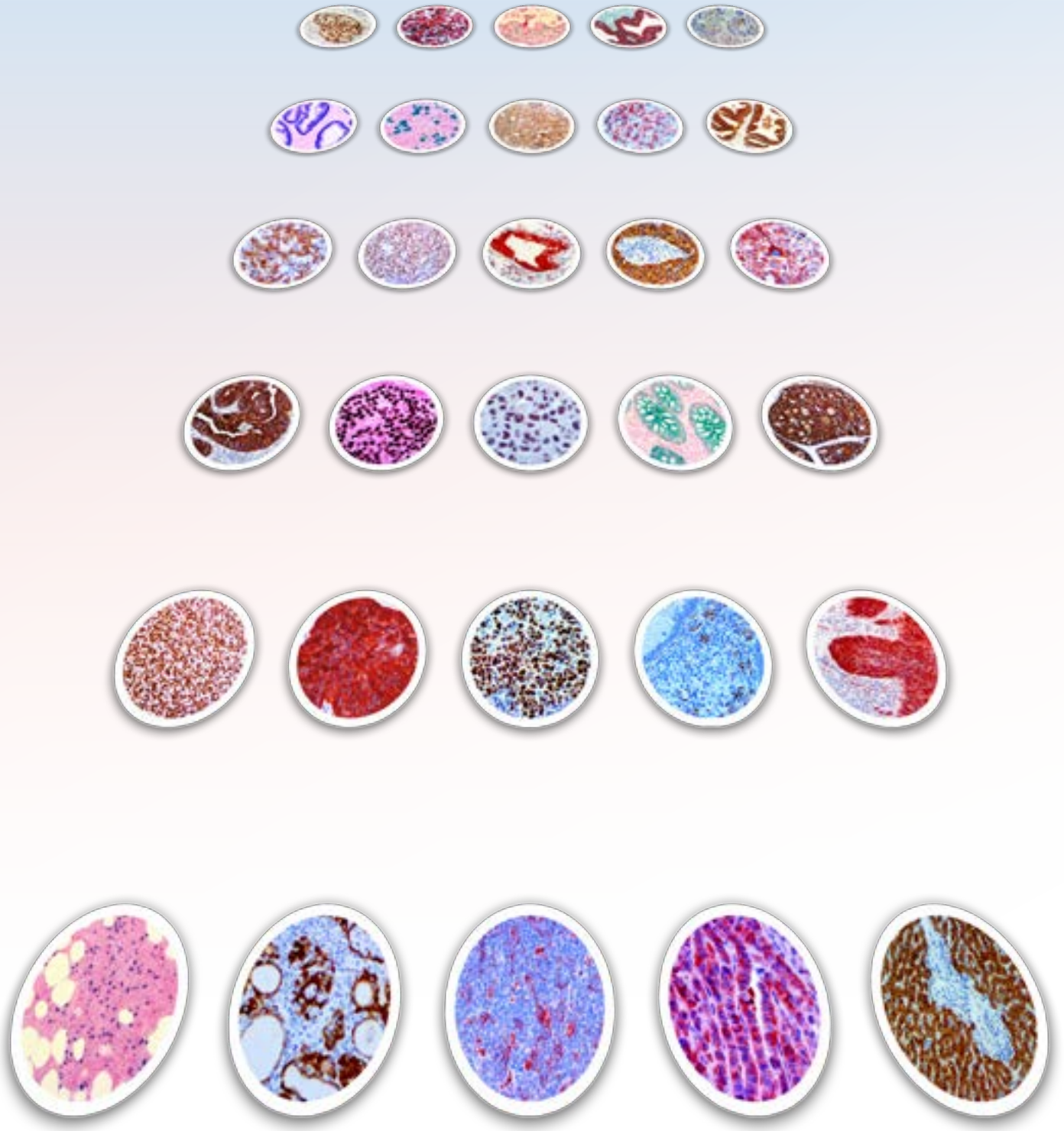
C3d, RPab	Polyclonal
C4d, RMab	EP272
IL-1a, MMab	BSB-138
IL-1b, MMab	BSB-139
IL-6, MMab	BSB-140
iNOS, RMab	RBT-iNOS
Perforin,MMab	5B10
PLA2R1,MMab	BSB-129
TNFa-IP2, MMab	BSB-141



STAT6



MDM2



Antibodies for Immunohistochemistry

Over 650 IVD Antibodies for Immunohistochemistry
Higher Affinity | Higher Sensitivity | Higher Specificity

298 Rabbit Monoclonal Antibodies
270 Mouse Monoclonal Antibodies
63 Rabbit Polyclonal Antibodies

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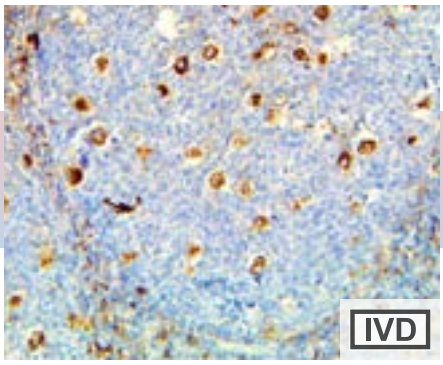
Alpha-1-Antichymotrypsin, RMab



IHC of Alpha-1-Antichymotrypsin on a FFPE Tonsil Tissue

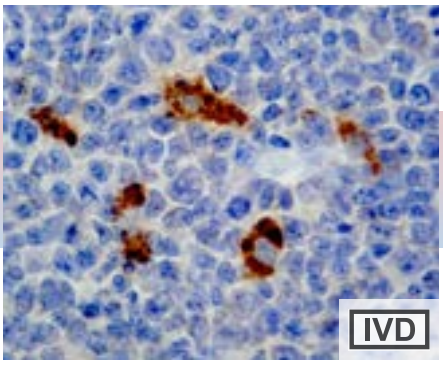
Alpha-1-Antichymotrypsin Glycoprotein found in alpha (1)-globulin fraction in human serum. It inhibits chymotrypsin-like proteinases in vivo and has cytotoxic killer-cell activity in vitro. The protein also has a role as an acute-phase protein and is active in the control of immunologic and inflammatory processes, and as a tumor marker. It is a member of the serpin superfamily.

Alpha-1-Antichymotrypsin antibody reacts with histiocytes and histiocytic neoplasms. Its major application is defining the presence of Alpha-1-Antichymotrypsin in histiocytes and tumors derived from them. In eosinophilic granuloma and malignant histiocytosis, the reaction for this marker is heterogeneous in intensity and distribution. In fibrous histiocytomas, under certain circumstances, a diffuse homogeneous reaction may be observed.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP384*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Thymus, Breast*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3497	Tinto Predilute	3.0 ml
BSB 3498	Tinto Predilute	7.0 ml
BSB 3499	Tinto Predilute	15.0 ml
BSB 3500	Concentrate	0.1 ml
BSB 3501	Concentrate	0.5 ml
BSB 3502	Concentrate	1.0 ml
BSB 3503	Control Slides	5

Alpha-1-Antichymotrypsin, RPab



IHC of A-1-Antichymotrypsin on a FFPE Tonsil Tissue

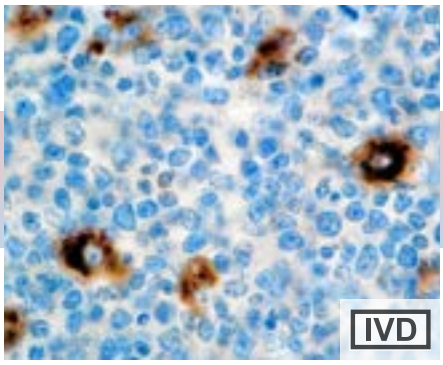
Alpha-1-Antichymotrypsin Glycoprotein found in alpha (1)-globulin fraction in human serum. It inhibits chymotrypsin-like proteinases in vivo and has cytotoxic killer-cell activity in vitro. The protein also has a role as an acute-phase protein and is active in the control of immunologic and inflammatory processes, and as a tumor marker. It is a member of the serpin superfamily.

Alpha-1-Antichymotrypsin antibody reacts with histiocytes and histiocytic neoplasms. Its major application is defining the presence of Alpha-1-Antichymotrypsin in histiocytes and tumors derived from them. In eosinophilic granuloma and malignant histiocytosis, the reaction for this marker is heterogeneous in intensity and distribution. In fibrous histiocytomas, under certain circumstances, a diffuse homogeneous reaction may be observed.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Thymus, Spleen, Liver, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5001	Tinto Predilute	3.0 ml
BSB 5002	Tinto Predilute	7.0 ml
BSB 5003	Tinto Predilute	15.0 ml
BSB 5004	Concentrate	0.1 ml
BSB 5005	Concentrate	0.5 ml
BSB 5006	Concentrate	1.0 ml
BSB 5007	Control Slides	5

Alpha-1-Antitrypsin, RPab



IHC of A-1-Antitrypsin on a FFPE Tonsil Tissue

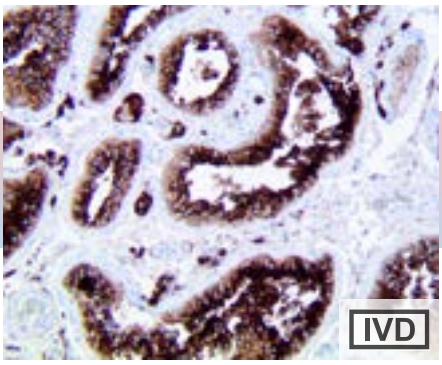
Alpha-1-Antitrypsin (A1AT) is a glycoprotein generally known as serum trypsin inhibitor. Alpha-1-Antitrypsin is also referred to as alpha-1 proteinase inhibitor (A1PI) because it is a serine protease inhibitor (serpin), inhibiting a wide variety of proteases. It protects tissues from enzymes of inflammatory cells, especially elastase, and has a reference range in blood of 1.5 -3.5 gram/liter (in the U.S. the reference range is generally expressed as mg/dL or micromoles), but the concentration can rise many fold upon acute inflammation. In its absence, elastase is free to break down elastin, which contributes to the elasticity of the lungs, resulting in respiratory complications such as emphysema, or COPD (Chronic Obstructive Pulmonary Disease) in adults and cirrhosis in adults or children.

Alpha-1-Antitrypsin is considered to be very useful in the study of inherited AAT deficiency, benign and Malignant Hepatic Tumors and Yolk-Sac Carcinomas. Positive staining for A-1-Antitrypsin may also be used in detection of benign and malignant lesions of a histiocytic nature. Sensitivity and specificity of the results have made this antibody a useful tool in the screening of patients with Cryptogenic Cirrhosis or other forms of liver disease with portal fibrosis of unknown etiology.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5008	Tinto Predilute	3.0 ml
BSB 5009	Tinto Predilute	7.0 ml
BSB 5010	Tinto Predilute	15.0 ml
BSB 5011	Concentrate	0.1 ml
BSB 5012	Concentrate	0.5 ml
BSB 5013	Concentrate	1.0 ml
BSB 5014	Control Slides	5

ACE2, MMab



IHC of ACE2 on a FFPE Infected Testis Tissue

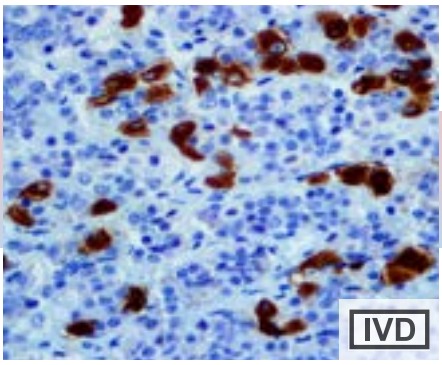
Angiotensin Converting Enzyme 2 is a dipeptidyl carboxydipeptidase active in the renin-angiotensin pathway, which helps regulate cardiovascular and renal functions. ACE2 is a secreted protein that cleaves angiotensin I (AngI) into angiotensin 1-9, and angiotensin II (AngII) into vasodilator angiotensin 1-7. ACE2 is expressed in the heart and kidney, where it may counteract vasoconstriction by inactivating Ang II. It is also found in the GI tract, lungs, and testis, in endothelial cells and less in vascular smooth muscle cells. ACE2 can contribute to tumor inhibition by inactivating AngII, which has been found to participate in tumor proliferation, angiogenesis, and metastasis.

ACE2 has shown inhibitory effects on lung, prostate, breast, and liver cancer through various signaling mechanisms, and its expression may be correlated with immune cell penetration into the tissue. ACE2 also functions as the main receptor for the spike glycoprotein of human coronaviruses HCoV-NL63, SARS-CoV and SARS-CoV-2.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-135*
ISOTYPE: *IgG1*
CONTROL: *Kidney, Testis, Brain, Colon, Fallopian tube*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3702-3	Tinto Predilute	3.0 ml
BSB-3702-7	Tinto Predilute	7.0 ml
BSB-3702-15	Tinto Predilute	15.0 ml
BSB-3702-01	Concentrate	0.1 ml
BSB-3702-05	Concentrate	0.5 ml
BSB-3702-1	Concentrate	1.0 ml
BSB-3702-CS	Control Slides	5

ACTH, MMab



IHC of ACTH on a FFPE Pituitary Tissue

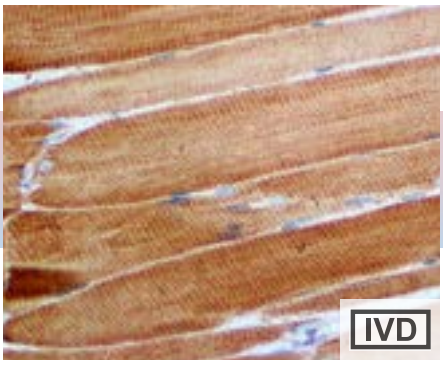
Adrenocorticotropic Hormone (ACTH or corticotropin) is a polypeptide hormone synthesized from POMC, (Pro-opiomelanocortin) and secreted from corticotropes in the anterior lobe of the pituitary gland in response to Corticotropin-releasing Hormone (CRH) released by the hypothalamus. It consists of 39 amino acids.

ACTH is a useful marker in the classification of pituitary tumors and the study of pituitary disease. It reacts with ACTH-producing cells (corticotrophs), as well as other tumors (e.g., someSmall-Cell Carcinomas present in lung tissue) causing Paraneoplastic Syndromes by secreting ACTH.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-25*
ISOTYPE: *IgG1/K*
CONTROL: *Normal Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5015	Tinto Predilute	3.0 ml
BSB 5016	Tinto Predilute	7.0 ml
BSB 5017	Tinto Predilute	15.0 ml
BSB 5018	Concentrate	0.1 ml
BSB 5019	Concentrate	0.5 ml
BSB 5020	Concentrate	1.0 ml
BSB 5021	Control Slides	5

Actin Muscle Specific, MMab



IHC of Actin, Muscle Specific on a FFPE Skeletal Muscle Tissue

Actin is a globular-structural, 345 kDaprotein that polymerizes in a helical fashion to form an actin filament (or microfilament). Actin filaments provide mechanical support for the cell, determine the cell shape, enable cell movements (through lamellipodia, filopodia, or pseudopodia); and participate in certain cell junctions, in cytoplasmic streaming and in contraction of the cell during cytokinesis. In muscle cells they play an essential role, along with myosin, in muscle contraction. In the cytosol, actin is predominantly bound to ATP, but can also bind to ADP.

This antibody recognizes actin of skeletal, cardiac, and smooth-muscle cells. It is not reactive with other mesenchymal cells except for myoepithelium. Muscle-Specific Actin recognizes alpha and gamma isotypes of all muscle groups. Non-muscle cells such as vascular endothelial cells and connective tissues are nonreactive. Neoplastic
cells of non-muscle-derived tissue such as Carcinomas, Melanomas and Lymphomas are negative. This antibody is useful in the identification of rhabdoid cellular elements.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HHf-35*
ISOTYPE: *IgG1/K*
CONTROL: *Skeletal Muscle, Appendix, Prostate*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse, Rat, Monkey, Rabbit, Chicken, Shrew*

CAT. #	PRESENTATION	VOL/QTY
BSB 5022	Tinto Predilute	3.0 ml
BSB 5023	Tinto Predilute	7.0 ml
BSB 5024	Tinto Predilute	15.0 ml
BSB 5025	Concentrate	0.1 ml
BSB 5026	Concentrate	0.5 ml
BSB 5027	Concentrate	1.0 ml
BSB 5028	Control Slides	5

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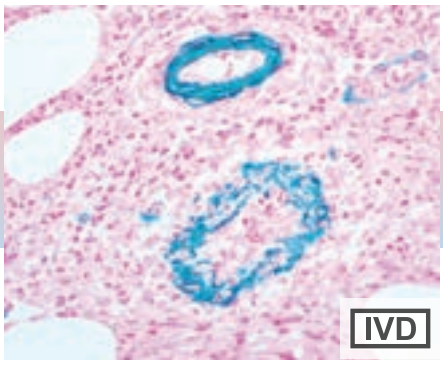
Actin Smooth Muscle, MMab



IHC of Actin, Smooth Muscle on a FFPE Appendix Tissue

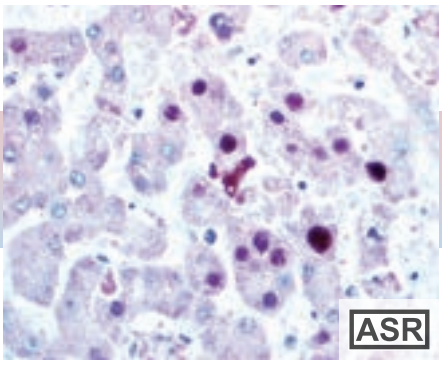
Actin is a major component of the cytoskeleton and is present in every cell type. Actins are highly conserved proteins that are involved in various types of cell motility and are ubiquitously expressed in all eukaryotic cells. In vertebrates 3 main groups of actin isoforms (alpha, beta and gamma) have been identified. The alpha actins are found in muscle tissues and are a major constituent of the contractile apparatus. The beta and gamma actins coexist in most cell types as components of the cytoskeleton and as mediators of internal cell motility.

Smooth-Muscle Actin antibody does not stain cardiac or skeletal muscle; however, it will stain myofibroblasts and myoepithelial cells. This antibody could be used together with Muscle-Specific Actin to distinguish Leiomyosarcoma from Rhabdomyosarcoma. In most cases of Rhabdomyosarcoma, this antibody gives negative results where as M.S. Actin is positive in the rhabdomyoblasts. Leiomyosarcomas are positive with both M.S. Actin and S. M. Actin antibodies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-15*
ISOTYPE: *IgG2a/K*
CONTROL: *Appendix, Uterus*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat, Rabbit, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5029	Tinto Predilute	3.0 ml
BSB 5030	Tinto Predilute	7.0 ml
BSB 5031	Tinto Predilute	15.0 ml
BSB 5032	Concentrate	0.1 ml
BSB 5033	Concentrate	0.5 ml
BSB 5034	Concentrate	1.0 ml
BSB 5035	Control Slides	5

Adenovirus, MMab



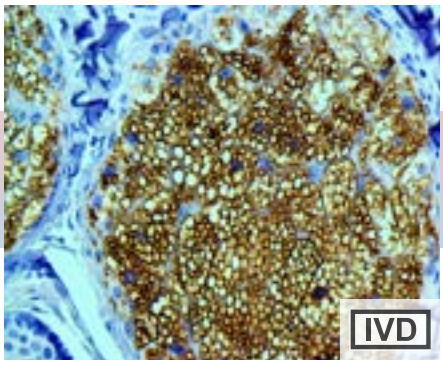
IHC of Adenovirus on a FFPE Infected Liver Tissue

Adenoviruses belong to the family Adenoviridae. They infect both humans and animals. Adenovirus was first isolated in human adenoids (tonsils), from which the name is derived. Adenoviruses are classified as group I under the Baltimore classification scheme. They are medium-sized (60-90 nm), non-enveloped icosahedral viruses containing double-stranded DNA.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *20/11 &2/6*
ISOTYPE: *IgG1/K*
CONTROL: *Adenovirus Infected Tissue*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5036	Tinto Predilute	3.0 ml
BSB 5037	Tinto Predilute	7.0 ml
BSB 5038	Tinto Predilute	15.0 ml
BSB 5039	Concentrate	0.1 ml
BSB 5040	Concentrate	0.5 ml
BSB 5041	Concentrate	1.0 ml
BSB 5042	Control Slides	5

Adipophilin/ADRP, MMab



IHC of Adipophilin on a FFPE Squamous Cell Carcinoma Tissue

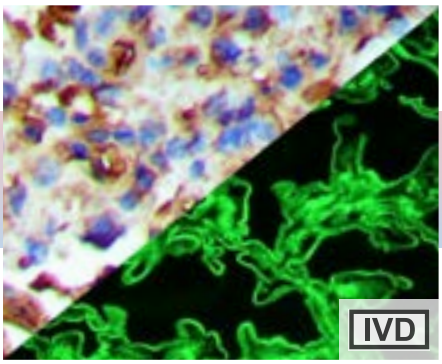
Adipose differentiation-related protein, also known as perilipin 2 (PLIN2), ADRP or adipophilin, is a protein which in humans is encoded by the ADFP gene. Adipocyte differentiation-related protein is associated with the globule surface membrane material. This protein is a major constituent of the globule surface. Increase in mRNA levels is one of the earliest indications of adipocyte differentiation. Adipophilin occurs in a wide range of cultured cell lines, including fibroblasts and endothelial and epithelial cells. In tissues, however, expression of adipophilin is restricted to certain cell types, such as lactating mammary epithelial cells, adrenal cortex cells, Sertoli and Leydig cells of the male reproductive system, and steatosis or fatty change hepatocytes in alcoholic liver cirrhosis.

Adipophilin expression in various sebaceous lesions and other cutaneous tumors with a clear cell histology that may mimic sebaceous differentiation. Adipophilin can be valuable in an immunohistochemical panel when evaluating cutaneous lesions with clear cell histology as it identifies intracytoplasmic lipid vesicles in sebaceous and xanthomatous lesions. In periocular lesions, it is effective in helping to exclude basal cell carcinoma and squamous cell carcinoma when sebaceous carcinoma is under consideration. It is especially helpful in identifying intracytoplasmic lipid vesicles in poorly differentiated sebaceous carcinomas in challenging cases such as small periocular biopsy specimens.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-91*
ISOTYPE: *IgG1*
CONTROL: *Adrenal, SCC, TCC and Sebaceous Neoplasms*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3246	Tinto Predilute	3.0 ml
BSB 3247	Tinto Predilute	7.0 ml
BSB 3248	Tinto Predilute	15.0 ml
BSB 3249	Concentrate	0.1 ml
BSB 3250	Concentrate	0.5 ml
BSB 3251	Concentrate	1.0 ml
BSB 3252	Control Slides	5

Albumin, RPab



IHC and IF of Albumin on a FFPE Lupus Erythematosus (IHC) and a FFPE Kidney Tissue (IF)

The albumins are a family of globular proteins, the most common of which are the serum albumins. Albumins are commonly found in blood plasma and differ from other blood proteins in that they are not glycosylated. Albumin functions primarily as a carrier protein for steroids, fatty acids, and thyroid hormones and plays a role in stabilizing extracellular fluid volume. Mutations in this gene on chromosome 4 result in various anomalous proteins.

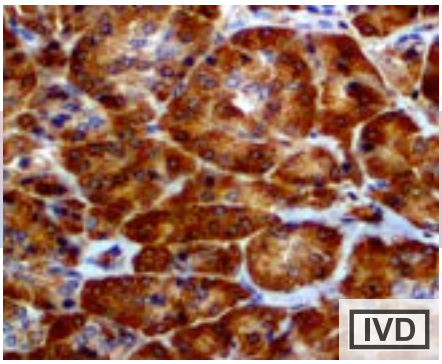
Low albumin (hypoalbuminemia) may be caused by liver disease, nephrotic syndrome, burns, protein-losing enteropathy, malabsorption, malnutrition, late pregnancy, artefact, genetic variations and malignancy. High albumin (hyperalbuminemia) is almost always caused by dehydration. In some cases of retinol (Vitamin A) deficiency, the albumin level can be elevated to high-normal values.

It has been reported in systemic lupus erythematosus (SLE) patients an increased prevalence of IgG autoantibodies against human serum albumin (anti-HSA IgG) that are associated with SLE disease activity.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Salivary Gland, Kidney, Tonsil, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3012	Tinto Predilute	3.0 ml
BSB 3013	Tinto Predilute	7.0 ml
BSB 3014	Tinto Predilute	15.0 ml
BSB 3015	Concentrate	0.1 ml
BSB 3016	Concentrate	0.5 ml
BSB 3017	Concentrate	1.0 ml
BSB 3018	Control Slides	5

ALDH1A1, RMab



IHC of ALDH1A1 on a FFPE Pancreas Tissue

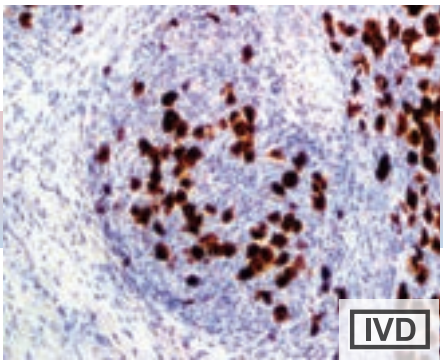
Aldehyde dehydrogenase 1 family member A1, also known as ALDH1A1 is an enzyme that in humans is encoded by the Aldh1A1 gene on chromosome 9. ALDH1A1 belongs to the aldehyde dehydrogenase family, which plays a role in alcohol metabolism. There are two major aldehyde dehydrogenase isozymes in the liver; cytosolic and mitochondrial. The ALDH1A1 gene encodes the cytosolic isozyme, and catalyzes the oxidation of retinaldehyde to retinoic acid. Studies have indicated that ALDH1A1 may also be involved in the regulation of the metabolic responses to high-fat diet.

ALDH1A1 has been a well established marker of hematopoietic stem cells and progenitor cells. Recent studies also show that ALDH1A1 is an important cancer stem marker associated with tumor progression in cancers of the breast, prostate and lung. This antibody labels epithelial cells of the stomach, liver, kidney and thyroid, neural cells and stromal cells including endothelial cells. In tumors, it stains stromal cells as well as tumor cells in many types of cancers. ALDH1A1 can be used with CD34 to aid in the differentiation between solitary fibrous tumors, hemangiopericytoma, meningioma and synovial sarcomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP168*
ISOTYPE: *IgG*
CONTROL: *Kidney, Liver ,Testis, Colon Cancer, Breast Cancer*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Predicted: Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2440	Tinto Predilute	3.0 ml
BSB 2441	Tinto Predilute	7.0 ml
BSB 2442	Tinto Predilute	15.0 ml
BSB 2443	Concentrate	0.1 ml
BSB 2444	Concentrate	0.5 ml
BSB 2445	Concentrate	1.0 ml
BSB 2446	Control Slides	5

ALK-1/CD246, RMab



IHC of ALK-1/CD246 on a FFPE Anaplastic Large Cell Lymphoma Tissue

Anaplastic Lymphoma Kinase (ALK) was originally discovered as a NPM (Nucleophosmin)-ALK fusion protein. The ALK gene is on chromosome 2. Upon translocation between chromosome 2 and chromosome 5 t(2;5), the ALK gene fuses with the NPM gene. The chimeric product (NPM ALK) resulting from t(2;5) translocation is a protein of 80 kDa with the N terminal portion of NPM linked to the complete intracellular portion of ALK.

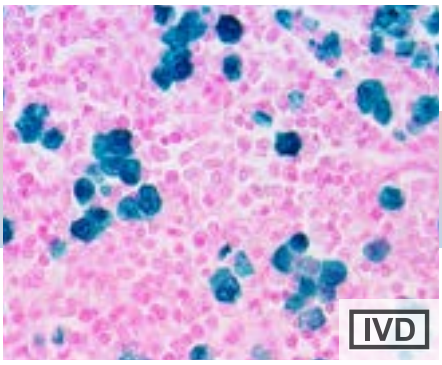
This antibody recognizes a human p80 protein, identified as a hybrid of the Anaplastic Lymphoma Kinase (ALK) gene and the Nucleophosmin (NPM) gene resulting from the t(2;5)(p23;q35) translocation found in a third of Large-Cell Lymphomas. ALK-1 is detected in 60% of Anaplastic Large-Cell Lymphomas and has proven to indicate a better prognosis in the ALK-1 (+) group.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-ALK-1*
ISOTYPE: *IgG*
CONTROL: *Anaplastic Large Cell Lymphoma*
LOCALIZATION: *Cytoplasmic. Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5043	Tinto Predilute	3.0 ml
BSB 5044	Tinto Predilute	7.0 ml
BSB 5045	Tinto Predilute	15.0 ml
BSB 5046	Concentrate	0.1 ml
BSB 5047	Concentrate	0.5 ml
BSB 5048	Concentrate	1.0 ml
BSB 5049	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

ALK-1/CD246, RMab



IHC of ALK on a FFPE Anaplastic Large Cell Lymphoma Tissue

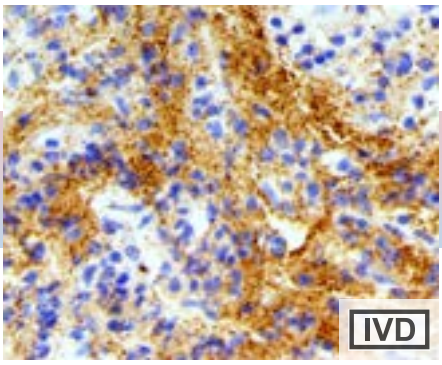
Anaplastic Lymphoma Kinase (ALK) was originally discovered as a NPM (Nucleophosmin)-ALK fusion protein. The ALK gene is on chromosome 2. Upon translocation between chromosome 2 and chromosome 5 t(2;5), the ALK gene fuses with the NPM gene. The chimeric product (NPM ALK) resulting from t(2;5) translocation is a protein of 80 kDa with the N terminal portion of NPM linked to the complete intracellular portion of ALK.

This antibody recognizes a human p80 protein, identified as a hybrid of the Anaplastic Lymphoma Kinase (ALK) gene and the Nucleophosmin (NPM) gene resulting from the t(2;5)(p23;q35) translocation found in a third of Large-Cell Lymphomas. ALK-1 is detected in 60% of Anaplastic Large-Cell Lymphomas and has proven to indicate a better prognosis in the ALK-1 (+) group.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP302*
ISOTYPE: *IgG*
CONTROL: *Anaplastic Large Cell Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Predicted: Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2796	Tinto Predilute	3.0 ml
BSB 2797	Tinto Predilute	7.0 ml
BSB 2698	Tinto Predilute	15.0 ml
BSB 2799	Concentrate	0.1 ml
BSB 2800	Concentrate	0.5 ml
BSB 2801	Concentrate	1.0 ml
BSB 2802	Control Slides	5

Alpha Synuclein, MMab



IHC of Alpha Synuclein on a FFPE Astrocytoma Tissue

Alpha-synuclein is a 140 amino acids protein encoded by the SNCA gene. It is predominantly expressed in the neocortex, hippocampus, substantia nigra, thalamus, and cerebellum with smaller amounts are found in the heart, muscles, and other tissues. In the brain, alpha-synuclein is found mainly in presynaptic terminals.

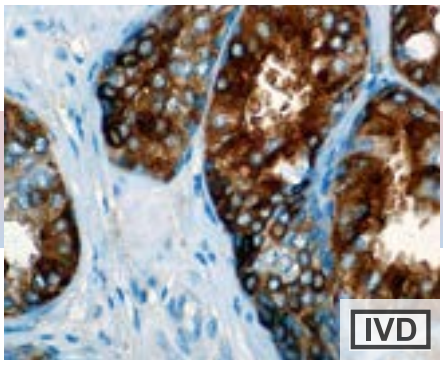
An alpha-synuclein fragment, known as the non-Abeta component (NAC) of Alzheimer's disease amyloid, originally found in an amyloid-enriched fraction, was shown to be a fragment of its precursor protein, NACP. Alpha-synuclein aggregates to form insoluble fibrils in pathological conditions characterized by Lewy bodies, such as Parkinson's disease, dementia with Lewy bodies and multiple system atrophy. These disorders are known as synucleinopathies. Occasionally, Lewy bodies contain tau protein; however, alpha-synuclein and tau constitute two distinctive subsets of filaments in the same inclusion bodies.

Alpha-synuclein pathology is also found in both sporadic and familial cases with Alzheimer's disease. In rare cases of familial forms of Parkinson's disease, there is a mutation in the gene coding for alpha-synuclein. Genomic duplication and triplication of the gene appear to be a rare cause of Parkinson's disease in other lineages, although more common than point mutations. Hence certain mutations of alpha-synuclein may cause it to form amyloid-like fibrils that contribute to Parkinson's disease.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-114*
ISOTYPE: *IgG2a/K*
CONTROL: *Brain, Breast, Skin, Tonsil, Bone Marrow, Alzheimer's Disease, Parkinson's Disease*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3286	Tinto Predilute	3.0 ml
BSB 3287	Tinto Predilute	7.0 ml
BSB 3288	Tinto Predilute	15.0 ml
BSB 3289	Concentrate	0.1 ml
BSB 3290	Concentrate	0.5 ml
BSB 3291	Concentrate	1.0 ml
BSB 3292	Control Slides	5

Alpha-Fetoprotein, MMab



IHC of Alpha-Fetoprotein on a FFPE Liver Tissue

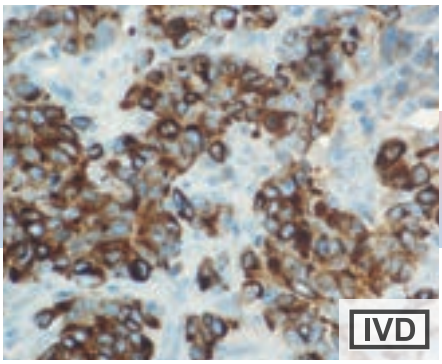
Alpha-fetoprotein (AFP) is a protein which in humans is encoded by the AFP gene. This gene encodes alpha-fetoprotein, a major plasma protein produced by the yolk sac and the liver during fetal life. This protein is thought to be the fetal counterpart of serum albumin, and the alpha-fetoprotein and albumin genes are present in tandem on chromosome 4.

Positive staining with this antibody is seen in hepatocytes of fetal liver and hepatoma. Since only traces of AFP are found in adult serum, elevated levels suggest either a benign or malignant lesion of the liver, a Yolk-Sac Carcinoma, or one of a few other tumors. In conjunction with elevated serum levels, AFP has been immunohistochemically demonstrated in Yolk-Sac Carcinomas in gonadal and extragonadal sites of hepatic malignancies and a few other neoplasms.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-23*
ISOTYPE: *IgG2a/K*
CONTROL: *Fetal Liver, Hepatocellular Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Canine*

CAT. #	PRESENTATION	VOL/QTY
BSB 5050	Tinto Predilute	3.0 ml
BSB 5051	Tinto Predilute	7.0 ml
BSB 5052	Tinto Predilute	15.0 ml
BSB 5053	Concentrate	0.1 ml
BSB 5054	Concentrate	0.5 ml
BSB 5055	Concentrate	1.0 ml
BSB 5056	Control Slides	5

Alpha-Fetoprotein, RMab



IHC of Alpha-Fetoprotein on a FFPE Yolk-Sac Carcinoma Tissue

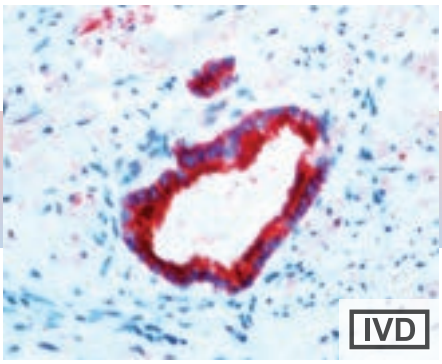
Alpha-fetoprotein (AFP) is a protein which in humans is encoded by the AFP gene. This gene encodes alpha-fetoprotein, a major plasma protein produced by the yolk sac and the liver during fetal life. This protein is thought to be the fetal counterpart of serum albumin, and the alpha-fetoprotein and albumin genes are present in tandem on chromosome 4.

Positive staining with this antibody is seen in hepatocytes of fetal liver and hepatoma. Since only traces of AFP are found in adult serum, elevated levels suggest either a benign or malignant lesion of the liver, a Yolk-Sac Carcinoma, or one of a few other tumors. In conjunction with elevated serum levels, AFP has been immunohistochemically demonstrated in Yolk-Sac Carcinomas in gonadal and extragonadal sites of hepatic malignancies and a few other neoplasms.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP209*
ISOTYPE: *IgG*
CONTROL: *Fetal Liver, Hepatocellular Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2384	Tinto Predilute	3.0 ml
BSB 2385	Tinto Predilute	7.0 ml
BSB 2386	Tinto Predilute	15.0 ml
BSB 2387	Concentrate	0.1 ml
BSB 2388	Concentrate	0.5 ml
BSB 2389	Concentrate	1.0 ml
BSB 2390	Control Slides	5

AMACR/P504S, RMab



IHC of AMACR/P504S on a FFPE Prostatic Adenocarcinoma Tissue

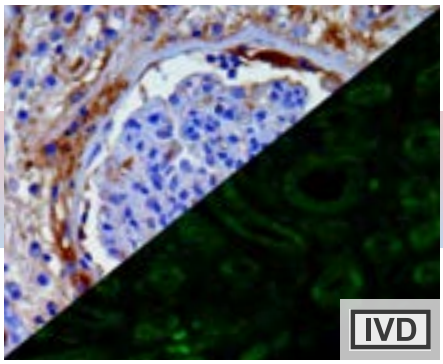
AMACR (P504S) is an acronym for the protein alpha-methylacyl CoA racemase that helps to metabolize certain fatty acids within the body. AMACR has been recently described as a prostate cancer-specific gene that encodes a protein involved in the beta-oxidation of branched chain fatty acids. Expression of AMACR protein is found in Prostatic Adenocarcinoma but not in benign prostatic tissue. It stains premalignant lesions of the prostate: High-Grade Prostatic Intraepithelial Neoplasia (PIN) and Atypical Adenomatous Hyperplasia. Several studies have suggested that AMACR can be used as a prostate cancer biomarker.

High expression of AMACR (P504S) protein is usually found in Prostatic Adenocarcinoma but not in benign prostatic tissue by immunohistochemical staining in paraffin-embedded tissues. Using AMACR as a positive marker along with basal-cell staining (34βE12 or p63) as a negative marker could help to confirm the diagnosis of small foci of Prostate Carcinoma on needle biopsies.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *13H4*
ISOTYPE: *IgG*
CONTROL: *Kidney, Liver, Salivary Gland, Prostate Lesions, Prostatic Adenocrcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5057	Tinto Predilute	3.0 ml
BSB 5058	Tinto Predilute	7.0 ml
BSB 5059	Tinto Predilute	15.0 ml
BSB 5060	Concentrate	0.1 ml
BSB 5061	Concentrate	0.5 ml
BSB 5062	Concentrate	1.0 ml
BSB 5063	Control Slides	5

Amyloid A, RMab



IHC and IF of Amyloid A on a FFPE Kidney Tissue

Serum amyloid A (SAA) proteins are a family of apolipoproteins associated with high-density lipoprotein (HDL) in plasma. Different isoforms of SAA are expressed constitutively (constitutive SAAs) at different levels or in response to inflammatory stimuli (acute phase SAAs). These proteins are produced predominantly by the liver. The conservation of these proteins throughout invertebrates and vertebrates suggests that SAAs play a highly essential role in all animals. Acute-phase serum amyloid A proteins (A-SAAs) are secreted during the acute phase of inflammation. A-SAAs are implicated in several chronic inflammatory diseases, such as amyloidosis, atherosclerosis, and rheumatoid arthritis.

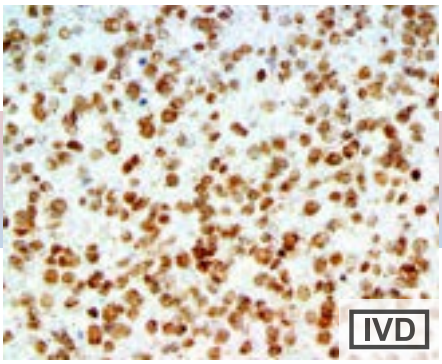
Amyloidosis is a disease characterized by the abnormal build-up of amyloid, abnormal non-branching fibrillary β-pleated sheet proteins that are insoluble and highly resistant to proteolytic degradation that result in localized or systemic organ dysfunction. AA amyloidosis is associated with a variety of chronic inflammatory conditions and infections, derived from SAA. Immunohistochemical staining using a panel of antibodies including κ and λ Ig light chains, Amyloid A, and Transthyretin can aid in recognizing most forms of amyloid. The Amyloid A immunostaining detects tissue deposition of serum Amyloid A protein, an acute phase reactive protein. It is positive in AA Amyloidosis and familial Mediterranean fever. SAA concentrations have been reported to be a marker of poor prognosis, elevated in patients with advanced stages of cancer and those with malignant disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP335*
ISOTYPE: *IgG*
CONTROL: *Kidney, Amyloidosis*
LOCALIZATION: *Cytoplasmic, Extracellular*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2803	Tinto Predilute	3.0 ml
BSB 2804	Tinto Predilute	7.0 ml
BSB 2805	Tinto Predilute	15.0 ml
BSB 2806	Concentrate	0.1 ml
BSB 2807	Concentrate	0.5 ml
BSB 2808	Concentrate	1.0 ml
BSB 2809	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Amyloid Beta, RMab



IHC of Amyloid Beta on a FFPE Astrocytoma Tissue

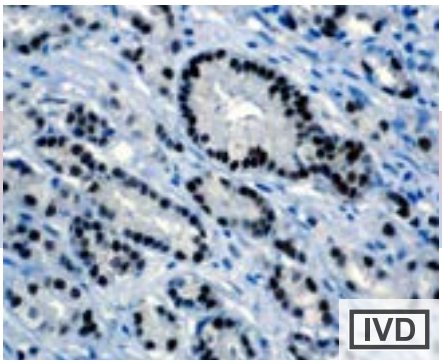
Brain Amyloid beta is elevated in patients with sporadic Alzheimer's disease and is the main component of amyloid plaques. Similar plaques appear in some variants of Lewy body dementia and in inclusion body myositis, while Amyloid beta can also form the aggregates that coat cerebral blood vessels in cerebral amyloid angiopathy. The plaques are composed of a tangle of regularly ordered fibrillar aggregates called amyloid fibers, a protein fold shared by other peptides such as the prions associated with protein misfolding diseases.

The mechanism by which Amyloid beta may damage and kill neurons is by generating reactive oxygen species during the process of its self-aggregation. It has been reported that amyloid beta production follows a circadian rhythm, rising when an animal or a person is awake and falling during sleep. The wakefulness-promoting neuroprotein orexin has been shown to be necessary for the circadian rhythm of amyloid beta production. This is consistent with recent findings that chronic sleep deprivation is associated with early onset Alzheimer's disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-A4*
ISOTYPE: *IgG*
CONTROL: *Testis, Kidney, Pancreas, Salivary Gland, Alzheimer's Disease*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3441	Tinto Predilute	3.0 ml
BSB 3442	Tinto Predilute	7.0 ml
BSB 3443	Tinto Predilute	15.0 ml
BSB 3444	Concentrate	0.1 ml
BSB 3445	Concentrate	0.5 ml
BSB 3446	Concentrate	1.0 ml
BSB 3447	Control Slides	5

Androgen Receptor, MMab



IHC of Androgen Receptor on a FFPE Prostate Tissue

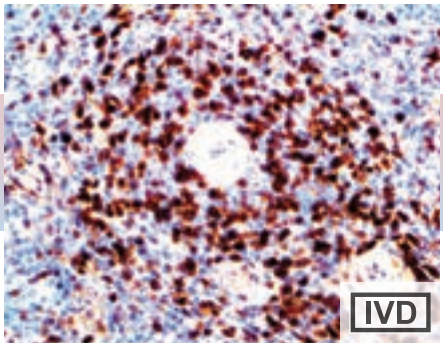
The androgen receptor (AR) is a type of nuclear receptor which is activated by binding of either of the androgenic hormones testosterone or dihydrotestosterone. The main function of the androgen receptor is as a DNA-binding transcription factor which regulates gene expression. However, the androgen receptor has additional functions independent of DNA binding. The AR signaling pathway plays a key role in development and function of male reproductive organs, including the prostate and epididymis. AR also plays a role in nonreproductive organs, such as muscle, hair follicles, and the brain.

This antibody reacts with the androgen receptor and also with the newly-described A form of the receptor. This antibody does not cross-react with estrogen, progesterone or glucocorticoid receptors. Abnormalities in the AR-signaling pathway have been linked to a number of diseases, including Prostate Cancer, Kennedy's Disease and male infertility.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-4*
ISOTYPE: *IgG1*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6071	Tinto Predilute	3.0 ml
BSB 6072	Tinto Predilute	7.0 ml
BSB 6073	Tinto Predilute	15.0 ml
BSB 6074	Concentrate	0.1 ml
BSB 6075	Concentrate	0.5 ml
BSB 6076	Concentrate	1.0 ml
BSB 6077	Control Slides	5

Annexin A1, MMab



IHC of Annexin A1 on a FFPE Hairy Cell Leukemia Tissue

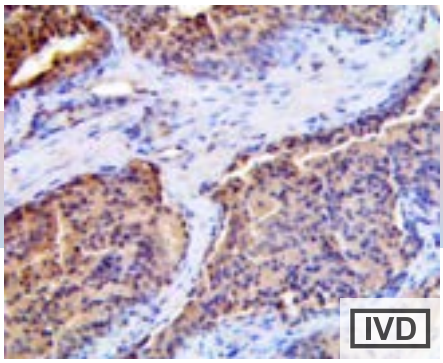
The protein Annexin A1 is encoded by the ANXA1 gene, which is upregulated in hairy cell leukemia. The NF-kB signal transduction pathway is exploited by cancerous cells to proliferate and avoid apoptosis. Annexin A1 inhibits that pathway by binding to the p65 subunit, thus making Annexin A1 of particular interest for use as a potential anti-cancer drug. It may also contain tumor suppressive and protective characteristics, which have been evidenced by its ability to protect against DNA damage induced by heat in breast cancer cells.

Annexin A1 is strongly expressed on the cell membrane and occasionally in the cytoplasm of tumor cells in 97% of samples from patients with hairy cell leukemia. By contrast, B-cell lymphomas other than hairy cell leukemia are ANXA1 negative. Thus, ANXA1 is a molecule specific to hairy cell leukemia that can be used to differentiate this disease from other B-cell lymphomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-95*
ISOTYPE: *IgG2b*
CONTROL: *Liver, Tonsil, Spleen, Thymus, Lung, Colon, Hairy Cell Leukemia*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 6359	Tinto Predilute	3.0 ml
BSB 6360	Tinto Predilute	7.0 ml
BSB 6361	Tinto Predilute	15.0 ml
BSB 6362	Concentrate	0.1 ml
BSB 6363	Concentrate	0.5 ml
BSB 6364	Concentrate	1.0 ml
BSB 6365	Control Slides	5

Annexin VII, RMab



IHC of Annexin VII on a FFPE Prostate Adenocarcinoma Tissue

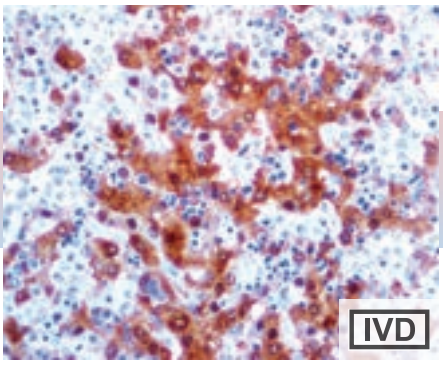
Annexin VII (or Annexin A7) is a Ca2+-dependent and phospholipid-binding protein. It is encoded by the ANX7 gene, which is located in human chromosome 10q21. It is a member of the annexin protein family, which regulates various endomembrane processes including vesicle fusion, segregation, and compartmentalization and is implicated in plasma membrane repair mechanisms.

Studies suggest that ANX7 is a tumor suppressor gene and it was found that Annexin VII is associated with several types of cancers, such as Prostate, Breast, Liver, and Gastric cancer. IHC analysis showed that a low or the loss of expression of ANX7 correlates with Prostate cancer progression. On the contrary, high levels of ANX7 expression were found in Metastatic Breast Tumors and that HER2-Negative patients suffer increased risk of death when ANX7 expression levels are elevated. Another study found that ANX7 predominantly shows low expression in other cancer types, such as Colon Adenocarcinoma or Bladder Transitional Cell Carcinoma. A study identified the prognostic impact of ANXA7 in Prostate Cancer using tissue microarrays, identified ANXA7 as a new prognostic factor and indicated a bimodal correlation to tumor progression.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP367*
ISOTYPE: *IgG*
CONTROL: *Breast, Colon, Kidney, Tonsil, Prostate, Testis, Transitional Cell Carcinoma*
LOCALIZATION: *Nuclear, Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3709-3	Tinto Predilute	3.0 ml
BSB-3709-7	Tinto Predilute	7.0 ml
BSB-3709-15	Tinto Predilute	15.0 ml
BSB-3709-01	Concentrate	0.1 ml
BSB-3709-05	Concentrate	0.5 ml
BSB-3709-1	Concentrate	1.0 ml
BSB-3709-CS	Control Slides	5

Arginase-1, RMab



IHC of Arginase-1 on a FFPE Hepatocellular Carcinoma Tissue

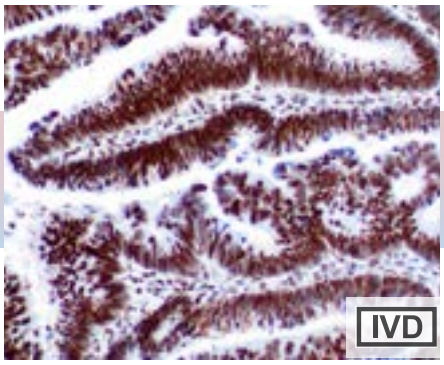
Arginase is the catalyst for the fifth and final step in the urea cycle, which is a series of biochemical reactions in mammals during which the body disposes of harmful ammonia. Arginase works to convert L-arginine into L-ornithine and urea. Arginase-1 is located primarily in the cytoplasm of the liver. Arginase consists of three tetramers, and the enzyme requires a two-molecule metal cluster of manganese in order to maintain proper function. These Mn2+ ions coordinate with water, orienting and stabilizing the molecule and allowing water to act as a nucelophile and attack L-arginine, hydrolyzing it into ornithine and urea.

Arginase-1 is abundantly expressed in the liver and it represents a sensitive and specific marker of benign and malignant hepatocytes. In sections of normal liver, anti-Arginase-1 produces strong, diffuse cytoplasmic reactivity in all hepatocytes throughout the lobule. In a small percentage of cases, patchy nuclear reactivity is also evident in hepatocytes along with the strong cytoplasmic reactivity. Hepatocellular carcinoma usually shows higher protein expression of ARG1 than normal liver cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP261*
ISOTYPE: *IgG*
CONTROL: *Liver, Hepatocellular Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2447	Tinto Predilute	3.0 ml
BSB 2448	Tinto Predilute	7.0 ml
BSB 2449	Tinto Predilute	15.0 ml
BSB 2450	Concentrate	0.1 ml
BSB 2451	Concentrate	0.5 ml
BSB 2452	Concentrate	1.0 ml
BSB 2453	Control Slides	5

ARID1A, RMab



IHC of ARID1A on a FFPE Colon Adenocarcinoma Tissue

Genes encoding subunits of SWItch/sucrose non-fermentable (SWI/SNF) chromatin remodeling complexes are collectively mutated in 20% of all human cancers. ARID1A is the SWI/SNF subunit gene that is most frequently mutated, at variable frequencies across molecular and histological subtypes of cancer.

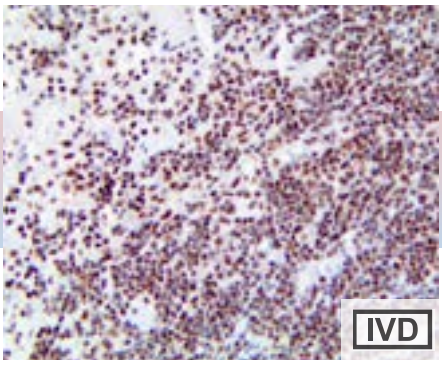
ARID1A is a tumour suppressor gene frequently mutated in Clear Cell and Endometrioid Carcinomas of the Ovary and Endometrium. Loss of ARID1A function as shown by loss of expression, presumably due to mutations, is an early molecular event, occurring before malignant transformation, in the development of the majority of Ovarian Clear Cell and Endometrioid Carcinomas arising in Endometriomas. Mutations were identified in 6/17 (35%) Ovarian Clear Cell Carcinomas, 5/8 (63%) Ovarian Endometrioid Carcinomas, 2/5 (40%) Endometrial Carcinomas, and 1/7 (14%) Carcinosarcomas. Some studies have demonstrated that ARID1A has a critical tumor suppressor role in the Colon, and that its inactivation leads to the development of Colon Cancers via a mechanism that is distinct from previously established genetic models. ARID1A inactivating mutations are present at a high frequency in advanced endocrine-resistant ER+ Breast Cancer. ARID1A may play an important role in and serves as a valuable prognostic marker in Gastric Cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP303*
ISOTYPE: *IgG*
CONTROL: *Breast, Fallopian Tube, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3749-3	Tinto Predilute	3.0 ml
BSB-3749-7	Tinto Predilute	7.0 ml
BSB-3749-15	Tinto Predilute	15.0 ml
BSB-3749-01	Concentrate	0.1 ml
BSB-3749-05	Concentrate	0.5 ml
BSB-3749-1	Concentrate	1.0 ml
BSB-3749-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

ATM, RMab



IHC of ATM on a FFPE Chronic Lymphocytic Lymphoma tissue

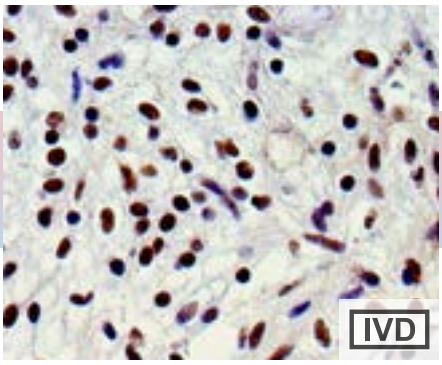
Ataxia telangiectasia mutated (ATM) protein is a serine/threonine kinase that belongs to the family of phosphatidylinositol-3 kinase (PI3K)-related protein kinases. ATM is a key checkpoint protein of the DNA damage response pathway. When DNA double-strand breaks occur, ATM activates different cascades, resulting in activation of cell cycle checkpoints, cell cycle arrests, and apoptosis.

Mutations in the ATM gene lead to an increased risk of several cancer types, which include Leukemias, Lymphomas, Colorectal Cancer, Pancreatic Cancer and Adenocarcinoma of the Stomach. Studies show that Gastric Cancer tissues were found to be ATM-negative by IHC staining, indicating that ATM can be used as a biomarker. It has also been found that low expression of the ATM protein contributes to more aggressive progression and poor clinical outcome of Breast Cancer. Results of another study indicate loss of ATM protein expression is associated with development of Lung Cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP327*
ISOTYPE: *IgG*
CONTROL: *Fallopian Tube, Brain, Colon, Breast, Testis, Tonsil, Transitional Cell Carcinoma, T Cell Lymphoblastic*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3710-3	Tinto Predilute	3.0 ml
BSB-3710-7	Tinto Predilute	7.0 ml
BSB-3710-15	Tinto Predilute	15.0 ml
BSB-3710-01	Concentrate	0.1 ml
BSB-3710-05	Concentrate	0.5 ml
BSB-3710-1	Concentrate	1.0 ml
BSB-3710-CS	Control Slides	5

ATRX, MMab



IHC of ATRX on a FFPE Astrocytoma Tissue

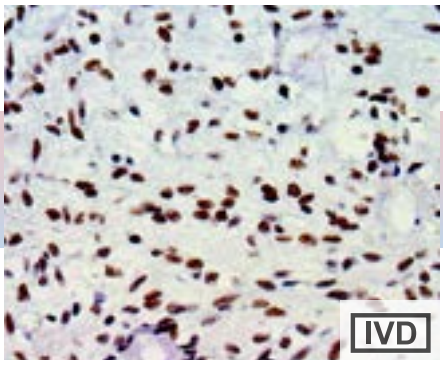
Mutation/loss of ATRX expression has been described in anaplastic gliomas. A study explored the role of ATRX status in the molecular classification of anaplastic gliomas and its impact on survival. Loss of ATRX expression was detected in 45 % of anaplastic astrocytomas (AA), 27 % of anaplastic oligoastrocytomas (AOA) and 10 % of anaplastic oligodendrogliomas (AO). Survival analysis showed a marked separation of IDH mutant astrocytic tumors into two groups based on ATRX status: tumors with ATRX loss had a significantly better prognosis.

Another study conducted an immunohistochemical analysis of ATRX expression in adult diffuse gliomas and found ATRX immunoreactivity of tumor cells was either almost totally absent or completely retained in all cases. There was perfect concordance between the IHC results and ATRX mutation status. ATRX loss was observed in 54.5, 30.8 and 0.0% of grades II/III astrocytomas, oligoastrocytomas and oligodendrogliomas, respectively, and 12.7% of glioblastomas. Another recent study analyzed the use of ATRX, IDH and 1p/19q codeletion in a series astrocytomas, oligodendrogliomas, oligoastrocytomas and glioblastomas and presented an algorithm based on stepwise analysis with initial immunohistochemistry for ATRX and IDH1-R132H followed by 1p/19q analysis then by IDH sequencing, which reduces the number of molecular analyses and which has a far better association with patient outcome.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-108*
ISOTYPE: *IgG2a/K*
CONTROL: *Breast, Tonsil, Testis, Salivary Gland, Placenta, TCC, Astrocytoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3293	Tinto Predilute	3.0 ml
BSB 3294	Tinto Predilute	7.0 ml
BSB 3295	Tinto Predilute	15.0 ml
BSB 3296	Concentrate	0.1 ml
BSB 3297	Concentrate	0.5 ml
BSB 3298	Concentrate	1.0 ml
BSB 3299	Control Slides	5

ATRX, RMab



IHC of ATRX on a FFPE Astrocytoma tissue

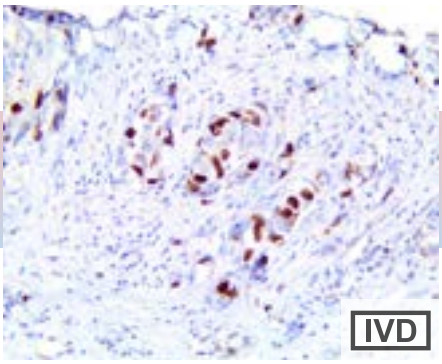
α-thalassemia/mental retardation syndrome X-linked (ATRX) gene is located on chromosome Xq21.1. Germline mutations of ATRX have been found to cause the complex genetic disorder called Alpha-Thalassemia mental retardation syndrome. Somatic mutations, deletions, and altered ATRX expression levels were found to be prevalent in several cancer types. A study reported the loss of ATRX expression was found to be a prognostic marker for chromosome instability in pancreatic neuroendocrine tumors.

Mutation/loss of ATRX expression has been described in anaplastic gliomas. A study explored the role of ATRX status in the molecular classification of anaplastic gliomas and its impact on survival. Survival analysis showed a marked separation of IDH mutant astrocytic tumors into two groups based on ATRX status: tumors with ATRX loss had a significantly better prognosis. Another recent study analyzed the use of ATRX, IDH and 1p/19q codeletion in a series of astrocytomas, oligodendrogliomas, oligoastrocytomas and glioblastomas and presented an algorithm based on stepwise analysis with initial immunohistochemistry for ATRX and IDH1-R132H followed by 1p/19q analysis, then by IDH sequencing, which reduces the number of molecular analyses and has a far better association with patient outcome.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-ATRX*
ISOTYPE: *IgG*
CONTROL: *Breast, Colon, Fallopian Tube, Brain, Tonsil, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3711-3	Tinto Predilute	3.0 ml
BSB-3711-7	Tinto Predilute	7.0 ml
BSB-3711-15	Tinto Predilute	15.0 ml
BSB-3711-01	Concentrate	0.1 ml
BSB-3711-05	Concentrate	0.5 ml
BSB-3711-1	Concentrate	1.0 ml
BSB-3711-CS	Control Slides	5

Aurora B, RMab



IHC of Aurora B on a FFPE Lung Adenocarcinoma tissue

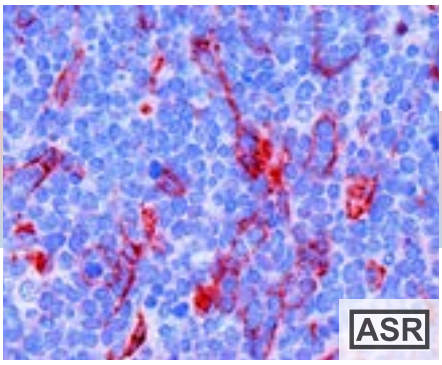
Aurora B kinase, a 39.3 kDa sized serine-threonine kinase, is a member of the Aurora family of mitotic kinases. The enzymatic activity of Aurora B kinase prevents stable kinetochore-microtubule attachments in early mitosis and promotes stabilization of the attachments in later mitosis due to low activity. The gene for Aurora B kinase (AURKB) is located on chromosome 17p13.1.

Abnormal expression of Aurora B kinase has been found in many cancer types, such as Non-Small Cell Lung Carcinoma, Mesothelioma, Glioblastoma, Oral Cancer and Hepatocellular Carcinoma. In Prostate and Colorectal Cancer, Aurora B expression directly correlates with the progression of cancer. In a study investigating the expression of Aurora B kinase in Thyroid Carcinoma, abundant expression of Aurora B kinase was detected in Anaplastic Carcinomas via IHC. A higher expression of Aurora B kinase in Anaplastic Thyroid Cancer than in differentiated Thyroid Cancer therefore suggests its use as a prognostic marker. In another immunohistochemical analysis, Aurora B kinase showed nuclear overexpression in high Gleason-grade Prostate Cancer, compared to low and intermediate grade cases. Additionally, there are numerous studies that indicate the use of Aurora B kinase as a prognostic marker in Ovarian Cancer. In conclusion, elevated Aurora-B expression in Breast Cancer patients contributes to chemoresistance and predicts poor prognosis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM278*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Colon, Stomach, Skin, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3712-3	Tinto Predilute	3.0 ml
BSB-3712-7	Tinto Predilute	7.0 ml
BSB-3712-15	Tinto Predilute	15.0 ml
BSB-3712-01	Concentrate	0.1 ml
BSB-3712-05	Concentrate	0.5 ml
BSB-3712-1	Concentrate	1.0 ml
BSB-3712-CS	Control Slides	5

B7H3/CD276, RMab



IHC of B7-H3 on a FFPE Lymphoblastic Lymphoma Tissue

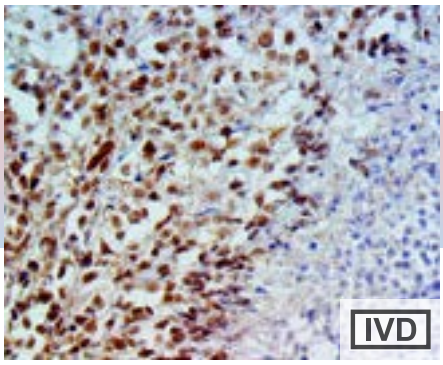
B7-H3, also known as CD276, is a human protein encoded by the CD276 gene. The protein encoded by this gene belongs to the immunoglobulin superfamily, and thought to participate in the regulation of T-cell-mediated immune response. Studies show that while the transcript of this gene is ubiquitously expressed in normal tissues and solid tumors, the protein is preferentially expressed only in tumor tissues, such as melanoma, prostate cancer, and pancreatic cancer. Expression of B7-H3 protein can be induced on dendritic cells (DCs) and monocytes by inflammatory cytokines. Soluble B7-H3 protein binds a putative counter-receptor on activated T cells that is distinct from CD28, cytotoxic T lymphocyte antigen 4 (CTLA-4), inducible costimulator (ICOS) and PD-1. B7-H3 costimulates proliferation of both CD4+ and CD8+ T cells, enhances the induction of cytotoxic T cells and selectively stimulates interferon gamma (IFN-gamma) production in the presence of T cell receptor signaling.

Recently, B7-H3 expression has been reported in several human cancers indicating an additional function of B7-H3 as a regulator of antitumor immunity. B7H3 has been shown in recent years to be of clinical significance in different types of cancer. It has been demonstrated that knockdown of B7-H3 in melanoma and breast cancer cells results in both increased chemosensitivity and decreased metastatic potential, which has been observed in both in vitro and in vivo experiments.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-B7H3*
ISOTYPE: *IgG*
CONTROL: *Testis, Adrenal, Tonsil, Breast, Fallopian Tube, Breast Carcinoma, Prostate Carcinoma. Ovarian Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2810	Tinto Predilute	3.0 ml
BSB 2811	Tinto Predilute	7.0 ml
BSB 2812	Tinto Predilute	15.0 ml
BSB 2813	Concentrate	0.1 ml
BSB 2814	Concentrate	0.5 ml
BSB 2815	Concentrate	1.0 ml
BSB 2816	Control Slides	5

BAP1, MMab



IHC of BAP1 on a FFPE Mesothelioma Tissue

In cancer, BAP1 can function both as a Tumor suppressor and as a metastasis suppressor. Exome sequencing identified inactivating mutations in BAP1 in 47% of Uveal melanomas, and BAP1 mutation have been found to be strongly associated with metastasis. The atypical melanocytic lesions resemble Spitz nevi and have been characterized as "atypical Spitz tumors" (ASTs), although they have a unique histology and exhibit both BRAF and BAP1 mutations.

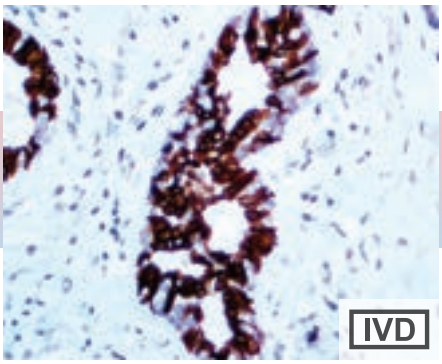
BAP1 mutations have been identified in aggressive Mesotheliomas with similar mutations as seen in melanomas. Sequencing studies have been used to identify germline mutations in BAP1 in families with genetic predispositions to mesothelioma and melanocytic skin tumors. Mutations in the tumor suppressor gene BAP1 occur in approximately 15% of clear cell renal cell carcinoma cases. Sequencing efforts demonstrated worse outcomes in patients with BAP1 mutated clear cell renal cell carcinoma. Immunohistochemistry for BAP1 is a prognostic biomarker to predict poor oncologic outcomes and adverse clinicopathological features in patients with non-metastatic clear cell renal cell carcinoma. BAP1 assessment using immunohistochemistry on needle biopsy may benefit preoperative risk stratification and guide treatment planning.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-109*
ISOTYPE: *IgG1*
CONTROL: *Testis, TCC, Mesothelioma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3300	Tinto Predilute	3.0 ml
BSB 3301	Tinto Predilute	7.0 ml
BSB 3302	Tinto Predilute	15.0 ml
BSB 3303	Concentrate	0.1 ml
BSB 3304	Concentrate	0.5 ml
BSB 3305	Concentrate	1.0 ml
BSB 3306	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

BAX, RMab



IHC of BAX on a FFPE Hodgkin's Lymphoma Tissue

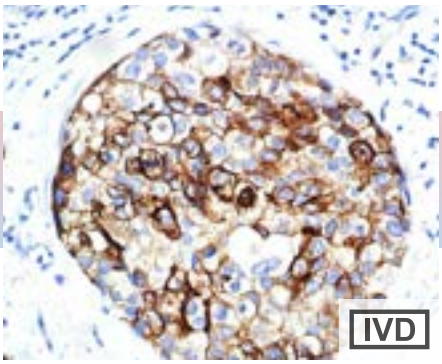
Bax is a protein of the bcl-2 gene family. It promotes apoptosis by competing with bcl-2 proper. The Bax gene contains a small promoter element that complements a binding domain on the multi-faceted p53 tumor suppressor. Wild-type p53 has been demonstrated to upregulate the transcription of a chimeric reporter plasmid, utilizing the consensus promoter sequence of Bax approx. 50-fold over mutant p53. Mutations in this consensus sequence eliminate transcription of the reporter gene. Thus, it is likely that p53 promotes Bax's apoptotic faculties in vivo as a primary transcription factor.

Bax exerts a pro-apoptotic rather than an anti-apoptotic effect on cells. Bax targets mitochondrial membranes, inducing mitochondrial damage and cell death in a caspase-independent manner. Bad plays a critical role in the Bax-mediated apoptosis pathway by dimerizing with BclxL, causing the displacement of Bax. The displacement of Bax allows apoptosis to proceed.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *E63*
ISOTYPE: *IgG*
CONTROL: *Breast, Tonsil, Cervix, Hodgkin's Lymhoma*
LOCALIZATION: *Cell Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6078	Tinto Predilute	3.0 ml
BSB 6079	Tinto Predilute	7.0 ml
BSB 6080	Tinto Predilute	15.0 ml
BSB 6081	Concentrate	0.1 ml
BSB 6082	Concentrate	0.5 ml
BSB 6083	Concentrate	1.0 ml
BSB 6084	Control Slides	5

BCA-225, MMab



IHC of BCA-225 on a FFPE Breast Carcinoma Tissue

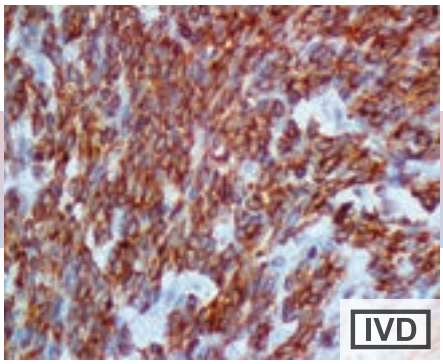
This antibody recognizes a human breast carcinoma-associated glycoprotein, BCA-225 (220-225 kDa). This protein differs in size and distribution from other Breast Carcinoma antigens. Unlike other carcinoma antibodies against Breast Carcinoma antigens, this antibody does not react with benign or malignant colonic tissues. Since this antigen is localized in malignancies of Breast Carcinomas and Carcinoma of the Uterine Cervix, it can be effectively used to identify metastatic Breast Carcinoma lesions.

Strong intracytoplasmic staining is seen in primary and metastatic Breast Carcinoma tissue, as well as in Cervical Carcinomas. Apical staining is seen in normal kidney, lung, Fallopian tube, liver, skin (eccrine sweat glands) and uterus. Similar staining patterns are observed in lung, ovarian, and endometrial cancers. Carcinomas of the colon, stomach, prostate, urinary bladder, liver, pancreas, thyroid, and parotid are negative, as are Sarcomas and Lymphoid Cancers.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Cu-18*
ISOTYPE: *IgG1/K*
CONTROL: *Breast, Lung, Uterus, Cervical Carcinoma, Breast Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5064	Tinto Predilute	3.0 ml
BSB 5065	Tinto Predilute	7.0 ml
BSB 5066	Tinto Predilute	15.0 ml
BSB 5067	Concentrate	0.1 ml
BSB 5068	Concentrate	0.5 ml
BSB 5069	Concentrate	1.0 ml
BSB 5070	Control Slides	5

bcl-2, MMab



IHC of bcl-2 on a FFPE Follicular Lymphoma Tissue

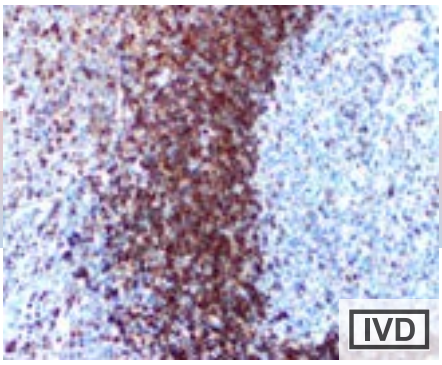
bcl-2 is an integral outer mitochondrial membrane protein that blocks the apoptotic death of some cells such as lymphocytes. Constitutive expression of bcl-2, such as in the case of translocation of bcl-2 to Ig heavy-chain loci, is thought to be the cause of Follicular Lymphoma.

Anti-bcl-2 has shown consistent negative reaction on reactive germinal centers and positive staining of neoplastic follicles in Follicular Lymphoma. Consequently, this antibody is valuable when distinguishing between reactive and neoplastic follicular proliferation in lymph node biopsies. This antibody may also be used in distinguishing between those Follicular Lymphomas that express bcl-2 protein and the small number in which the neoplastic cells are bcl-2-negative. Anti-bcl-2 has been used as a predictive biomarker for recurrence of Cancer of the Breast and Non-Small-Cell Carcinoma of the Lung.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-5 (BCL/A4)*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5071	Tinto Predilute	3.0 ml
BSB 5072	Tinto Predilute	7.0 ml
BSB 5073	Tinto Predilute	15.0 ml
BSB 5074	Concentrate	0.1 ml
BSB 5075	Concentrate	0.5 ml
BSB 5076	Concentrate	1.0 ml
BSB 5077	Control Slides	5

bcl-2, RMab



IHC of bcl-2 on a FFPE Tonsil Tissue

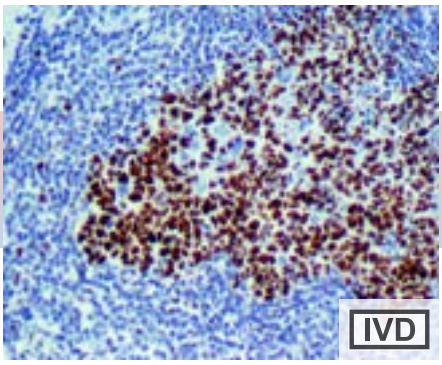
bcl-2 is an integral outer mitochondrial membrane protein that regulates apoptosis of some cells such as lymphocytes. Constitutive expression of bcl-2, such as in the case of translocation of bcl-2 to Ig heavy-chain loci, is thought to be the cause of Follicular Lymphoma.

Anti-bcl-2 has shown consistent negative reaction on reactive germinal centers and positive staining of neoplastic follicles in Follicular Lymphoma. Consequently, this antibody is valuable when distinguishing between reactive and neoplastic follicular proliferation in lymph node biopsies. This antibody may also be used in distinguishing between those Follicular Lymphomas that express bcl-2 protein and the small number in which the neoplastic cells are bcl-2-negative. Anti-bcl-2 has been used as a predictive biomarker for recurrence of Cancer of the Breast and Non-Small-Cell Carcinoma of the Lung.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP36*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Breast, Placenta, Fallopian Tube*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6541	Tinto Predilute	3.0 ml
BSB 6542	Tinto Predilute	7.0 ml
BSB 6543	Tinto Predilute	15.0 ml
BSB 6544	Concentrate	0.1 ml
BSB 6545	Concentrate	0.5 ml
BSB 6546	Concentrate	1.0 ml
BSB 6547	Control Slides	5

bcl-6, MMab



IHC of bcl-6 on a FFPE Colon Tissue

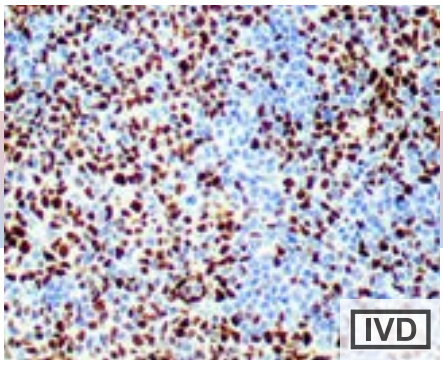
bcl-6 is a transcriptional regulator gene which codes for a 706-amino-acid nuclear zinc finger protein. Antibodies to this protein stain the germinal center cells in lymphoid follicles, follicular cells and interfollicular cells in Follicular Lymphoma, Diffuse Large B-Cell Lymphomas, Burkitt's Lymphoma, and the majority of the Reed-Sternberg cells in Nodular Lymphocyte-Predominant Hodgkin's Disease.

bcl-6 is also useful in identifying neoplastic cells in cases of nodular Lymphocyte-Predominant Hodgkin's Disease. In contrast, anti-bcl-6 rarely stains Mantle-Cell Lymphoma and MALT Lymphoma. bcl-6 expression is seen in approximately 45% of CD30+ Anaplastic Large-Cell Lymphomas but is consistently absent in other peripheral T-cell Lymphomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-26*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node, Thymus, Skin, Breast, Breain, Follicular Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3434	Tinto Predilute	3.0 ml
BSB 3435	Tinto Predilute	7.0 ml
BSB 3436	Tinto Predilute	15.0 ml
BSB 3437	Concentrate	0.1 ml
BSB 3438	Concentrate	0.5 ml
BSB 3439	Concentrate	1.0 ml
BSB 3440	Control Slides	5

bcl-6, RMab



IHC of bcl-6 on a FFPE Tonsil Tissue

bcl-6 is a transcriptional regulator gene which codes for a 706-amino-acid nuclear zinc finger protein. Antibodies to this protein stain the germinal center cells in lymphoid follicles, follicular cells and interfollicular cells in Follicular Lymphoma, Diffuse Large B-Cell Lymphomas, Burkitt's Lymphoma, and the majority of the Reed-Sternberg cells in Nodular Lymphocyte-Predominant Hodgkin's Disease.

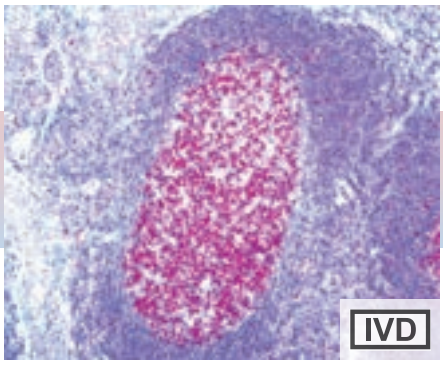
bcl-6 is also useful in identifying neoplastic cells in cases of nodular Lymphocyte-Predominant Hodgkin's Disease. In contrast, anti-bcl-6 rarely stains Mantle-Cell Lymphoma and MALT Lymphoma. bcl-6 expression is seen in approximately 45% of CD30+ Anaplastic Large-Cell Lymphomas but is consistently absent in other peripheral T-cell Lymphomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-bcl6*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Thymus, Skin, Breast, Brain, Follicular Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5078	Tinto Predilute	3.0 ml
BSB 5079	Tinto Predilute	7.0 ml
BSB 5080	Tinto Predilute	15.0 ml
BSB 5081	Concentrate	0.1 ml
BSB 5082	Concentrate	0.5 ml
BSB 5083	Concentrate	1.0 ml
BSB 5084	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

bcl-6, RMab



IHC of bcl-6 on a FFPE Tonsil Tissue

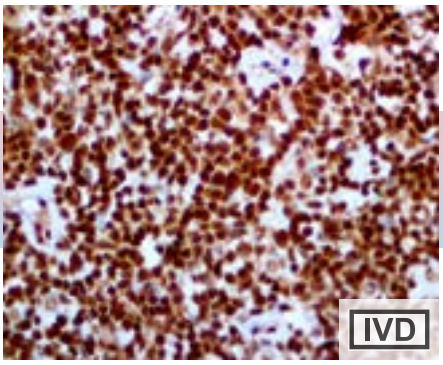
bcl-6 is a transcriptional regulator gene which codes for a 706-amino-acid nuclear zinc finger protein. Antibodies to this protein stain the germinal center cells in lymphoid follicles, follicular cells and interfollicular cells in Follicular Lymphoma, Diffuse Large B-Cell Lymphomas, Burkitt's Lymphoma, and the majority of the Reed-Sternberg cells in Nodular Lymphocyte-Predominant Hodgkin's Disease.

bcl-6 is also useful in identifying neoplastic cells in cases of nodular Lymphocyte-Predominant Hodgkin's Disease. In contrast, anti-bcl-6 rarely stains Mantle-Cell Lymphoma and MALT Lymphoma. bcl-6 expression is seen in approximately 45% of CD30+ Anaplastic Large-Cell Lymphomas but is consistently absent in other peripheral T-cell Lymphomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP278*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Follicular Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2817	Tinto Predilute	3.0 ml
BSB 2818	Tinto Predilute	7.0 ml
BSB 2819	Tinto Predilute	15.0 ml
BSB 2820	Concentrate	0.1 ml
BSB 2821	Concentrate	0.5 ml
BSB 2822	Concentrate	1.0 ml
BSB 2823	Control Slides	5

bcl-10, MMab



IHC of bcl-10 on a FFPE Tonsil Tissue

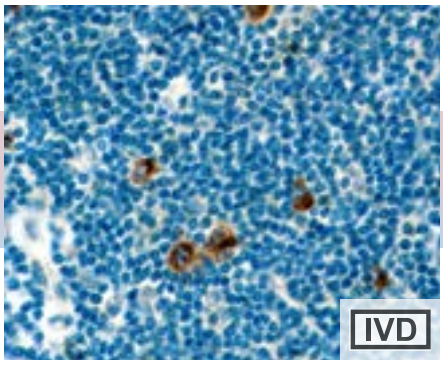
bcl-10 (also known as B-cell lymphoma/leukemia 10) is a 233 amino acid protein encoded by the BCL10 gene on Chromosome 1. The protein encoded by this gene contains a caspase recruitment domain , and has been shown to induce apoptosis and activate NF-kappaB. This protein is reported to interact with caspase recruitment domains (CARD) containing proteins including CARD9, 10, 11 and 14. These proteins function as upstream regulators in NF-kappaB signaling.

Studies have shown that bcl-10 plays a critical role in the development of mucosa associated lymphoma tissue (MALT) lymphoma, and can be utilized in the classification of lymphomas. The antibody labels subpopulations of normal B and T cells. In MALT lymphomas with the t(1;14) translocation, the antibody strongly labeled the nuclei and cytoplasm, while 55% of MALT lymphomas lacking this translocation exhibited the same labeling pattern, although at a much lower level.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-22*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Kidney, Cervix, Bladder TCC, MALT Lymphomas*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2698	Tinto Predilute	3.0 ml
BSB 2699	Tinto Predilute	7.0 ml
BSB 2700	Tinto Predilute	15.0 ml
BSB 2701	Concentrate	0.1 ml
BSB 2702	Concentrate	0.5 ml
BSB 2703	Concentrate	1.0 ml
BSB 2704	Control Slides	5

bcl-X, RMab



IHC of bcl-X on a FFPE Hodgkin's Lymphoma Tissue

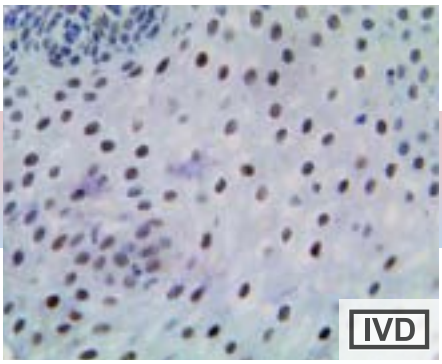
bcl-X, or bcl-2-like 1 protein, a member of the bcl-2 protein family, inhibits cell death, or apoptosis and functions as a regulator of apoptosis. bcl-X has two isoforms: bcl-XL (Long), a 241-amino acid protein; and bcl-XS (Short), a 178-amino acid protein lacking a 63-amino acid domain that is well conserved among members of the bcl-2 family.

bcl-X is typically present in the cytosol in association with the mitochondrial membrane. bcl-XL forms heterodimers with various proteins, including Bax, Bak and bcl-2. It has been found that heterodimerization with Bax does not seem to be required for anti-apoptotic activity.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP94*
ISOTYPE: *IgG*
CONTROL: *Kidney, Tonsil, Cervix, Hodgkin;s Lymphoma*
LOCALIZATION: *Cytoplasmic Cell/Nuclear-Membrane*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6085	Tinto Predilute	3.0 ml
BSB 6086	Tinto Predilute	7.0 ml
BSB 6087	Tinto Predilute	15.0 ml
BSB 6088	Concentrate	0.1 ml
BSB 6089	Concentrate	0.5 ml
BSB 6090	Concentrate	1.0 ml
BSB 6091	Control Slides	5

BCOR, MMab



IHC of BCOR on a FFPE Cervix Tissue

BCOR is a gene that encodes for an epigenetic regulator involved in the specification of cell differentiation and body structure development. Various BCOR aberrations, represent driver elements of various sarcomas such as Clear Cell Sarcoma of the Kidney, Primitive Mesenchymal Myxoid Tumor of infancy, small round blue cell sarcoma, endometrial stromal sarcoma and histologically heterogeneous CNS neoplasms group with similar genomic methylation patterns known as CNS-HGNET-BCOR. Furthermore, other BCOR alterations (often loss of function mutations) recur in a large variety of Mesenchymal, Epithelial, Neural and Hematological Tumors, suggesting a central role in cancer evolution.

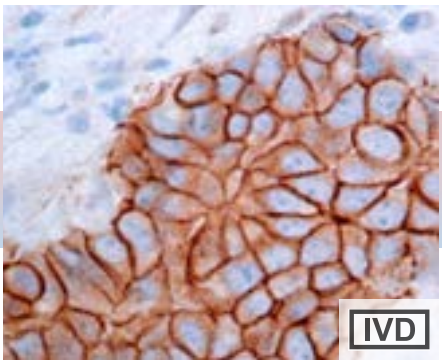
Recent studies have found the IHC of BCOR to be a highly sensitive marker for SBRCTs and CCSKs with BCOR abnormalities and YWHAE rearrangements and can be used as a useful diagnostic marker in these various molecular subsets.

It was concluded that BCOR immunohistochemical staining is a highly sensitive marker for YWHAE-NUTM2 high-grade Endometrial Stromal Sarcomas with both classic and unusual morphology and identifies a subset of high-grade Endometrial Stromal Sarcomas with BCOR alterations, including BCOR rearrangement and internal tandem duplication

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-128*
ISOTYPE: *IgG1/K*
CONTROL: *Testis, Cervix, Prostate, TCC, Angiosarcoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-2370-3	Tinto Predilute	3.0 ml
BSB-2370-7	Tinto Predilute	7.0 ml
BSB-2370-15	Tinto Predilute	15.0 ml
BSB-2370-01	Concentrate	0.1 ml
BSB-2370-05	Concentrate	0.5 ml
BSB-2370-1	Concentrate	1.0 ml
BSB-2370-CS	Control Slides	5

Beta-Catenin, MMab



IHC of Beta-Catenin on a FFPE Breast Tissue

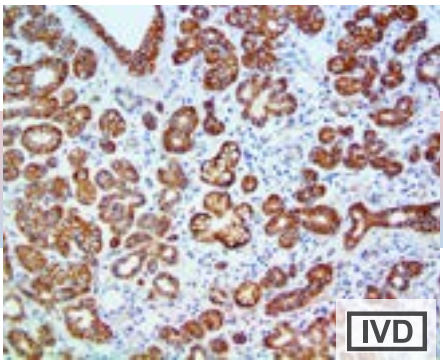
Beta-Catenin is a subunit of the Cadherin protein complex. Cadherins are a type of protein normally expressed on the surface of certain cells. Specifically, Beta Cateinin is a 92 kDa protein normally found in the cytoplasm of the cell in the sub-membranous location. This protein is associated with E-Cadherin and may be essential for the function of E-Cadherin.

Mutations in the Beta-Catenin gene result in the nuclear accumulation of this protein. Nuclear accumulation of this protein has been demonstrated in Fibromatosis lesions of the breast and abdomen, and therefore is useful in differentiating this lesion from other spindle-cell lesions that may occur in these locations.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *14*
ISOTYPE: *IgG1*
CONTROL: *Fibromatosis of the Breast and Abdomen*
LOCALIZATION: *Cytoplasmic, Membranous, Nuclear*
SPECIES REACTIVITY: *Human, Dog, Mouse, Rat, Chicken*

CAT. #	PRESENTATION	VOL/QTY
BSB 5085	Tinto Predilute	3.0 ml
BSB 5086	Tinto Predilute	7.0 ml
BSB 5087	Tinto Predilute	15.0 ml
BSB 5088	Concentrate	0.1 ml
BSB 5089	Concentrate	0.5 ml
BSB 5090	Concentrate	1.0 ml
BSB 5091	Control Slides	5

Beta-Catenin, RMab



IHC of Beta-Catenin on a FFPE Salivary Gland Tissue

Beta-Catenin is a subunit of the Cadherin protein complex. Cadherins are a type of protein normally expressed on the surface of certain cells. Specifically, Beta Catenin is a 92 kDa protein normally found in the cytoplasm of the cell in the sub-membranous location. This protein is associated with E-Cadherin and may be essential for the function of E-Cadherin.

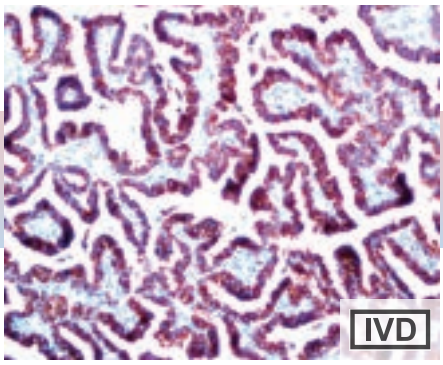
Mutations in the Beta-Catenin gene result in the nuclear accumulation of this protein. Nuclear accumulation of this protein has been demonstrated in Fibromatosis lesions of the breast and abdomen, and therefore is useful in differentiating this lesion from other spindle-cell lesions that may occur in these locations.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM276*
ISOTYPE: *IgG*
CONTROL: *Fibromatosis of the Breast & Abdomen, Breast, Adbomen, Colon, Testis, Pancreas*
LOCALIZATION: *Cytoplasmic, Membranous, Nuclear*
SPECIES REACTIVITY: *Human, Predicted: Mouse, Rat, Sheep, Hamster, Cow, Macaque Monkey, African Green Monkey*

CAT. #	PRESENTATION	VOL/QTY
BSB-3756-3	Tinto Predilute	3.0 ml
BSB-3756-7	Tinto Predilute	7.0 ml
BSB-3756-15	Tinto Predilute	15.0 ml
BSB-3756-01	Concentrate	0.1 ml
BSB-3756-05	Concentrate	0.5 ml
BSB-3756-1	Concentrate	1.0 ml
BSB-3756-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

BG8 LewisY, MMab



IHC of BG8 LewisY on a FFPE Adenocarcinoma Tissue

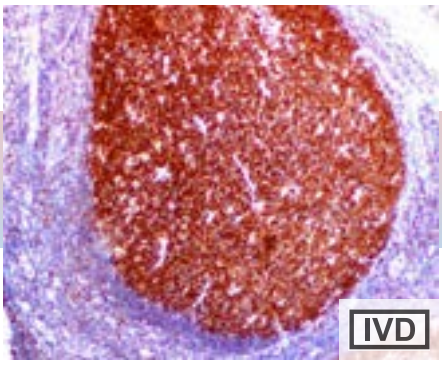
Blood group antigens have been examined as potential discriminators between Pulmonary Adenocarcinoma (PACA) and Epithelioid Mesothelioma (EM). LewisY is the only one of these that appears to have some merit. BG8 is raised from the SK-LU-3 lung cancer line and is able to distinguish between PACA and EM. Studies of 231 cases of PACA and 197 cases of EM have shown that sensitivity and specificity for PACA were both 93%. It has been reported that sensitivity of nonmesothelial antigens for Adenocarcinoma is organ dependent, with BG8 Lewis performing at 98% in the breast cancer group, and 100% in the lung cancer group. The specificity of the nonmesothelial (non-EM) antigens for adenocarcinoma was 98% for BG8.

It has been concluded using logical regression analysis that a three-antibody immunohistochemical panel including Calretinin, BG8, and MOC-31 would provide 96% sensitivity and specificity for distinguishing EM from Adenocarcinoma in a variety of sources (lung, ovary, breast, stomach).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *F3*
ISOTYPE: *IgM*
CONTROL: *Placenta, Tonsil, Pancreas, Cervix, Lung Adenocarcinoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6373	Tinto Predilute	3.0 ml
BSB 6374	Tinto Predilute	7.0 ml
BSB 6375	Tinto Predilute	15.0 ml
BSB 6376	Concentrate	0.1 ml
BSB 6377	Concentrate	0.5 ml
BSB 6378	Concentrate	1.0 ml
BSB 6379	Control Slides	5

BOB.1, RMab



IHC of BOB.1 on a FFPE Tonsil Tissue

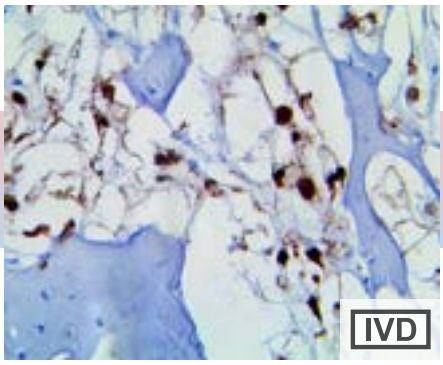
The BOB-1 protein is a co-activator that interacts with Oct1 and/or Oct2 transcription factors, and is critical in germinal center formation and immunoglobulin production. The strongest expression of BOB-1 is found in the germinal center, mantle-zone B cells, and plasma cells. Because BOB-1/OBF.1 are germinal center derived, L&H cells in Nodular Lymphocyte Predominant Hodgkin Lymphoma are consistently immunoreactive for BOB-1. Conversely, the Hodgkin/Reed-Sternberg cells in classical Hodgkin Lymphoma either do not express both or express only one of the two proteins.

In Diffuse Large B-cell Lymphomas, the highest expression levels for BOB-1/OBF.1 are reported in Follicular Center Lymphomas, Diffuse Large B-cell Lymphomas, and Burkitt Lymphomas. B-CLL, MALT-type, and Mantle Cell Lymphomas score negative or display a heterogenous/weaker activity. The strong nuclear expression of BOB-1 and Oct-2 by Germinal Center Derived Lymphomas makes these antibodies a novel class of broad spectrum B-lineage immunohistochemical markers in the differential diagnosis of Lymphomas, specifically between Primary Mediastinal B-cell Lymphoma from classical Hodgkin Disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT BOB. 1*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3700-3	Tinto Predilute	3.0 ml
BSB-3700-7	Tinto Predilute	7.0 ml
BSB-3700-15	Tinto Predilute	15.0 ml
BSB-3700-01	Concentrate	0.1 ml
BSB-3700-05	Concentrate	0.5 ml
BSB-3700-1	Concentrate	1.0 ml
BSB-3700-CS	Control Slides	5

Brachyury, RMab



IHC of Brachyury on a FFPE Chordoma Tissue

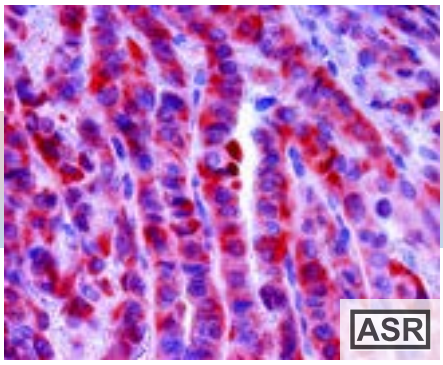
Expression of the brachyury gene has been identified as a definitive diagnostic marker of chordoma, a malignant tumor that arises from remnant notochordal cells lodged in the vertebrae. Furthermore, germ line duplication of brachyury confers major susceptibility to chordoma. The chromosomal region on 6q27 containing the brachyury gene was gained in 6 of 21 chordomas (29%), and none of the 21 chordomas analyzed showed deletions that could have affected this gene.

Brachyury is an important factor in promoting the epithelial-mesenchymal transition (EMT). Cells that over-express brachyury have down-regulated expression of the adhesion molecule E-cadherin, which allows them to undergo EMT. Overexpression of brachyury has been linked to Hepatocellular carcinoma. While brachyury is promoting EMT, it can also induce metastasis of HCC cells. Brachyury expression is a prognostic biomarker for HCC, and the gene may be a target for cancer treatments in the future. Additionally, overexpression of brachyury may play a part in EMT associated with benign disease such as renal fibrosis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-TBXT*
ISOTYPE: *IgG*
CONTROL: *Testis, Chordoma, Chondroma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3490	Tinto Predilute	3.0 ml
BSB 3491	Tinto Predilute	7.0 ml
BSB 3492	Tinto Predilute	15.0 ml
BSB 3493	Concentrate	0.1 ml
BSB 3494	Concentrate	0.5 ml
BSB 3495	Concentrate	1.0 ml
BSB 3496	Control Slides	5

BRAF V600E, RMab



IHC of BRAF-V600E on a FFPE Papilary Thyroid Carcinoma Tissue

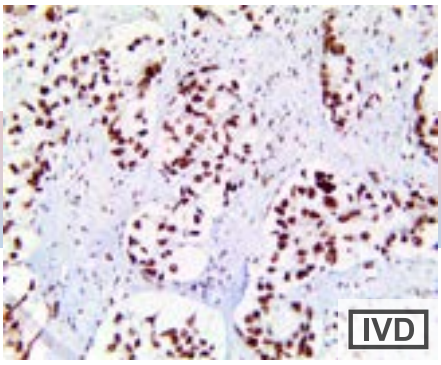
BRAF is a human gene that makes a protein called B-Raf, which is more formally known as serine/threonine-protein kinase B-Raf. The B-Raf protein is involved in sending signals inside cells, which are involved in directing cell growth. Mutations in the BRAF gene can cause disease in two ways. First, mutations can be inherited and cause birth defects. Second, mutations can appear later in life and cause cancer, as an oncogene.

Mutations in this gene have been found in cancers, including non-Hodgkin lymphoma, colorectal cancer, malignant melanoma, papillary thyroid carcinoma, non-small-cell lung carcinoma, and adenocarcinoma of the lung. The frequency of BRAF mutations varies widely in human cancers, from more than 80% in melanomas and nevi, to as little as 0–18% in other tumors, such as 1–3% in lung cancers and 5% in colorectal cancer. In 90% of the cases, thymine is substituted with adenine at nucleotide 1799. This leads to valine (V) being substituted for by glutamate (E) at codon 600 (referred to as V600E) in the activation segment that has been found in human cancers. This mutation has been widely observed in papillary thyroid carcinoma, colorectal cancer, melanoma and non-small-cell lung cancer. BRAF-V600E mutation are present in 57% of Langerhans cell histiocytosis patients. The V600E mutation is a likely driver mutation in 100% of cases of hairy cell leukemia. High frequency of BRAF V600E mutations have been detected in ameloblastoma, a benign but locally infiltrative odontogenic neoplasm.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM8*
ISOTYPE: *IgG*
CONTROL: *BRAF 600E Mutated Melanoma Papillary Thyroid Cancer*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2824	Tinto Predilute	3.0 ml
BSB 2825	Tinto Predilute	7.0 ml
BSB 2826	Tinto Predilute	15.0 ml
BSB 2827	Concentrate	0.1 ml
BSB 2828	Concentrate	0.5 ml
BSB 2829	Concentrate	1.0 ml
BSB 2830	Control Slides	5

BRG-1/SMARCA4, MMab



IHC of BRG-1/SMARCA4 on a FFPE Lung Adenocarcinoma Tissue

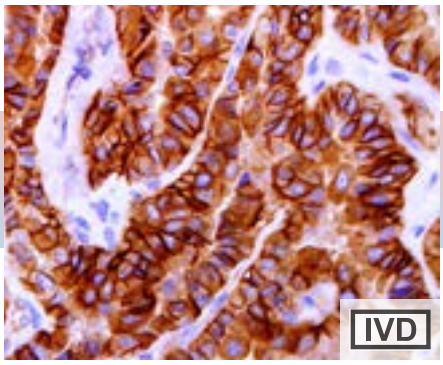
Brahma-related gene-1 (BRG-1) protein is encoded by the gene SMARCA-4, which is localized on chromosome 19. BRG-1 is the core catalytic ATPase subunit of the SWItch/sucrose non-fermentable (SWI/SNF) complex. SWI/SNFs are a member of the family of ATP-dependent chromatin-remodeling complexes and the function of SWI/SNFs is to facilitate the transcriptional activation or repression of target genes. BRG-1 is essential for DNA repair, differentiation, and organ development.

There are several studies that suggest the involvement of BRG-1 in different cancer types. It was found that the loss of BRG-1 expression occurs in a portion of tested cancers types, including Breast, Colon, Head/Neck, Ovarian, Liver and Renal Cell Cancer. On the contrary, overexpression of BRG-1 was found in Breast, Colorectal, and Prostate Cancer, as well as Melanoma and Neuroblastoma. There is no established cutoff for determining high versus low expression; staining of the surrounding normal tissue has been used as a median value relative to which BRG-1/SMARCA4 expression may be considered increased or decreased. An IHC analysis of BRG-1 in Non-Small Cell Lung Cancer (NSCLC) patients revealed that the survival rate of BRG-1 negative patients was 0%, when compared to BRG-1 positive patients, indicating the prognostic value of BRG-1 as a biomarker.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-154*
ISOTYPE: *IgG1*
CONTROL: *Colon, Kidney, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3714-3	Tinto Predilute	3.0 ml
BSB-3714-7	Tinto Predilute	7.0 ml
BSB-3714-15	Tinto Predilute	15.0 ml
BSB-3714-01	Concentrate	0.1 ml
BSB-3714-05	Concentrate	0.5 ml
BSB-3714-1	Concentrate	1.0 ml
BSB-3714-CS	Control Slides	5

C-Met/HGFR, RMab



IHC of c-Met on a FFPE Papillary Thyroid Carcinoma Tissue

c-Met is a proto-oncogene that encodes hepatocyte growth factor receptor (HGFR). The HGFR protein possesses tyrosinase-kinase activity. MET is a membrane receptor that is essential for embryonic development and wound healing, with its only known ligand being hepatocyte growth factor (HGF). Met is normally expressed by cells of epithelial origin, while expression of HGF is restricted to cells of mesenchymal origin. Upon HGF stimulation, MET induces several biological responses that collectively give rise to a program known as invasive growth.

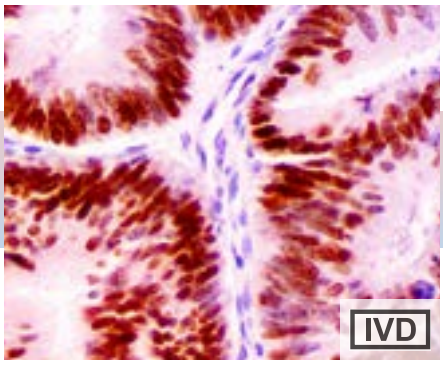
MET is deregulated in many types of human malignancies, including cancers of kidney, liver, stomach, breast, and brain. Normally, only stem cells and progenitor cells express MET, which allows these cells to grow invasively in order to generate new tissues in an embryo or regenerate damaged tissues in an adult. However, cancer stem cells are thought to hijack the ability to express MET, and thus become the cause of cancer persistence and spread to other sites in the body (metastasis).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP1454Y*
ISOTYPE: *IgG*
CONTROL: *Breast, Tonsil, Cervix, Papillary Thyroid Carcinoma, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6583	Tinto Predilute	3.0 ml
BSB 6584	Tinto Predilute	7.0 ml
BSB 6585	Tinto Predilute	15.0 ml
BSB 6586	Concentrate	0.1 ml
BSB 6587	Concentrate	0.5 ml
BSB 6588	Concentrate	1.0 ml
BSB 6589	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

C-Myc, MMab



IHC of c-Myc on a FFPE Colon Carcinoma Tissue

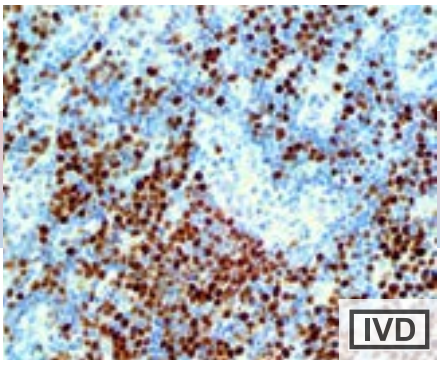
Oncogene-encoded proteins c-Myc, n-Myc, and l-Myc function in cell proliferation, differentation and neoplastic disease. A mutated version of Myc is found in many cancers, which causes Myc to be constitutively expressed. This leads to the unregulated expression of many genes, some of which are involved in cell proliferation, and results in the formation of cancer. c-Myc is a transcription factor and is a proto-oncogene that is the focal point in cell cycle regulation, metabolism, apoptosis, differentiation, cell adhesion, and tumorigenesis.

A common human translocation involving Myc is t(8;14), which is criticial to the development of most cases of Burkitt's Lymphoma. Malfunctions in Myc have also been found in carcinoma of the cervix, colon, breast, lung, and stomach.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *9E10*
ISOTYPE: *IgG1*
CONTROL: *Burkitt Lymphoma, Lung Cancer, Prostate Cancer, Breast Carcinoma*
LOCALIZATION: *Cytoplasmic. Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6863	Tinto Predilute	3.0 ml
BSB 6864	Tinto Predilute	7.0 ml
BSB 6865	Tinto Predilute	15.0 ml
BSB 6866	Concentrate	0.1 ml
BSB 6867	Concentrate	0.5 ml
BSB 6868	Concentrate	1.0 ml
BSB 6869	Control Slides	5

C-Myc, RMab



IHC of c-Myc on a FFPE Burkitt's Lymphoma Tissue

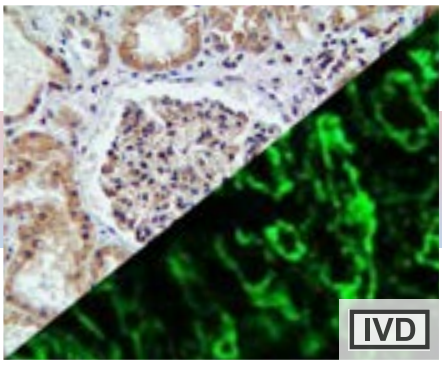
Oncogene-encoded proteins c-Myc, n-Myc, and l-Myc function in cell proliferation, differentation and neoplastic disease. A mutated version of Myc is found in many cancers, which causes Myc to be constitutively expressed. This leads to the unregulated expression of many genes, some of which are involved in cell proliferation, and results in the formation of cancer. c-Myc is a transcription factor and is a proto-oncogene that is the focal point in cell cycle regulation, metabolism, apoptosis, differentiation, cell adhesion, and tumorigenesis.

A common human translocation involving Myc is t(8;14), which is criticial to the development of most cases of Burkitt's Lymphoma. Malfunctions in Myc have also been found in carcinoma of the cervix, colon, breast, lung, and stomach.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP121*
ISOTYPE: *IgG*
CONTROL: *Burkitt Lymphoma, Lung Cancer, Prostate Cancer*
LOCALIZATION: *Cytoplasmic. Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6576	Tinto Predilute	3.0 ml
BSB 6577	Tinto Predilute	7.0 ml
BSB 6578	Tinto Predilute	15.0 ml
BSB 6579	Concentrate	0.1 ml
BSB 6580	Concentrate	0.5 ml
BSB 6581	Concentrate	1.0 ml
BSB 6582	Control Slides	5

C1q, RPab



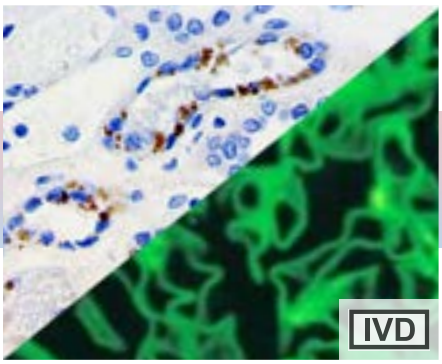
IHC and IF of C1q on a of FFPE Lupus Erythematosus Tissue (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

The Complement Component 1q (C1q) is a protein complex involved in the complement system, which is part of the innate immune system. C1q together with C1randC1s form theC1 complex. Antibodiesof theadaptive immune system can bind antigen, forming an antigen-antibody complex. When C1q binds antigen antibody complexes, theC1 complexbecomes activated. Activation of the C1 complex initiates theclassical complement pathway of the complement system.
C1q nephropathy is a rare glomerular disease with characteristic mesangial C1q deposition noted on IHC or IF microscopy. It is histologically defined and poorly understood. Light microscopic features are heterogeneous and comprise minimal change disease (MCD), focal segmental glomerulosclerosis (FSGS), and proliferative glomerulonephritis. Clinical presentation is also diverse, and ranges from asymptomatic hematuria or proteinuria to frank nephritic or nephrotic syndrome in both children and adults. Hypertension and renal insufficiency at the time of diagnosis are common findings.Lupus nephritis is an inflammation of the kidneys caused by SystemicLupusErythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Kidney, Cervix, Spleen, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3019	Tinto Predilute	3.0 ml
BSB 3020	Tinto Predilute	7.0 ml
BSB 3021	Tinto Predilute	15.0 ml
BSB 3022	Concentrate	0.1 ml
BSB 3023	Concentrate	0.5 ml
BSB 3024	Concentrate	1.0 ml
BSB 3025	Control Slides	5

C3c, RPab



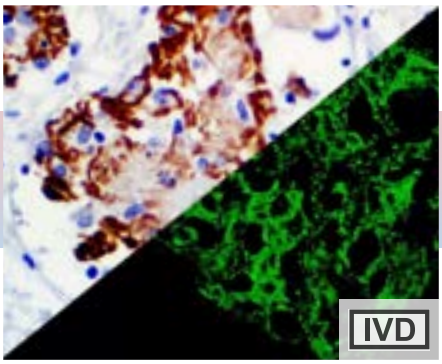
IHC and IF of C3c on a FFPE Lupus Erythematosus (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

Complement component 3, often simply called C3, is aprotein of the immune system. It plays a central role in the complement systemand contributes to innate immunity. C3 glomerulopathy was recently coined to describe renal biopsy appearances characterized by the presence of glomerular deposits composed predominantly of C3 in the absence of significant amounts of Ig. The presence of C3 in the absence of Ig suggests activation of complement by antibody-independent pathways, typically the alternative pathway, and many patients with this type of renal lesion have evidence of genetic or acquired alternative pathway dysregulation. C3 glomerulopathy has been further divided into dense deposit disease (DDD) and C3 glomerulonephritis (C3GN) based on electron microscopy (EM) appearances. The underlying genetic defect has been identified in some hereditary forms of C3GN such as CFHR5 nephropathy. Lupus nephritis is an inflammation of the kidneys caused by SystemicLupusErythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Placenta, Kidney, Fallopian Tube, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3026	Tinto Predilute	3.0 ml
BSB 3027	Tinto Predilute	7.0 ml
BSB 3028	Tinto Predilute	15.0 ml
BSB 3029	Concentrate	0.1 ml
BSB 3030	Concentrate	0.5 ml
BSB 3031	Concentrate	1.0 ml
BSB 3032	Control Slides	5

C3d, RPab



IHC and IF of C3d on a FFPE Rejected Kidney Transplant (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

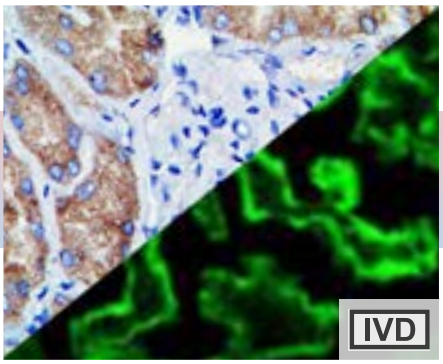
Complement component 3, or C3, is a protein of the immune system that plays a central role in the complement system and contributes to innate immunity. Its activation is required for both classical and alternative complement activation pathways. C3d deposition in the renal transplant PTCs (peritubular capillaries) is indicative of AR (acute rejection) with subsequent high probability of graft loss.

Anti-C3d combined with anti-C4d can be utilized as a tool for diagnosis of AR and warrant prompt and aggressive anti-rejection treatment. C3d is also a helpful adjunct in the diagnosis of bullous pemphigoid (BP) and perhaps pemphigus vulgaris (PV), especially in the cases in which only formalin-fixed, paraffin embedded tissue is available for analysis.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Rejected Kidney Transplant*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6387	Tinto Predilute	3.0 ml
BSB 6388	Tinto Predilute	7.0 ml
BSB 6389	Tinto Predilute	15.0 ml
BSB 6390	Concentrate	0.1 ml
BSB 6391	Concentrate	0.5 ml
BSB 6392	Concentrate	1.0 ml
BSB 6393	Control Slides	5

C4c, RPab



IHC and IF of C4c on a FFPE Kidney (IHC) and on a Frozen Glomerulonephritis Tissue (IF)

Complement component 4 (C4), in humans, is a protein involved in the intricate complement system, originating from the human leukocyte antigen(HLA) system. It serves several critical functions in immunity, tolerance, and autoimmunity with the other numerous components.

Low serum complement activity or low protein concentrations of complement C4 are found on Systemic Lupus Erythematosus (SLE) and it is often associated with Congenital C4 deficiency. Complete deficiencies of complement components are among the strongest genetic risk factors for SLE or lupus-like disease, across HLA haplotypes and racial backgrounds.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Testis, Kidney, Pancreas, Salivary Gland, Colon*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3033	Tinto Predilute	3.0 ml
BSB 3034	Tinto Predilute	7.0 ml
BSB 3035	Tinto Predilute	15.0 ml
BSB 3036	Concentrate	0.1 ml
BSB 3037	Concentrate	0.5 ml
BSB 3038	Concentrate	1.0 ml
BSB 3039	Control Slides	5

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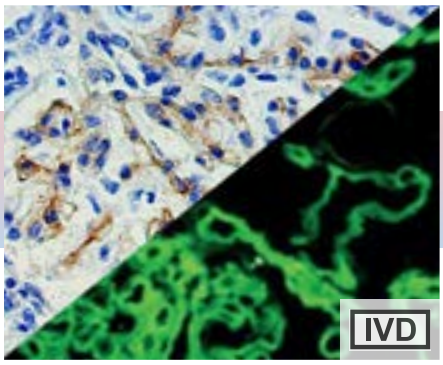
C4d, RMab



IHC and IF of C4d on a FFPE Kidney Tissue (IHC) and on a Frozen Kidney Rejection Tissue (IF)

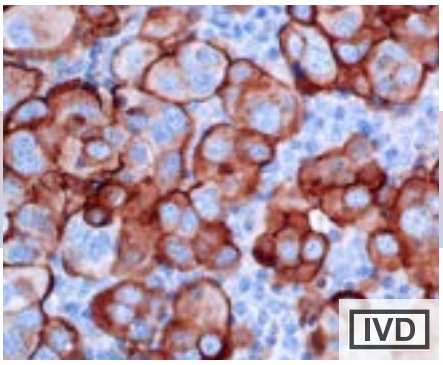
Complement component 4, or C4, plays a central role in the complement system. C4d is the final proteolytic remnant of deposited C4b on endothelium and remains covalently attached to endothelium for little more than a week. It is easily detectable by Immunohistochemistry.

Anti-C4d combined with anti-C3d can be utilized as a tool for diagnosis of AR (Acute Rejection) and warrant prompt and aggressive anti-rejection treatment. C4d can be detected in peritubular capillaries in both chronic renal allograft rejection as well as hyperacute rejection, acute vascular rejection, acute cellular rejection, and borderline rejection. It has been shown to be a significant predictor of transplant kidney graft survival and is an aid in treating acute rejection.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP272*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Kidney Transplant Rejection*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2831	Tinto Predilute	3.0 ml
BSB 2832	Tinto Predilute	7.0 ml
BSB 2833	Tinto Predilute	15.0 ml
BSB 2834	Concentrate	0.1 ml
BSB 2835	Concentrate	0.5 ml
BSB 2836	Concentrate	1.0 ml
BSB 2837	Control Slides	5

CA-125, MMab



IHC of CA-125 on a FFPE Ovarian Carcinoma Tissue

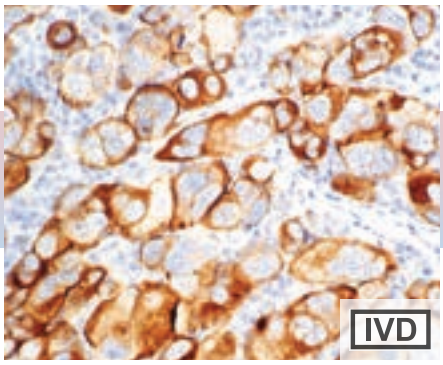
CA-125 reacts with malignant ovarian epithelial cells. CA-125 also reacts with antigens in Seminal Vesicle Carcinoma and Anaplastic Lymphoma.

In adult tissues, CA-125 is found in epithelial cells of Fallopian tube, endometrium and endocervix, pancreas, colon, gall bladder, stomach, kidney, apocrine sweat gland, and mammary gland. It is also found in mesothelial cell lining of pleura, pericardium and peritoneum. It is found in ovarian tumors of serous, endometrioid or clear-cell types and Adenocarcinomas of Mullerian type.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *OC125*
ISOTYPE: *IgG1/K*
CONTROL: *Colon, Pancreas, Epitheliod Mesothelioma, Ovarian Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5092	Tinto Predilute	3.0 ml
BSB 5093	Tinto Predilute	7.0 ml
BSB 5094	Tinto Predilute	15.0 ml
BSB 5095	Concentrate	0.1 ml
BSB 5096	Concentrate	0.5 ml
BSB 5097	Concentrate	1.0 ml
BSB 5098	Control Slides	5

CA-125, RMab



IHC of CA-125 on a FFPE Ovarian Carcinoma Tissue

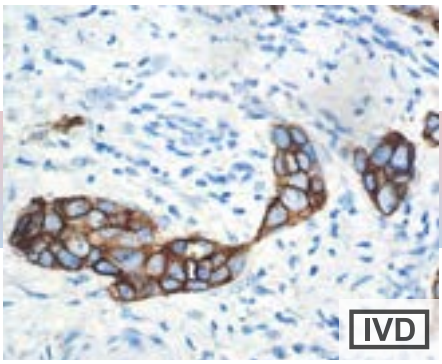
CA-125 reacts with malignant ovarian epithelial cells. CA-125 also reacts with antigens in Seminal Vesicle Carcinoma and Anaplastic Lymphoma.

In adult tissues, CA-125 is found in epithelial cells of Fallopian tube, endometrium and endocervix, pancreas, colon, gall bladder, stomach, kidney, apocrine sweat gland, and mammary gland. It is also found in mesothelial cell lining of pleura, pericardium and peritoneum. It is found in ovarian tumors of serous, endometrioid or clear-cell types and Adenocarcinomas of Mullerian type.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP48*
ISOTYPE: *IgG*
CONTROL: *Colon, Pancreas, Epitheliod Mesothelioma, Ovarian Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6401	Tinto Predilute	3.0 ml
BSB 6402	Tinto Predilute	7.0 ml
BSB 6403	Tinto Predilute	15.0 ml
BSB 6404	Concentrate	0.1 ml
BSB 6405	Concentrate	0.5 ml
BSB 6406	Concentrate	1.0 ml
BSB 6407	Control Slides	5

CA15-3, MMab



IHC of CA15-3 on a FFPE Breast Tissue

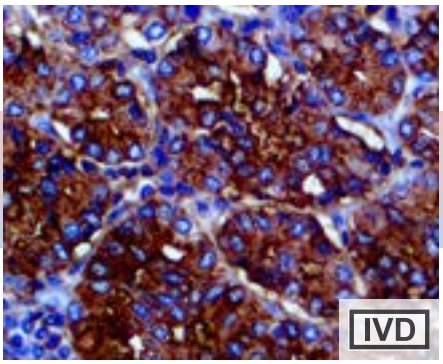
This antibody has been used for evaluating the primary site of a metastatic carcinoma of unknown origin and distinguishing between benign and malignant lesions. It is believed that CA15-3 reacts primarily with the DF3-antigen, a 300 kDa mucin-like glycoprotein present on the apical border of secretory mammary epithelial cells.

CA15-3 has been detected with immunohistochemistry in a wide spectrum of carcinomas, including Breast Carcinomas (ductal and lobular), Sarcomas (Synovial Sarcoma and Malignant Fibrous Histiocytomas), and Lung Carcinomas. CA15-3 can be used as a supplementary marker for epithelial differentiation. CA15-3 does not stain Melanomas or Ewing's Sarcomas. Approximately 30% of Hepatocellular Carcinomas are positive for CA15-3.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *DF3*
ISOTYPE: *IgG1*
CONTROL: *Kidney, Breast, Pancreas, Lymph Node, Cervix, Salivary Gland, Bladder TCC*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5099	Tinto Predilute	3.0 ml
BSB 5100	Tinto Predilute	7.0 ml
BSB 5101	Tinto Predilute	15.0 ml
BSB 5102	Concentrate	0.1 ml
BSB 5103	Concentrate	0.5 ml
BSB 5104	Concentrate	1.0 ml
BSB 5105	Control Slides	5

CA19-9, MMab



IHC of CA19-9 on a FFPE Salivary Gland Tissue

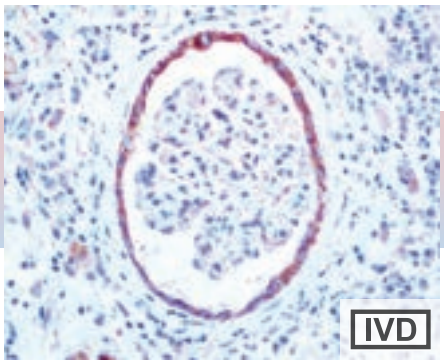
CA19-9 (carbohydrate antigen 19-9 or sialylated Lewis (a) antigen) is a blood test from the tumor marker category. It was discovered in patients with Colon Cancer and Pancreatic Cancer in 1981. Increased levels of CA19-9 are also found in non-malignant conditions, such as Mirizzi's Syndrome and diseases of the bile duct and liver. The main use of CA19-9 is to determine whether a pancreatic tumor is secreting it; if that is the case, then the levels should fall when the tumor is treated, and they may rise again if the disease recurs.

CA19-9 antigen is highly expressed in Gastrointestinal (gastric, pancreatic, and colonic) Adenocarcinomas and salivary gland Mucoepidermoid Carcinomas. CA19-9 is usually not reactive with breast, kidney, and prostate Carcinomas, but is reactive with sialylated Lea-active pentasaccharide (sialylated lacto-N-fucopentaose II), which is enzymatically synthesized by sialylation of Type 1 carbohydrate chains.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *121SLE*
ISOTYPE: *IgM*
CONTROL: *Colon, Cervix, Pancreas, Practreatic Cancer, Breast, Breast Carcinoma, Colon Carcinoma, Transitional Cell Carcinoma, Ovarian Carcinoma, Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5106	Tinto Predilute	3.0 ml
BSB 5107	Tinto Predilute	7.0 ml
BSB 5108	Tinto Predilute	15.0 ml
BSB 5109	Concentrate	0.1 ml
BSB 5110	Concentrate	0.5 ml
BSB 5111	Concentrate	1.0 ml
BSB 5112	Control Slides	5

Cadherin-6, RMab



IHC of Cadherin-6 on a FFPE Kidney Tissue

Cadherin-6 is a member of the cadherin superfamily. Cadherins are membrane glycoproteins that mediate homophilic cell-cell adhesion and play critical roles in cell differentiation and morphogenesis. It is a type I cadherin and may play a role in kidney development as well as endometrium and placenta formation.

Cadherin-6 is highly expressed in kidney and the central nervous system. It has been found to be related to fetal kidney development and has been identified as a major cadherin in renal proximal tubules where conventional renal cell carcinoma originates. The expression of Cadherin-6 is associated with tumor progression in renal cell carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP217*
ISOTYPE: *IgG*
CONTROL: *Kidney, Renal Cell Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2391	Tinto Predilute	3.0 ml
BSB 2392	Tinto Predilute	7.0 ml
BSB 2393	Tinto Predilute	15.0 ml
BSB 2394	Concentrate	0.1 ml
BSB 2395	Concentrate	0.5 ml
BSB 2396	Concentrate	1.0 ml
BSB 2397	Control Slides	5

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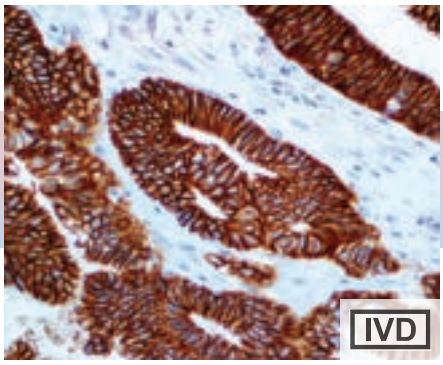
Cadherin17/LI-Cadherin, RMab



IHC of LI-Cadherin on a FFPE Colon Carcinoma Tissue

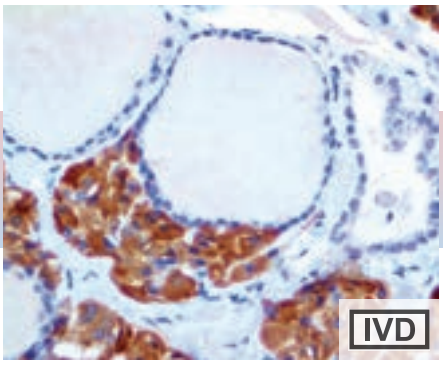
Cadherin 17 also known as LI-Cadherin, is part of the cadherin superfamily and is a calcium-dependent, membrane-associated glycoprotein. Cadherins are responsible for mediating cell-cell adhesion and are important for the structural integrity of epithelia. Cadherin 17 consists of an extracellular region containing 7 cadherin domains, and a transmembrane region but lacking the conserved cytoplasmic domain. It is a component of the gastrointestinal tract and pancreatic ducts, acting as an intestinal proton-dependent peptide transporter in the first step in oral absorption of many medically important peptide-based drugs. It may play a role in the morphological organization of liver and intestine.

In normal tissues, the Cadherin 17 antibody labels epithelial cells in the gastrointestinal tract and pancreatic duct, but not in kidney, liver and other tissues. In tumors, Cadherin 17 is expressed on adenocarcinoma of the digestive system, including liver cancer. It is a sensitve marker for the identification of gastric intestinal metaplasia and well differentiated adenocarcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP86*
ISOTYPE: *IgG*
CONTROL: *Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6849	Tinto Predilute	3.0 ml
BSB 6850	Tinto Predilute	7.0 ml
BSB 6851	Tinto Predilute	15.0 ml
BSB 6852	Concentrate	0.1 ml
BSB 6853	Concentrate	0.5 ml
BSB 6854	Concentrate	1.0 ml
BSB 6855	Control Slides	5

Calcitonin, RPab



IHC of Calcitonin on a FFPE Thyroid Tissue

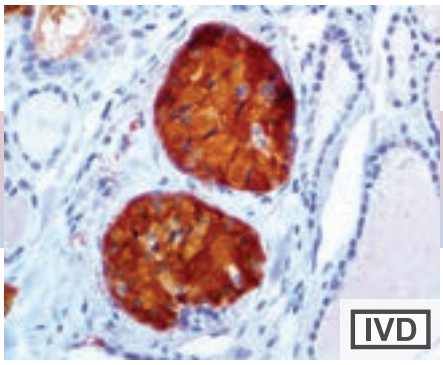
Calcitonin is a 32-amino acid polypeptide hormone that is produced in humans primarily by C-cells located in the thyroid, and in many other animals in the ultimobranchial gland. It acts to reduce blood calcium (Ca2+), opposing the effects of parathyroid hormone (PTH). It has been found in fish, reptiles, birds, and mammals. Its importance in humans has not been as well established as in other animals.

Immunohistochemical staining with Calcitonin antibody has proven to be an effective way of demonstrating the existence of Calcitonin-producing cells in the thyroid. C-cell Hyperplasia and Medullary Thyroid Carcinomas stain positive for Calcitonin. Studies of Calcitonin have resulted in the identification of a wide spectrum of C-cell proliferative abnormalities.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *N/A*
CONTROL: *Thyroid ,Thyroid Medullary Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5113	Tinto Predilute	3.0 ml
BSB 5114	Tinto Predilute	7.0 ml
BSB 5115	Tinto Predilute	15.0 ml
BSB 5116	Concentrate	0.1 ml
BSB 5117	Concentrate	0.5 ml
BSB 5118	Concentrate	1.0 ml
BSB 5119	Control Slides	5

Calcitonin, RMab



IHC of Calcitonin on a FFPE Thyroid Tissue

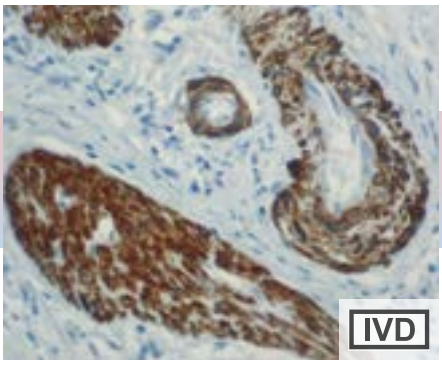
Calcitonin is a 32-amino acid polypeptide hormone that is produced in humans primarily by C-cells located in the thyroid, and in many other animals in the ultimobranchial gland. It acts to reduce blood calcium (Ca2+), opposing the effects of parathyroid hormone (PTH). It has been found in fish, reptiles, birds, and mammals. Its importance in humans has not been as well established as in other animals.

Immunohistochemical staining with Calcitonin antibody has proven to be an effective way of demonstrating the existence of Calcitonin-producing cells in the thyroid. C-cell Hyperplasia and Medullary Thyroid Carcinomas stain positive for Calcitonin. Studies of Calcitonin have resulted in the identification of a wide spectrum of C-cell proliferative abnormalities.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP92*
ISOTYPE: *IgG*
CONTROL: *Thyroid, Thyroid Medullary Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6408	Tinto Predilute	3.0 ml
BSB 6409	Tinto Predilute	7.0 ml
BSB 6410	Tinto Predilute	15.0 ml
BSB 6411	Concentrate	0.1 ml
BSB 6412	Concentrate	0.5 ml
BSB 6413	Concentrate	1.0 ml
BSB 6414	Control Slides	5

Caldesmon, MMab



IHC of Caldesmon on a FFPE Appendix Tissue

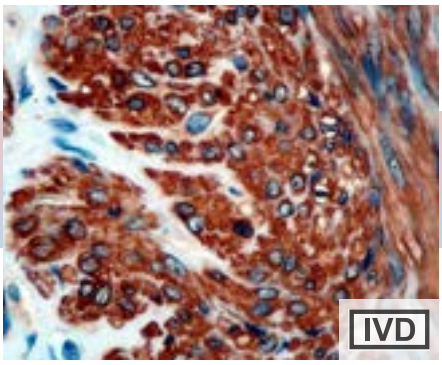
Caldesmon 1, also known as CALD1, is a human gene. Caldesmon is a calmodulin-binding protein. Like Calponin, Caldesmon tonically inhibits the ATPase activity of myosin in smooth muscle. This gene encodes a Calmodulin and actin-binding protein that play an essential role in the regulation of smooth muscle and nonmuscle contraction.

Two closely-related variants of human Caldesmon have been identified. The h-Caldesmon variant (120–150 kD) is predominantly expressed in smooth muscle, whereas l-Caldesmon (70–80 kD) is found in non-muscle tissue and cells. Neither of the two variants has been detected in skeletal muscle. Anti-Caldesmon recognizes only the h-Caldesmon variant. Anti-Caldesmon antibody labels smooth muscle and tumors of smooth muscle, myofibroblastic, and myoepithelial differentiation. Anti-Caldesmon has also been used to differentiate Epithelioid Mesothelioma from Serous Papillary Carcinoma of the ovary.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-19*
ISOTYPE: *IgG1/K*
CONTROL: *Appendix, Uterus, Leiomyoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rabbit, Pig*

CAT. #	PRESENTATION	VOL/QTY
BSB 6099	Tinto Predilute	3.0 ml
BSB 6100	Tinto Predilute	7.0 ml
BSB 6101	Tinto Predilute	15.0 ml
BSB 6102	Concentrate	0.1 ml
BSB 6103	Concentrate	0.5 ml
BSB 6104	Concentrate	1.0 ml
BSB 6105	Control Slides	5

Calponin, MMab



IHC of Calponin on a FFPE Leiomyoma Tissue

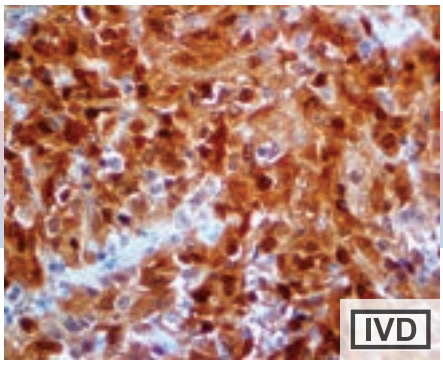
Calponin is a 34 kDa polypeptide that interacts with actin, tropomyosin, and calmodulin. It is involved in smooth-muscle contraction mechanisms and is restricted exclusively to smooth-muscle tissue. Calponin is a calcium-binding protein. Calponin tonically inhibits the ATPase activity of myosin in smooth muscle. Phosphorylation of calponin by a protein kinase (which is dependent upon calcium binding to calmodulin) releases the calponin's inhibition of the smooth-muscle ATPase.

Calponin has been found to be useful in differentiating benign sclerosing lesions of the breast from Carcinoma. Calponin positivity has also been noted in Malignant Myoepithelioma and Pleomorphic Adenoma of Salivary Gland origin, as well as in Angiomatoid Malignant Fibrous Histiocytoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-20*
ISOTYPE: *IgG1/K*
CONTROL: *Appendix, Uterus, Breast Ducts, Leiomyoma, Prostate, Colon, Breast, Skin*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5120	Tinto Predilute	3.0 ml
BSB 5121	Tinto Predilute	7.0 ml
BSB 5122	Tinto Predilute	15.0 ml
BSB 5123	Concentrate	0.1 ml
BSB 5124	Concentrate	0.5 ml
BSB 5125	Concentrate	1.0 ml
BSB 5126	Control Slides	5

Calretinin, RMab



IHC of Calretinin on a FFPE Mesothelioma Tissue

Calretinin is a vitamin D-dependent calcium -binding protein involved in calcium signaling. It is expressed in the central and peripheral nervous system and in many normal and pathological tissues. It stains Mesothelioma and can be used to help differentiate lung tumors. Calretinin is also considered an important diagnostic tool in the differential diagnosis of cystic and solid Ameloblastic Tumors.

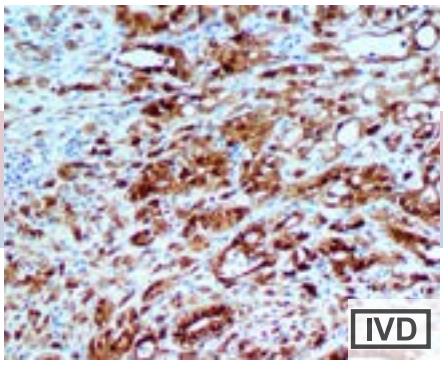
Anti-calretinin has been shown to be useful in differentiating Mesothelioma from Adenocarcinomas of the lung and other sources. It is also useful in differentiating adrenal-cortical neoplasms from Pheochromocytomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP1798*
ISOTYPE: *IgG*
CONTROL: *Brain, Testis, Colon, Benign Mesoitheliomal Cells, Malignant Mesothelioma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5127	Tinto Predilute	3.0 ml
BSB 5128	Tinto Predilute	7.0 ml
BSB 5129	Tinto Predilute	15.0 ml
BSB 5130	Concentrate	0.1 ml
BSB 5131	Concentrate	0.5 ml
BSB 5132	Concentrate	1.0 ml
BSB 5133	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Calretinin, RMab



IHC of Calretinin on a FFPE Mesothelioma Tissue

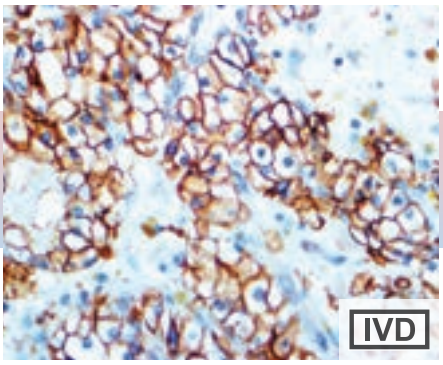
Calretinin is a vitamin D-dependent calcium-binding protein involved in calcium signaling. It is expressed in the central and peripheral nervous system and in many normal and pathological tissues. It stains Mesothelioma and can be used to help differentiate lung tumors. Calretinin is also considered an important diagnostic tool in the differential diagnosis of cystic and solid Ameloblastic Tumors.

Anti-calretinin has been shown to be useful in differentiating Mesothelioma from Adeno-carcinomas of the lung and other sources. It is also useful in differentiating adrenal-cortical neoplasms from Pheochromocytomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM324*
ISOTYPE: *IgG*
CONTROL: *Brain, Testis, Colon, Benign Mesoitheliomal Cells, Malignant Mesothelioma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3757-3	Tinto Predilute	3.0 ml
BSB-3757-7	Tinto Predilute	7.0 ml
BSB-3757-15	Tinto Predilute	15.0 ml
BSB-3757-01	Concentrate	0.1 ml
BSB-3757-05	Concentrate	0.5 ml
BSB-3757-1	Concentrate	1.0 ml
BSB-3757-CS	Control Slides	5

Carbonic Anhydrase 9, RMab



IHC of Carbonic Anhydrase 9 on a FFPE Kidney Tissue

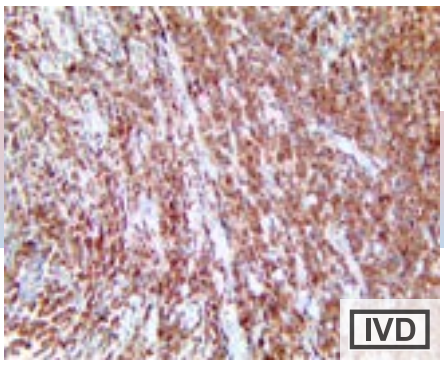
Carbonic anhydrases (CAs) are a large family of zinc metalloenzymes that catalyze the reversible hydration of carbon dioxide. They participate in a variety of biological processes, including respiration, calicification, acid-base balance, bone resorption, and the formation of aqueous humor, cerebrospinal fluid, saliva, and gastric acid. They show extensive diversity in tissue distribution and in their subcellular localization.

CA9 is a transmembrane protein and the only tumor-associated CA isoenzyme known. It is expressed in all clear-cell renal cell carcinoma, but is not detected in normal kidney or most other normal tissues. It may be invovled in cell proliferation and transformation. CA9 is considered to be one of the best cellular biomarkers of hypoxic regions in many solid tumors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP161*
ISOTYPE: *IgG*
CONTROL: *Stomach, Gallbladder, Kidney Carcinoma, Cervix Carcinoma, Lung Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6415	Tinto Predilute	3.0 ml
BSB 6416	Tinto Predilute	7.0 ml
BSB 6417	Tinto Predilute	15.0 ml
BSB 6418	Concentrate	0.1 ml
BSB 6419	Concentrate	0.5 ml
BSB 6420	Concentrate	1.0 ml
BSB 6421	Control Slides	5

Caspase-3, RMab



IHC of Caspase-3 on a FFPE Small Lymphocytic Lymphoma Tissue

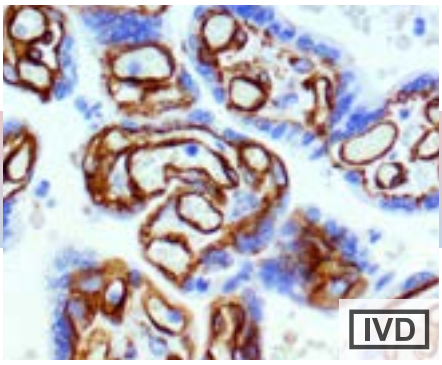
Caspase-3 is a cysteine-aspartic acid protease encoded by the gene CASP3 on chromosome 4q35.1. Caspase-3 belongs to the caspase family, which is a family of enzymes crucial to mediating apoptosis. Once activated, Caspase-3 degrades intracellular proteins as well as functional proteins and induces cell death.

Dysregulated apoptosis is a typical characteristic of human cancer. Abnormal Caspase-3 expression has been directly associated with acute Myelogenous Leukemia, where Caspase-3 overexpression has been detected. On the contrary, decreased expression of Caspase-3 has been found in Prostate Cancer. Another study has found a significant association between high Caspase-3 levels and increased death rates in Breast Cancer using IHC, highlighting the prognostic potential of Caspase-3. In another study, IHC analysis of Gastric, Ovarian, Cervical, and Colorectal Cancer demonstrated that patients with high expression of cleaved Caspase-3 had a significantly shorter overall survival time compared with those with low cleaved Caspase-3 expression. Caspase-3 is the predominant caspase involved in amyloid-β precursor protein (APP) cleavage, consistent with its marked elevation in dying neurons of Alzheimer's disease brains and colocalization of its APP cleavage product with Aβ in senile plaques.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM250*
ISOTYPE: *IgG*
CONTROL: *Colon, Tonsil, Testis, Fallopian Tube, Stomach, Transitional Cell Carcinoma*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3715-3	Tinto Predilute	3.0 ml
BSB-3715-7	Tinto Predilute	7.0 ml
BSB-3715-15	Tinto Predilute	15.0 ml
BSB-3715-01	Concentrate	0.1 ml
BSB-3715-05	Concentrate	0.5 ml
BSB-3715-1	Concentrate	1.0 ml
BSB-3715-CS	Control Slides	5

Caveolin-1, RMab



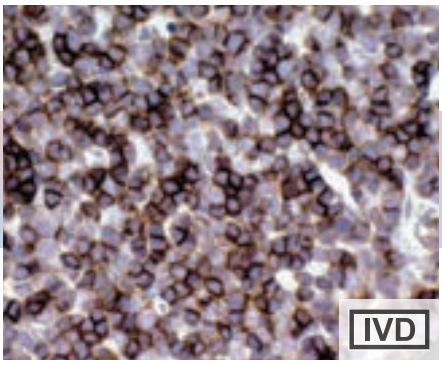
IHC of Caveolin-1 on a FFPE Placenta Tissue

CAV-1 is expressed at different levels in different tissues, with the highest in adipocytes, endothelial cells, fibroblasts, and mesothelial cells. CAV-1 is useful in assisting in the identification of epithelioid mesothelioma. CAV-1 IHC expression has been found in 100% epithelioid mesotheliomas, whereas only 7.5% of the lung adenocarcinomas were positive for CAV-1. Staining in most mesotheliomas has been reported as being strong and diffuse when compared with the weak, focal staining (no more than 1% of the tumor cells) seen in the lung adenocarcinomas and therefore CAV-1 is considered a very useful marker to help to differentiate these two malignancies. CAV-1 has been found to be comparable to other mesothelioma markers such as calretinin and podoplanin that are commonly used to assist in the differentiation between epithelioid mesotheliomas and lung adenocarcinomas. CAV-1 has also been found to be useful in the identification of Ewing sarcoma/PNET with expression in 96% cases of Ewing sarcoma/ PNET. CAV-1 is very useful in the differentiation of epithelioid mesothelioma from lung adenocarcinoma and identification of Ewing sarcoma/PNET.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP353*
ISOTYPE: *IgG*
CONTROL: *Placenta, Liver, Kidney, Spleen, Lung, Mesothelioma, Ewing's Sarcoma, RCC*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3314	Tinto Predilute	3.0 ml
BSB 3315	Tinto Predilute	7.0 ml
BSB 3316	Tinto Predilute	15.0 ml
BSB 3317	Concentrate	0.1 ml
BSB 3318	Concentrate	0.5 ml
BSB 3319	Concentrate	1.0 ml
BSB 3320	Control Slides	5

CD1a, RMab



IHC of CD1a on a FFPE Thymus Tissue

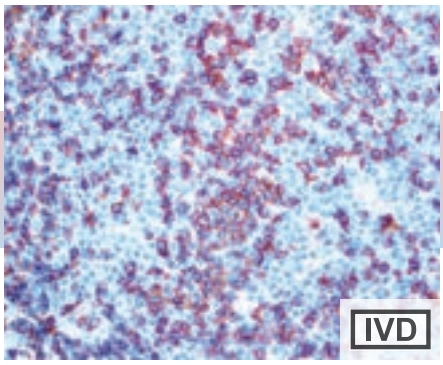
CD1 proteins have been demonstrated to restrict T-cell response to non-peptide lipid and glycolipid antigens. At least five CD1 genes (CD1a, b, c, d, and e) have been identified. CD1a belongs to a family of glycoproteins expressed on the surface of various human antigen-presenting cells. In particular, CD1a is a protein of 43 to 49 kDa, and has been shown to be expressed on dendritic cells and cortical thymocytes. Langerhans cells in the skin and some epithelia also express this protein. This antigen is expressed in cells comprising Langerhans Cell Histiocytosis and Langerhans Cell Sarcoma.

Anti-CD1a has been used to differentiate various cutaneous Lymphomas (T-cell) from B-cell Lymphomas and Pseudolymphomas. CD1a is also expressed by some malignancies of T-cell lineage and in Histiocytosis X.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP80*
ISOTYPE: *IgG*
CONTROL: *Skin, Thymus, Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5134	Tinto Predilute	3.0 ml
BSB 5135	Tinto Predilute	7.0 ml
BSB 5136	Tinto Predilute	15.0 ml
BSB 5137	Concentrate	0.1 ml
BSB 5138	Concentrate	0.5 ml
BSB 5139	Concentrate	1.0 ml
BSB 5140	Control Slides	5

CD2, MMab



IHC of CD2 on a FFPE T-Cell Lymphoma Tissue

CD2 is a cell-adhesion molecule found on the surface of T-cells and natural killer (NK) cells. It has also been called T-cell surface antigen T11/ Leu-5, LFA-2, LFA-3 receptor, erythrocyte receptor and rosette receptor. Due to its structural characteristics, CD2 is a member of the immunoglobulin superfamily; it possesses two immunoglobulin-like domains in its extracellular portion. It interacts with other adhesion molecules, such as lymphocyte function-associated antigen-3 (LFA-3/CD58) in humans, or CD48 in rodents, which are expressed on the surfaces of other cells. In addition to its adhesive properties, CD2 also acts as a co-stimulatory molecule on T and NK cells.

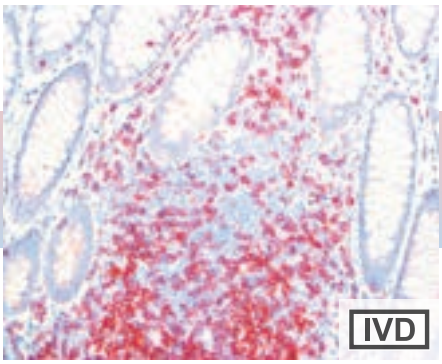
CD2 is a surface antigen of the human T-lymphocyte lineage that is expressed on all peripheral blood T-cells. It is one of the earliest T-cell markers, being present on more than 95% of thymocytes; it is also found on some natural killer cells but not on B-lymphocytes. CD2 is implicated in the triggering of T-cells; the cytoplasmic domain is implicated in the signaling function. It is useful for the identification of Lymphomas and Leukemias of T-cell origin. As with other pan-T cell antigens, CD2 may be aberrantly deleted in some neoplastic T-cell populations, especially Peripheral T-cell Lymphomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *AB75*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6205	Tinto Predilute	3.0 ml
BSB 6206	Tinto Predilute	7.0 ml
BSB 6207	Tinto Predilute	15.0 ml
BSB 6208	Concentrate	0.1 ml
BSB 6209	Concentrate	0.5 ml
BSB 6210	Concentrate	1.0 ml
BSB 6211	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD3, RMab



IHC of CD3 on a FFPE Colon Tissue

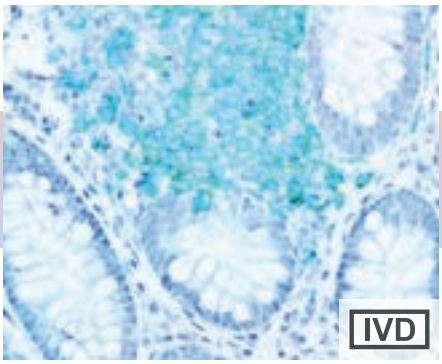
The CD3 antigen is a protein complex composed of three distinct chains (CD3γ, CD3δ and CD3ε) that associate with T-cell receptors and the ζ-chain to generate an activation signal in T-lymphocytes. The TCR, ζ-chain and CD3 molecules together, comprise the TCR complex. The CD3γ, CD3δ, and CD3ε chains are highly-related cell surface proteins of the immunoglobulin superfamily containing a single extracellular immunoglobulin domain. The intracellular tails of the CD3 molecules contain a single conserved motif known as an immunoreceptor tyrosine-based activation motif (or ITAM for short), which is essential for the signaling capacity of the TCR. Phosphorylation of the ITAM on CD3 renders the CD3 chain capable of binding the enzyme ZAP70 (zeta-associated protein), a kinase important in the signaling cascade of the T-cell.

CD3 has been considered the best all-around T-cell marker. This antibody reacts with an antigen present in early thymocytes. The positive staining of this marker may represent a sign of early commitment to the T-cell lineage.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CD3*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Liver, Testis, Kidney, Colon, Spleen, Thymus, Lymhoblastic Lymphoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6422	Tinto Predilute	3.0 ml
BSB 6423	Tinto Predilute	7.0 ml
BSB 6424	Tinto Predilute	15.0 ml
BSB 6425	Concentrate	0.1 ml
BSB 6426	Concentrate	0.5 ml
BSB 6427	Concentrate	1.0 ml
BSB 6428	Control Slides	5

CD3 Epsilon, RMab



IHC of CD3 Epsilon on a FFPE Colon Tissue

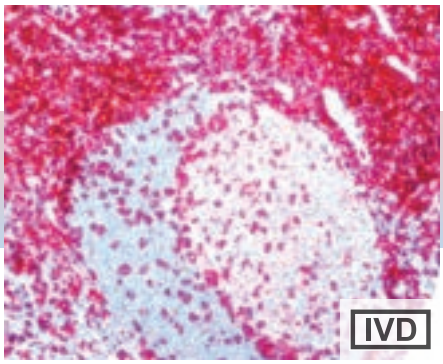
The CD3 antigen is a protein complex composed of three distinct chains (CD3γ, CD3δ and CD3ε) that associate with T-cell receptors and the ζ-chain to generate an activation signal in T-lymphocytes. The TCR, ζ-chain and CD3 molecules together, comprise the TCR complex. The CD3γ, CD3δ and CD3ε chains are highly-related cell surface proteins of the immunoglobulin superfamily containing a single extracellular immunoglobulin domain. The intracellular tails of the CD3 molecules contain a single conserved motif known as an immunoreceptor tyrosine-based activation motif (or ITAM for short), which is essential for the signaling capacity of the TCR. Phosphorylation of the ITAM on CD3 renders the CD3 chain capable of binding the enzyme ZAP70 (zeta-associated protein), a kinase important in the signaling cascade of the T-cell.

CD3 has been considered the best all-around T-cell marker. This antibody reacts with an antigen present in early thymocytes. The positive staining of this marker may represent a sign of early commitment to the T-cell lineage.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CD3e*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5141	Tinto Predilute	3.0 ml
BSB 5142	Tinto Predilute	7.0 ml
BSB 5143	Tinto Predilute	15.0 ml
BSB 5144	Concentrate	0.1 ml
BSB 5145	Concentrate	0.5 ml
BSB 5146	Concentrate	1.0 ml
BSB 5147	Control Slides	5

CD4, RMab



IHC of CD4 on a FFPE Tonsil Tissue

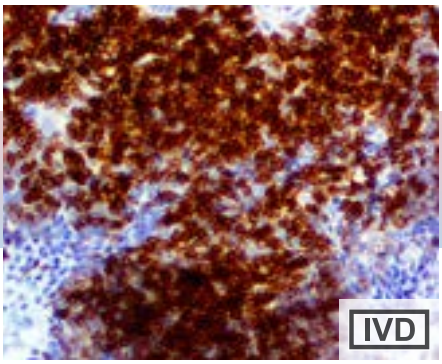
CD4 is a glycoprotein expressed on the surface of T-helper cells, regulatory T-cells, monocytes, macrophages, and dendritic cells. On T-cells, CD4 is the co-receptor for the T-cell receptor (TCR). It amplifies the signal generated by the TCR by recruiting the tyrosine kinase that is essential for activating many molecules involved in the signaling cascade of an activated T-cell.

CD4 antigen is involved in the recognition of Type II Major Histocompatability Complex antigens (MHC-II). CD4 is also the receptor for Human Immunodeficiency Virus (HIV). It is present on most T-helper cells and normal thymocytes.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CD4*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5148	Tinto Predilute	3.0 ml
BSB 5149	Tinto Predilute	7.0 ml
BSB 5150	Tinto Predilute	15.0 ml
BSB 5151	Concentrate	0.1 ml
BSB 5152	Concentrate	0.5 ml
BSB 5153	Concentrate	1.0 ml
BSB 5154	Control Slides	5

CD5, RMab



IHC of CD5 on a FFPE Thymus Tissue

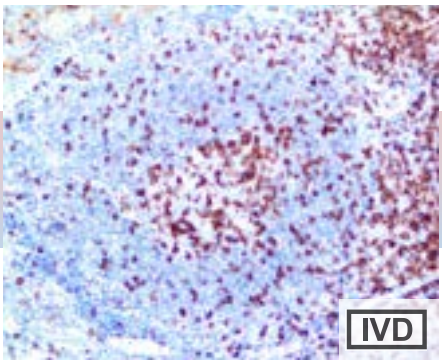
CD5 is a glycoprotein monomer with an MW of 67 kDa belonging to the scavenger receptor cysteine-rich (SRCR) family of extracellular domain-like structures. It possesses a large cytoplasmic domain suitable for signal transduction.

CD5 is a T-cell marker that also reacts with a range of neoplastic B-cells, e.g., B-cell Chronic Lymphocytic Leukemia (B-CLL), B-cell Small Lymphocytic Lymphoma (BSLL), and Mantle Cell Lymphoma. CD5 is expressed in T-lymphocyte subsets and is modulated during cellular activation; however, it does not react with granulocytes or monocytes.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CD5*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5155	Tinto Predilute	3.0 ml
BSB 5156	Tinto Predilute	7.0 ml
BSB 5157	Tinto Predilute	15.0 ml
BSB 5158	Concentrate	0.1 ml
BSB 5159	Concentrate	0.5 ml
BSB 5160	Concentrate	1.0 ml
BSB 5161	Control Slides	5

CD5, RMab



IHC of CD5 on a FFPE Tonsil Tissue

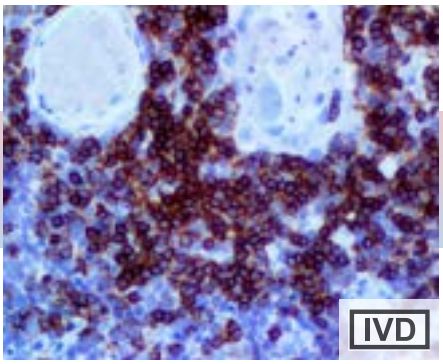
CD5 is a glycoprotein monomer with an MW of 67 kDa belonging to the scavenger receptor cysteine-rich (SRCR) family of extracellular domain-like structures. It possesses a large cytoplasmic domain suitable for signal transduction.

CD5 is a T-cell marker that also reacts with a range of neoplastic B-cells, e.g., B-cell Chronic Lymphocytic Leukemia (B-CLL), B-cell Small Lymphocytic Lymphoma (BSLL), and Mantle Cell Lymphoma. CD5 is expressed in T-lymphocyte subsets and is modulated during cellular activation; however, it does not react with granulocytes or monocytes.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM314*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Thymus*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3759-3	Tinto Predilute	3.0 ml
BSB-3759-7	Tinto Predilute	7.0 ml
BSB-3759-15	Tinto Predilute	15.0 ml
BSB-3759-01	Concentrate	0.1 ml
BSB-3759-05	Concentrate	0.5 ml
BSB-3759-1	Concentrate	1.0 ml
BSB-3759-CS	Control Slides	5

CD6, MMab



IHC of CD6 on a FFPE Thymus Tissue

CD6 (also known as Cluster of Differentiation 6) is a human protein encoded by the CD6 gene on Chromosome 11. CD6 protein is found on the outer membrane of T-lymphocytes.

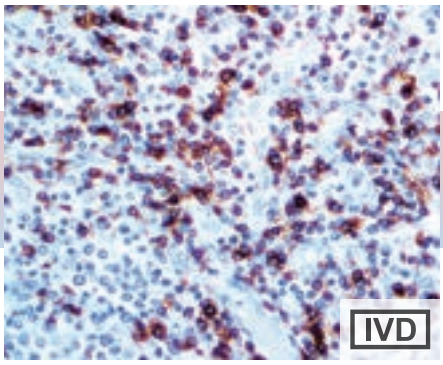
The encoded CD6 protein contains three scavenger receptor cysteine-rich (SRCR) domains and a binding site for an activated leukocyte cell adhesion molecule. Studies have shown CD6 regulates T-cell responses through activation-dependent recruitment of the positive regulator SLP-76. TThe gene product is important for continuation of T cell activation. This gene may be associated with susceptibility to multiple sclerosis.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-54*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node, Prostate, Colon, Spleen*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2705	Tinto Predilute	3.0 ml
BSB 2706	Tinto Predilute	7.0 ml
BSB 2707	Tinto Predilute	15.0 ml
BSB 2708	Concentrate	0.1 ml
BSB 2709	Concentrate	0.5 ml
BSB 2710	Concentrate	1.0 ml
BSB 2711	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD7, MMab



IHC of CD7 on a T-Cell Tonsil Tissue

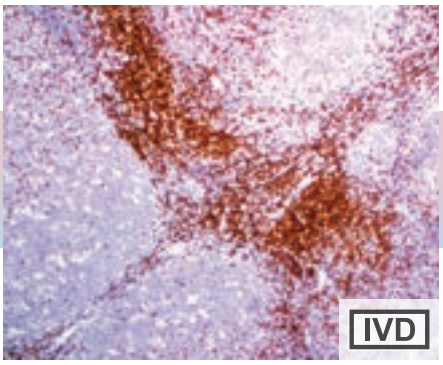
CD7 is a 40 kDa transmembrane, single-chain glycoprotein, which is a member of the immunoglobulin gene superfamily. It is expressed in the majority of immature and mature T-lymphocytes, and T-cell Leukemia. It is also found in natural killer cells, a small subpopulation of normal B-cells and in malignant B-cells. It plays an essential role in T-cell interactions and also in T-cell/B-cell interaction during early lymphoid development.

CD7 is a consistently-expressed T-cell antigen in Lymphoblastic Lymphomas and Leukemias; therefore, it is a useful marker in the identification of such neoplastic proliferations. CD7 is expressed in the majority of mature peripheral T-cells, the majority of post-thymic T-cells, NK cells, some
myeloid cells, T-cell Acute Lymphoblastic Leukemia/Lymphoma, Acute Myelogenous Leukemia and Chronic Myelogenous Leukemia. Interestingly, CD7 is conspicuously absent in adult T-cell Leukemia/Lymphoma and is not expressed in Sezary cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *LP15*
ISOTYPE: *IgG2b*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5162	Tinto Predilute	3.0 ml
BSB 5163	Tinto Predilute	7.0 ml
BSB 5164	Tinto Predilute	15.0 ml
BSB 5165	Concentrate	0.1 ml
BSB 5166	Concentrate	0.5 ml
BSB 5167	Concentrate	1.0 ml
BSB 5168	Control Slides	5

CD7, RMab



IHC of CD7 on a FFPE Tonsil Tissue

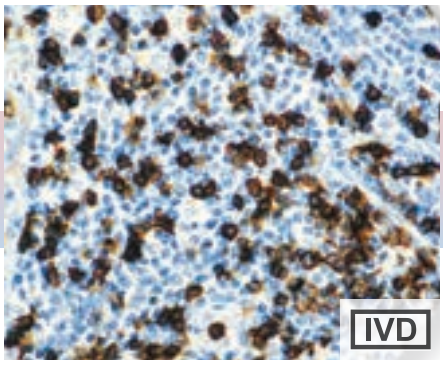
CD7 is a 40 kDa transmembrane, single-chain glycoprotein, which is a member of the immunoglobulin gene superfamily. It is expressed in the majority of immature and mature T-lymphocytes and T-cell Leukemia. CD7 is also found in natural killer cells, a small subpopulation of normal B-cells and in malignant B-cells. It plays an essential role in T-cell interactions and also in T-cell/B-cell interactions during early lymphoid development.

CD7 is a consistently-expressed T-cell antigen in Lymphoblastic Lymphomas and Leukemias; therefore, it is a useful marker in the identification of such neoplastic proliferations. CD7 is expressed in the majority of mature peripheral T-cells, the majority of post-thymic T-cells, NK cells, some
myeloid cells, T-cell Acute Lymphoblastic Leukemia/Lymphoma, Acute Myelogenous Leukemia and Chronic Myelogenous Leukemia. Interestingly, CD7 is conspicuously absent in adult T-cell Leukemia/Lymphoma and is not expressed in Sezary cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP132*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Colon, Liver, Spleen, Bone Marrow, Lymphoblastic Lymphoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2321	Tinto Predilute	3.0 ml
BSB 2322	Tinto Predilute	7.0 ml
BSB 2323	Tinto Predilute	15.0 ml
BSB 2324	Concentrate	0.1 ml
BSB 2325	Concentrate	0.5 ml
BSB 2326	Concentrate	1.0 ml
BSB 2327	Control Slides	5

CD8, MMab



IHC of CD8 on a FFPE Tonsil Tissue

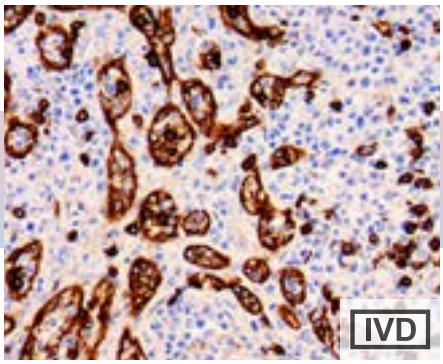
CD8 is a transmembrane glycoprotein that serves as a co-receptor for the T-cell receptor (TCR). Like the TCR, CD8 binds to a major histocompatibility complex (MHC) molecule that is specific for the Class I MHC protein. To function, CD8 forms a dimer, consisting of a pair of CD8 chains. The most common form of CD8 is composed of a CD8-α and CD8-β chain, both members of the immunoglobulin superfamily with an immunoglobulin variable (IgV)-like extracellular domain connected to the membrane by a thin stalk, and an intracellular tail.

CD8 is a T-cell marker for the detection of cytotoxic/suppressor cells of blood lymphocytes. CD8 is also detected on NK cells, most thymocytes, a subpopulation of null cells and bone marrow cells. This antibody is used to distinguish between reactive and neoplastic T-cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *C8/144B*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5169	Tinto Predilute	3.0 ml
BSB 5170	Tinto Predilute	7.0 ml
BSB 5171	Tinto Predilute	15.0 ml
BSB 5172	Concentrate	0.1 ml
BSB 5173	Concentrate	0.5 ml
BSB 5174	Concentrate	1.0 ml
BSB 5175	Control Slides	5

CD8, RMab



IHC of CD8 on a FFPE Spleen Tissue

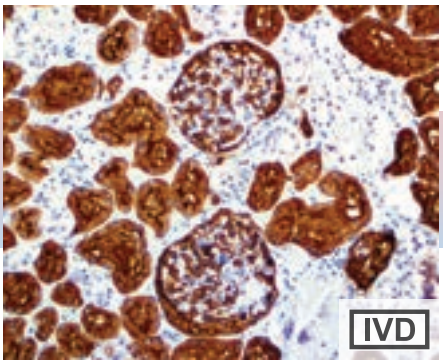
CD8 is a transmembrane glycoprotein that serves as a co-receptor for the T-cell receptor (TCR). Like the TCR, CD8 binds to a major histocompatibility complex (MHC) molecule that is specific for the Class I MHC protein. To function, CD8 forms a dimer, consisting of a pair of CD8 chains. The most common form of CD8 is composed of a CD8-α and CD8-β chain, both members of the immunoglobulin superfamily with an immunoglobulin variable (IgV)-like extracellular domain connected to the membrane by a thin stalk, and an intracellular tail.

CD8 is a T-cell marker for the detection of cytotoxic/suppressor cells of blood lymphocytes. CD8 is also detected on NK cells, most thymocytes, a subpopulation of null cells and bone marrow cells. This antibody is used to distinguish between reactive and neoplastic T-cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP334*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Liver, Colon*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2845	Tinto Predilute	3.0 ml
BSB 2846	Tinto Predilute	7.0 ml
BSB 2847	Tinto Predilute	15.0 ml
BSB 2848	Concentrate	0.1 ml
BSB 2849	Concentrate	0.5 ml
BSB 2850	Concentrate	1.0 ml
BSB 2851	Control Slides	5

CD10, MMab



IHC of CD10 on a FFPE Kidney Tissue

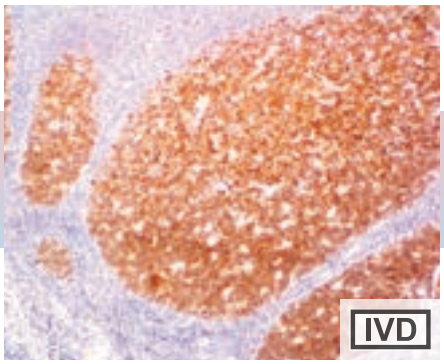
CD10, also known as neutral endopeptidase (NEP), Neprilysin, and common Acute Lymphoblastic Leukemia antigen (CALLA), is a zinc-dependent metalloprotease enzyme that degrades a number of small secreted peptides, most notably the amyloid beta peptide whose abnormal misfolding and aggregation in neural tissue has been implicated as a cause of Alzheimer's Disease.

CD10 is a useful marker for the characterization of childhood Leukemia and B-cell Lymphomas. This antibody reacts with the antigens of Lymphoblastic, Burkitt's, and Follicular Lymphomas, and Chronic Myelocytic Leukemia. Also, CD10 detects the antigen of glomerular epithelial cells and the brush border of the proximal tubules. This characteristic may be helpful in interpreting renal ontogenesis in conjunction with other markers. Other non-lymphoid cells that are reactive with CD10 are breast myoepithelial cells, bile canaliculi, neutrophils, a small population of bone marrow cells, fetal small intestine epithelium, and normal fibroblasts.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *56C6*
ISOTYPE: *IgG1*
CONTROL: *Kidney, Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5176	Tinto Predilute	3.0 ml
BSB 5177	Tinto Predilute	7.0 ml
BSB 5178	Tinto Predilute	15.0 ml
BSB 5179	Concentrate	0.1 ml
BSB 5180	Concentrate	0.5 ml
BSB 5181	Concentrate	1.0 ml
BSB 5182	Control Slides	5

CD10, RMab



IHC of CD10 on a FFPE Tonsil Tissue

CD10, also known as neutral endopeptidase (NEP), Neprilysin, and common Acute Lymphoblastic Leukemia antigen (CALLA), is a zinc-dependent metalloprotease enzyme that degrades a number of small secreted peptides, most notably the amyloid beta peptide whose abnormal misfolding and aggregation in neural tissue has been implicated as a cause of Alzheimer's Disease.

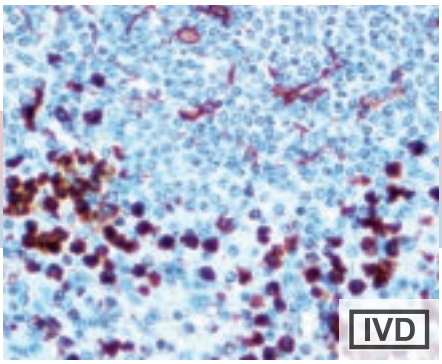
CD10 is a useful marker for the characterization of childhood Leukemia and B-cell Lymphomas. This antibody reacts with the antigens of Lymphoblastic, Burkitt's, and Follicular Lymphomas, and Chronic Myelocytic Leukemia. Also, CD10 detects the antigen of glomerular epithelial cells and the brush border of the proximal tubules. This characteristic may be helpful in interpreting renal ontogenesis in conjunction with other markers. Other non-lymphoid cells that are reactive with CD10 are breast myoepithelial cells, bile canaliculi, neutrophils, a small population of bone marrow cells, fetal small intestine epithelium, and normal fibroblasts.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP195*
ISOTYPE: *IgG*
CONTROL: *Kidney, Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6429	Tinto Predilute	3.0 ml
BSB 6430	Tinto Predilute	7.0 ml
BSB 6431	Tinto Predilute	15.0 ml
BSB 6432	Concentrate	0.1 ml
BSB 6433	Concentrate	0.5 ml
BSB 6434	Concentrate	1.0 ml
BSB 6435	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD11b, RMab



IHC of CD11b on a FFPE Spleen Tissue

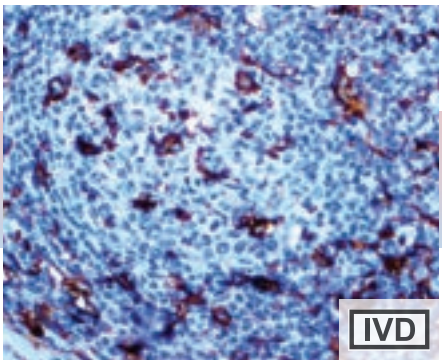
Integrin alpha M (ITGAM) is one protein subunit that forms the heterodimeric integerin alpha-M beta-2 molecule, also known as macrophage-1 antigen (Mac-1) or complement receptor 3 (CR3). ITGAM is also known as CR3A and cluster of differentiation molecule 11B (CD11b). The αMβ2 molecule is expressed on the surface of many leukocytes involved in the innate immune system, including monocytes, granulocytes, macrophages, and natural killer cells. It mediates inflammation by regulating luekocyte adhesion and migration and has been implicated in several immune processes such as phagocytosis, cell-mediated cytoxicity, chemotaxis and cellular activation. The ITGAM subunit of αMβ2 is directly involved in causing the adhesion and spreading of cells but cannot mediate cellular migration without the presence of the Beta-2 (CD18) subunit.

CD11b has been used as a common myeloid marker and is expressed in about 50% of acute myeloid leukemia (AML). In combination with CD117, CD11b is helpful in differentiating acute promyelocytic leukemia (CD11b negative) from recovering benign myeloid proliferation (CD11b positive, CD117 negative).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP45*
ISOTYPE: *IgG*
CONTROL: *Spleen, Leukemia*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6436	Tinto Predilute	3.0 ml
BSB 6437	Tinto Predilute	7.0 ml
BSB 6438	Tinto Predilute	15.0 ml
BSB 6439	Concentrate	0.1 ml
BSB 6440	Concentrate	0.5 ml
BSB 6441	Concentrate	1.0 ml
BSB 6442	Control Slides	5

CD11c, RMab



IHC of CD11c on a FFPE Spleen Tissue

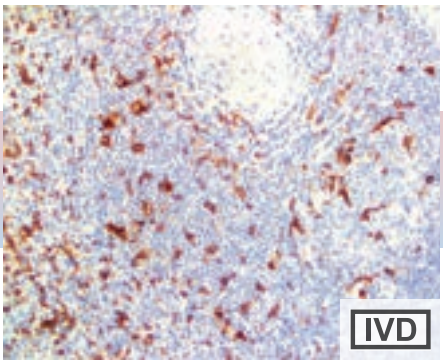
CD11c (1TGAX) is a member of the leukointegrin family and shares the same beta subunit with other members of the leukocyte adhesion molecule family, which include CD11a (LFA-1), CD11b (MAC-1), and CD11d (ITGAD), but has a unique alpha chain. CD11c is a type I transmembrane protien found at high levels on most human dendritic cells, but also on monocytes, macrophages, neutrophils, and some B cells that induces cellular activation and helps trigger neutrophil respiratory burst.

CD11c is expressed in Hairy Cell leukemias, Acute Nonlymphocytic Leukemias, and some B-cell Chronic Lymphocytic Leukemias.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP157*
ISOTYPE: *IgG*
CONTROL: *Bone Marrow, Spleen, Tonsil, Colon, Liver, Hairy Cell Leukemia*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6443	Tinto Predilute	3.0 ml
BSB 6444	Tinto Predilute	7.0 ml
BSB 6445	Tinto Predilute	15.0 ml
BSB 6446	Concentrate	0.1 ml
BSB 6447	Concentrate	0.5 ml
BSB 6448	Concentrate	1.0 ml
BSB 6449	Control Slides	5

CD13, MMab



IHC of CD13 on a FFPE Tonsil Tissue

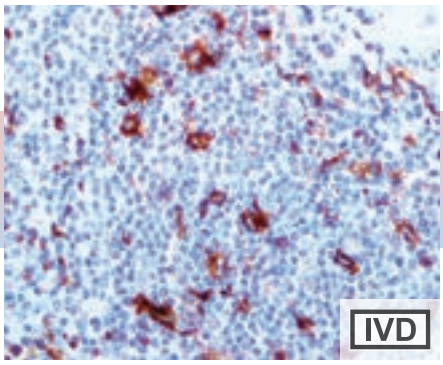
CD13 (also known as aminopeptidase-N) is expressed on the majority of peripheral blood monocytes and granulocytes. It is also expressed by the majority of acute myeloid leukemias, chronic myeloid leukemias in myeloid blast crisis, a smaller percentage of lymphoid leukemias and myeloid cell lines. CD13 is absent from normal lymphocytes, platelets and erythrocytes. CD13 is also present on fibroblasts, endothelial cells, epithelial cells from renal proximal tubules and intestinal brush border, bone marrow stromal cells, osteoclasts, and cells forming bile canaliculi.

Anti-Human CD13 recognizes the human CD13 antigen expressed on the majority of peripheral blood monocytes and granulocytes and on endothelial cells. CD13 plays a role in biologically active peptide metabolism, in the control of growth and differentiation, in phagocytosis and in bactericidal/tumoricidal activities. CD13 also serves as a receptor for human coronaviruses (HCV).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *38C12*
ISOTYPE: *IgG1*
CONTROL: *Spleen, Tonsil, Prostate, Liver*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6324	Tinto Predilute	3.0 ml
BSB 6325	Tinto Predilute	7.0 ml
BSB 6326	Tinto Predilute	15.0 ml
BSB 6327	Concentrate	0.1 ml
BSB 6328	Concentrate	0.5 ml
BSB 6329	Concentrate	1.0 ml
BSB 6330	Control Slides	5

CD13, RMab



IHC of CD13 on a FFPE Tonsil Tissue

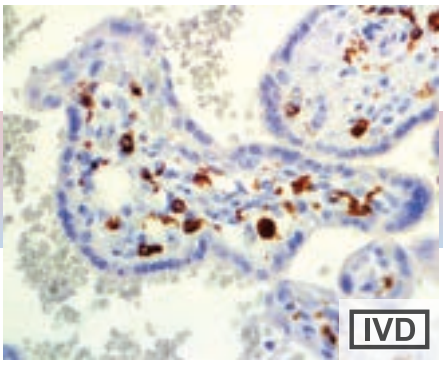
CD13 (also known as aminopeptidase-N) is expressed on the majority of peripheral blood monocytes and granulocytes. It is also expressed by the majority of acute myeloid leukemias, chronic myeloid leukemias in myeloid blast crisis, a smaller percentage of lymphoid leukemias and myeloid cell lines. CD13 is absent in normal lymphocytes, platelets and erythrocytes. CD13 is also present on fibroblasts, endothelial cells, epithelial cells from renal proximal tubules and intestinal brush border, bone marrow stromal cells, osteoclasts, and cells forming bile canaliculi.

Anti-Human CD13 recognizes the human CD13 antigen expressed on the majority of peripheral blood monocytes and granulocytes and on endothelial cells. CD13 plays a role in biologically active peptide metabolism, in the control of growth and differentiation, in phagocytosis and in bactericidal/tumoricidal activities. CD13 also serves as a receptor for human coronaviruses (HCV).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP117*
ISOTYPE: *IgG*
CONTROL: *Spleen, Tonsil, Prostate, Liver*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6450	Tinto Predilute	3.0 ml
BSB 6451	Tinto Predilute	7.0 ml
BSB 6452	Tinto Predilute	15.0 ml
BSB 6453	Concentrate	0.1 ml
BSB 6454	Concentrate	0.5 ml
BSB 6455	Concentrate	1.0 ml
BSB 6456	Control Slides	5

CD14, MMab



IHC of CD14 on a FFPE Placenta Tissue

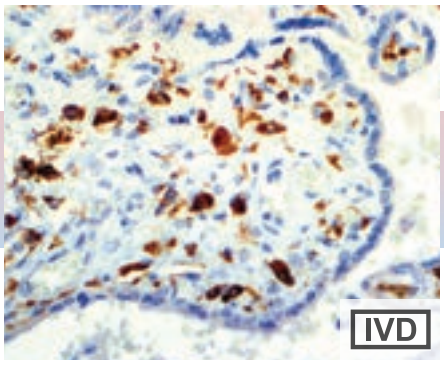
CD14 is a human gene. The protein encoded by this gene is a component of the innate immune system. CD14 exists in two forms. It is either anchored into the membrane by a a glycosylphosphatidylinositol tail (mCDCD14), or it appears in a soluble form (sCD14). CD14 acts as a co-receptor (along with the Toll-like receptor TLR 4 and MD-2) for the detection of bacterial lipopolysaccharide (LPS). CD14 can only bind LPS in the presence of lipopolysaccharide-binding protein (LBP). Although LPS is considered it's main ligand, CD14 also recognizes other pathogen associated molecular patterns.

CD14 is expressed mainly by macrophages and (at 10 times lesser extent) by neutrophil granulocytes. A soluble form sCD14 is secreted by the liver and monocytes and is sufficient in low concentrations to confer LPS-responsiveness to cells which otherwise do not express CD14. sCD14 is also present in human milk where it is believed to regulate microbial growth in the infant gut. Increased sCD14 levels are associated with inflammatory infectious diseases and high mortality in gram-negative shock. CD14 also appears to be involved in clearance of gram-negative bacteria via its high affinity binding to LPS-LBP complexes.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *7*
ISOTYPE: *Ig2Ga*
CONTROL: *Placenta, Tonsil, Spleen, Diffuse Large B-cell Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6310	Tinto Predilute	3.0 ml
BSB 6311	Tinto Predilute	7.0 ml
BSB 6312	Tinto Predilute	15.0 ml
BSB 6313	Concentrate	0.1 ml
BSB 6314	Concentrate	0.5 ml
BSB 6315	Concentrate	1.0 ml
BSB 6316	Control Slides	5

CD14, RMab



IHC of CD14 on a FFPE Placenta Tissue

CD14 is a component of the innate immune system. CD14 exists in two forms: mCD14 (anchored by a glycosylphosphatidylinositol tail) or sCD14 (soluble). CD14 acts as a co-receptor (along with the Toll-like receptor TLR 4 and MD-2) for the detection of bacterial lipopolysaccharide (LPS). CD14 can only bind LPS in the presence of lipopolysaccharide-binding protein (LBP). Although LPS is considered it's main ligand, CD14 also recognizes other pathogen associated molecular patterns.

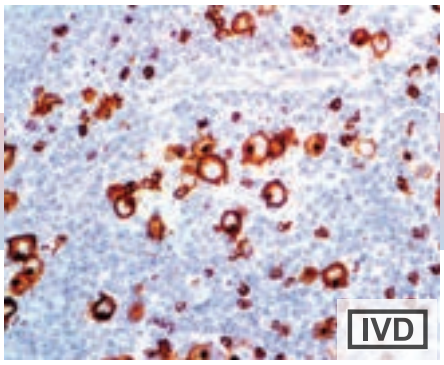
CD14 is expressed mainly by macrophages and (at 10 times lesser extent) by neutrophil granulocytes. A soluble form sCD14 is secreted by the liver and monocytes and is sufficient in low concentrations to confer LPS-responsiveness to cells which otherwise do not express CD14. sCD14 is also present in human milk where it is believed to regulate microbial growth in the infant gut. Increased sCD14 levels are associated with inflammatory infectious diseases and high mortality in gram-negative shock. CD14 also appears to be involved in clearance of gram-negative bacteria via its high affinity binding to LPS-LBP complexes.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP128*
ISOTYPE: *IgG*
CONTROL: *Placenta, Tonsil, Spleen, Diffuse Large B-cell Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6457	Tinto Predilute	3.0 ml
BSB 6458	Tinto Predilute	7.0 ml
BSB 6459	Tinto Predilute	15.0 ml
BSB 6460	Concentrate	0.1 ml
BSB 6461	Concentrate	0.5 ml
BSB 6462	Concentrate	1.0 ml
BSB 6463	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD15, MMab



IHC of CD15 on a FFPE Hodgkin's Lymphoma Tissue

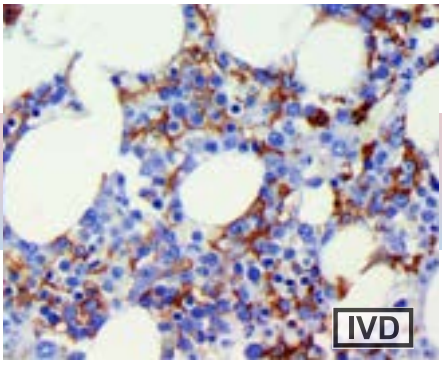
CD15 is a phosphatidylinositol-anchored transmembrane protein found on neutrophils and which may be involved in phagocytosis. It is expressed in patients with Hodgkin's Disease, some B-cell Chronic Lymphocytic Leukemias, Acute Lymphoblastic Leukemias, and most Acute Non-Lymphocytic Leukemias. It is also called Lewis x.

A positive reaction for CD15 combined with a negative reaction for CD45 and other B and T-lineage markers provides support for Reed-Sternberg cells found in Hodgkin's disease. Also, this antibody does not detect Mesotheliomas, making it a more frequently used antibody to distinguish Epithelial Mesothelioma from Adenocarcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-119*
ISOTYPE: *IgM*
CONTROL: *Tonsil, Lymph Node, Hodgkin's Lymphoma*
LOCALIZATION: *Cytoplasmic,Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5183	Tinto Predilute	3.0 ml
BSB 5184	Tinto Predilute	7.0 ml
BSB 5185	Tinto Predilute	15.0 ml
BSB 5186	Concentrate	0.1 ml
BSB 5187	Concentrate	0.5 ml
BSB 5188	Concentrate	1.0 ml
BSB 5189	Control Slides	5

CD16, RMab



IHC of CD16 on a FFPE Bone Marrow Tissue

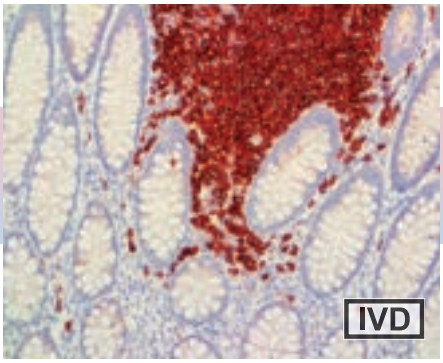
CD16 is a low affinity Fc receptor, found on the surface of natural killer cells, neutrophil polymorphonuclear leukocytes, monocytes and macrophages. CD16 has been identified as Fc receptors FcγRIIIa (CD16a) and FcγRIIIb (CD16b). These receptors bind to the Fc portion of IgG antibodies which then activates NK cells for antibody-dependent cell-mediated cytotoxicity. A lack of CD16 in a given population of neutrophils may indicate prematurity, as could be caused by a left shift due
to neutrophilic leukocytosis induced by tissue necrosis or bacterial infection.

The IHC of CD16 is useful in the differential diagnosis of hepatosplenic gamma delta T-cell lymphoma and gamma delta T-cell large granular lymphocyte leukemia from other peripheral T-cell lymphomas, such as mucosal and cutaneous gamma delta T-cell lymphoma. A significant decrease can be seen in the number of granulocytes expressing CD16 in chronic myelomonocytic leukemia compared to chronic myelogenous leukemia and control bone marrow biopsy, probably related to dysgranulopoiesis. It has also been demonstrated that colorectal carcinoma patients with high CD16+ cell infiltration is associated with improved overall survival after adjusting for known prognostic factors and this association was independent from CD8+ lymphocyte infiltration and presence of metastases.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP364*
ISOTYPE: *IgG*
CONTROL: *Placenta, Liver, Breast, Spleen, Thymus, Lung*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3321	Tinto Predilute	3.0 ml
BSB 3322	Tinto Predilute	7.0 ml
BSB 3323	Tinto Predilute	15.0 ml
BSB 3324	Concentrate	0.1 ml
BSB 3325	Concentrate	0.5 ml
BSB 3326	Concentrate	1.0 ml
BSB 3327	Control Slides	5

CD19, MMab



IHC of CD19 on a FFPE Colon Tissue

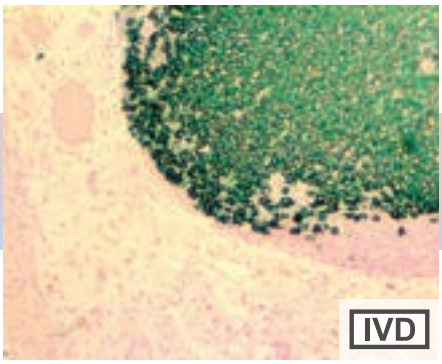
CD19 is a human protein encoded by the CD19 gene. CD19 is expressed on follicular dendritic cells and B-cells; it is present on B-cells from earliest recognizable B-lineage cells during development to B-cell blasts, but is lost on maturation to plasma cells. In normal lymphoid tissue, CD19 is observed in germinal centers (on both B-cells and follicular dendritic cells), in mantle-zone cells, and in scattered cells in the interfollicular areas, with an overall immunoreactivity pattern similar to that of CD20 and CD22. However, in contrast to CD20, CD19 is also expressed in pre-B-cells.

CD19 positivity is seen in the vast majority of B-cell neoplasms (B-Lymphoblastic Lymphoma, Small Lymphocytic Lymphoma/CLL, Mantle Cell Lymphoma, Follicular Lymphoma, Burkitt's Lymphoma, Marginal Zone Lymphoma, Diffuse Large B-cell Lymphoma, T-cell-rich B-cell Lymphoma, Lymphoblastic Lymphoma, Hairy Cell Leukemia), and commonly at a lower intensity than normal B-cell elements. Plasma cell neoplasms are consistently negative, as are T-cell neoplasms. CD19 expression is not seen in Reed-Sternberg cells of classic Hodgkin's Disease.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-97*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node, Spleen, Colon*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6226	Tinto Predilute	3.0 ml
BSB 6227	Tinto Predilute	7.0 ml
BSB 6228	Tinto Predilute	15.0 ml
BSB 6229	Concentrate	0.1 ml
BSB 6230	Concentrate	0.5 ml
BSB 6231	Concentrate	1.0 ml
BSB 6232	Control Slides	5

CD20, MMab



IHC of CD20 on a FFPE Colon Tissue

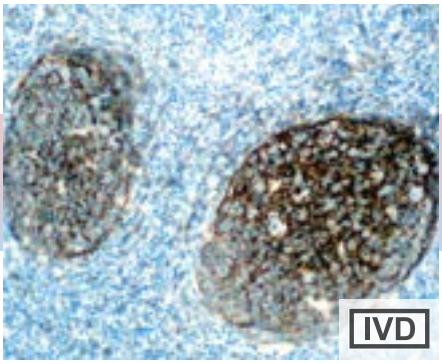
CD20 is a transmembrane, non-glycosylated protein expressed on B-cell precursors and mature B-cells, but lost following differentiation into plasma cells. This antibody does not cross-react with non-hematopoietic neoplasms. CD20 (B-cell Pan) reacts with a membrane antigen present in B-cells.

This antibody strongly recognizes Reed-Sternberg cells predominant in Hodgkin's disease. Since no staining of histiocytes or plasma cells has been observed and CD20 has not been detected in T-cell malignancies, it is a very strong marker of B-cell Lymphomas. B-cell Panmarker recognizes a formalin-resistant intracytoplasmic antigen.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *L26*
ISOTYPE: *IgG2A/k*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5190	Tinto Predilute	3.0 ml
BSB 5191	Tinto Predilute	7.0 ml
BSB 5192	Tinto Predilute	15.0 ml
BSB 5193	Concentrate	0.1 ml
BSB 5194	Concentrate	0.5 ml
BSB 5195	Concentrate	1.0 ml
BSB 5196	Control Slides	5

CD21, RMab



IHC of CD21 on a FFPE Tonsil Tissue

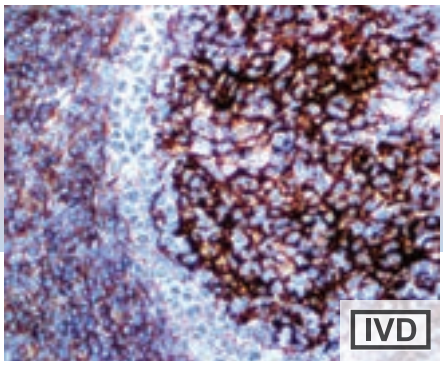
CD21, also known as CR2, complement component (3d/Epstein Barr virus) receptor 2, is an integral membrane glycoprotein of molecular weight 140 kDa, involved in the complement system. CD21 binds to C3d. B-cells have CR2 receptors on their surfaces, allowing the complement system to play a role in B-cell activation and maturation. Complement component receptor-2 (CR2) is the membrane protein on B-lymphocytes to which the Epstein-Barr virus (EBV) binds during infection of these cells.

Anti-CD21 is useful in the identification of follicular dendritic cell matrixes found in normal lymph nodes and tonsillar tissue. This antibody also labels Follicular Dendritic Cell Tumor/Sarcomas. The antigen is absent on T-lymphocytes, monocytes, and granulocytes.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP64*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5197	Tinto Predilute	3.0 ml
BSB 5198	Tinto Predilute	7.0 ml
BSB 5199	Tinto Predilute	15.0 ml
BSB 5200	Concentrate	0.1 ml
BSB 5201	Concentrate	0.5 ml
BSB 5202	Concentrate	1.0 ml
BSB 5203	Control Slides	5

CD23, MMab



IHC of CD23 on a FFPE Tonsil Tissue

CD23, also known as Fc epsilon RII, is the "low affinity" receptor for IgE, an antibody isotype involved in allergy and (arguably) resistance to parasites, and is important in regulation of IgE levels. Unlike many of the antibody receptors, CD23 is a C-type lectin. It is found on mature B-cells, activated macrophages, eosinophils, follicular dendritic cells and platelets.

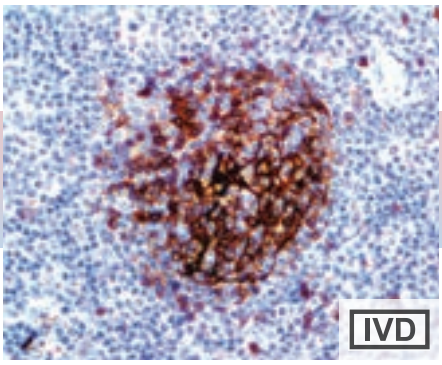
This is a B-cell antibody that is useful for differentiating between B-CLL and B-SLL's that are CD23-positive from Mantle-cell Lymphomas and Small-Cleaved Lymphomas that are CD23-negative. This antibody reacts with the antigen that is found on a subpopulation of peripheral blood cells, B-lymphocytes and on EBV-transformed B-lymphoblastoid cell lines.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *1B12*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5204	Tinto Predilute	3.0 ml
BSB 5205	Tinto Predilute	7.0 ml
BSB 5206	Tinto Predilute	15.0 ml
BSB 5207	Concentrate	0.1 ml
BSB 5208	Concentrate	0.5 ml
BSB 5209	Concentrate	1.0 ml
BSB 5210	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD23, RMab



IHC of CD23 on a FFPE Lymphoma Tissue

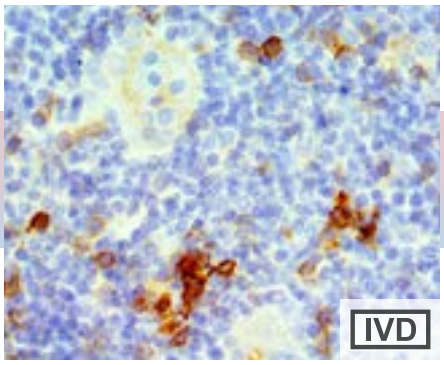
CD23, also known as Fc epsilon RII, is the "low affinity" receptor for IgE, an antibody isotype involved in allergy and (arguably) resistance to parasites, and is important in regulation of IgE levels. Unlike many of the antibody receptors, CD23 is a C-type lectin. It is found on mature B-cells, activated macrophages, eosinophils, follicular dendritic cells and platelets.

This is a B-cell antibody that is useful for differentiating between B-CLL and B-SLL's that are CD23-positive from Mantle-cell Lymphomas and Small-Cleaved Lymphomas that are CD23- negative. This antibody reacts with the antigen that is found on a subpopulation of peripheral blood cells, B-lymphocytes and on EBV-transformed B-lymphoblastoid cell lines.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP75*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6471	Tinto Predilute	3.0 ml
BSB 6472	Tinto Predilute	7.0 ml
BSB 6473	Tinto Predilute	15.0 ml
BSB 6474	Concentrate	0.1 ml
BSB 6475	Concentrate	0.5 ml
BSB 6476	Concentrate	1.0 ml
BSB 6477	Control Slides	5

CD25, MMab



IHC of CD25 on a FFPE Thymus Tissue

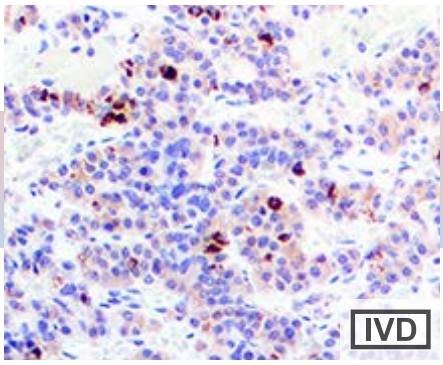
CD25 is the alpha chain of the IL-2 receptor. It is a Type I transmembrane protein present on activated T-cells, activated B-cells, some thymocytes, myeloid precursors, and oligodendrocytes that associates with CD122 to form a heterodimer that can act as a high-affinity receptor for IL-2. It is expressed in most B-cell neoplasms, some Acute Non-lymphocytic Leukemias, and Neuroblastomas.

Expression of CD25 is a reliable diagnostic tool for distinguishing neoplastic mast-cell aggregates from reactive proliferations, and has, therefore, recently become a minor criterion for the diagnosis of Systemic Mastocytosis (SM). Anti-CD25 antibodies have also been useful in identifying mast cells in skin biopsies in the setting of Urticaria Pigmentosa, which is predictive of Systemic Mastocytosis. Quantitation of regulatory T-cells (Treg) in the setting of hepatocellular carcinoma has been used as an independent predictive factor for tumor recurrence after hepatic resection for HCC. Also, the percentage of tumor-infiltrating CD25+FOXP3+ regulatory T-cells among tumor cells, inside tumor parenchyma and at its periphery are significantly higher in recurrent Cutaneous Melanoma than in Non-recurrent Melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *4C9*
ISOTYPE: *IgG2B*
CONTROL: *Tonsil, Small Bowel, Colon, Spleen, Mastocytosis, Hodgkin's Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human,Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6317	Tinto Predilute	3.0 ml
BSB 6318	Tinto Predilute	7.0 ml
BSB 6319	Tinto Predilute	15.0 ml
BSB 6320	Concentrate	0.1 ml
BSB 6321	Concentrate	0.5 ml
BSB 6322	Concentrate	1.0 ml
BSB 6323	Control Slides	5

CD25, RMab



IHC of CD25 on a FFPE Pituitary Tissue

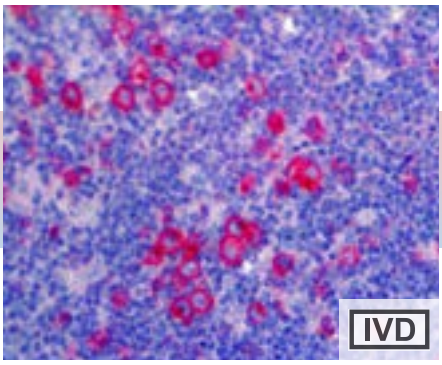
CD25 is the alpha chain of the IL-2 receptor. It is a type I transmembrane protein present on activated T cells, activated B cells, some thymocytes, myeloid precursors, and oligodendrocytes that associates with CD122 to form a heterodimer that can act as a high-affinity receptor for IL-2. Studies have shown that a large proportion of resting memory T cells constitutively express CD25.

CD25 is expressed in most B-cell neoplasms, some acute nonlymphocytic leukemias, neuroblastomas, and tumor infiltrating lymphocytes. Its soluble form, called sIL-2R may be elevated in these diseases and is occasionally used to track disease progression. CD25 is also utilized in cases of mastocytosis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CD25*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Small Bowel, Colon, Spleen, Mastocytosis, Hodgkin's Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2454	Tinto Predilute	3.0 ml
BSB 2455	Tinto Predilute	7.0 ml
BSB 2456	Tinto Predilute	15.0 ml
BSB 2457	Concentrate	0.1 ml
BSB 2458	Concentrate	0.5 ml
BSB 2459	Concentrate	1.0 ml
BSB 2460	Control Slides	5

CD30, MMab



IHC of CD30 on a FFPE Hodgkin's Lymphoma Tissue

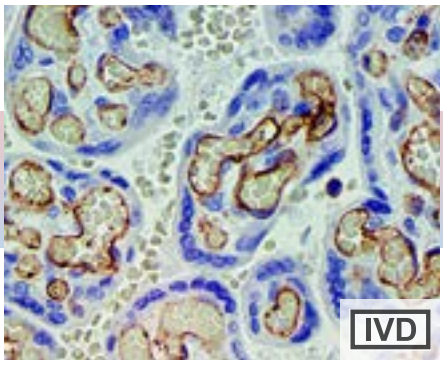
CD30 is a transmembrane cytokine receptor belonging to the tumor necrosis factor (TNF) receptor superfamily. Mature CD30 has a molecular mass of 120 kDa and is derived from a 90 kDa precursor protein.

CD30 antibody detects an epitope which is expressed by Reed-Sternberg cells in Hodgkin's Disease, the majority of Anaplastic Large-cell Lymphomas, and in Embryonal Carcinomas and Seminomas. This antibody also stains plasma cells intensely in paraffin-embedded tissue.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Ber-H2*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Hodgkin's Lymphoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5211	Tinto Predilute	3.0 ml
BSB 5212	Tinto Predilute	7.0 ml
BSB 5213	Tinto Predilute	15.0 ml
BSB 5214	Concentrate	0.1 ml
BSB 5215	Concentrate	0.5 ml
BSB 5216	Concentrate	1.0 ml
BSB 5217	Control Slides	5

CD31, MMab



IHC of CD31 on a FFPE Placenta Tissue

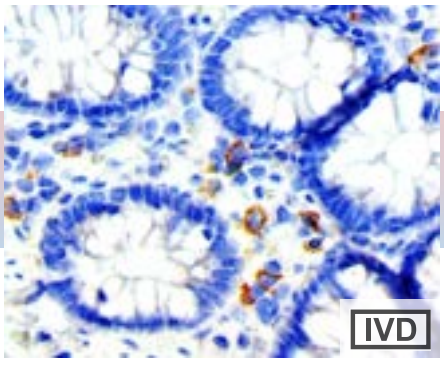
CD31 is also called PECAM-1 for platelet endothelial cell-adhesion molecule. It plays a key role in removing aged neutrophils from the body. CD-31 is normally found on stem cells, endothelial cells, platelets, macrophages and Kupffer cells, granulocytes, T/NK cells, lymphocytes, megakaryocytes, fibroblasts, osteoclasts and neutrophils. CD-31 is also expressed in certain tumors, including Epithelioid Hemangioendothelioma, Epithelioid Sarcoma-like Hemangioendothelioma, other vascular tumors, Histiocytic malignancies, and Plasmacytomas. It is rarely found in some sarcomas and carcinomas. CD-31 and macrophages play a key role in tissue regeneration.

CD31 is widely used to identify the vascular origin of neoplasms, as it is a highly specific and sensitive marker for vascular endothelial cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *1A10*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Placenta, Appendix, Spleen, Kidney*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Dog, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5218	Tinto Predilute	3.0 ml
BSB 5219	Tinto Predilute	7.0 ml
BSB 5220	Tinto Predilute	15.0 ml
BSB 5221	Concentrate	0.1 ml
BSB 5222	Concentrate	0.5 ml
BSB 5223	Concentrate	1.0 ml
BSB 5224	Control Slides	5

CD33, RMab



IHC of CD33 on a FFPE Colon Tissue

CD33 (gp62 or siglec-3) is a glycosylated transmembrane protein that is a member of the sialic acid-binding immunoglobulin-like lectin (siglec) family. The genomic locus of this protein has been mapped to chromosome 19q13.1-3.5. The function of CD33 is not known, but it may have a role in cell-to-cell adhesion. In maturing granulocytic cells, there is progressive down-regulation of CD33 from the blast stage to mature neutrophils. However, in monocytes and macrophages/histiocytes, strong expression of CD33 is maintained throughout maturation.

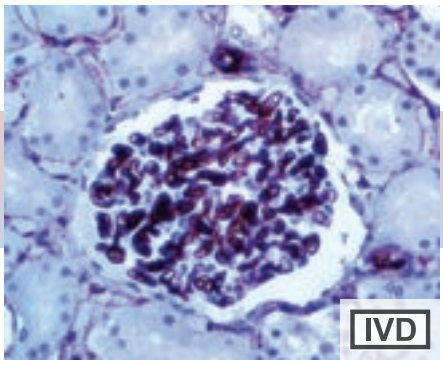
Detection of CD33 using monoclonal antibodies has been a critical component in immunophenotyping acute leukemias, particularly Acute Myeloid Leukemias.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CD33*
ISOTYPE: *IgG*
CONTROL: *Placenta, Myometrium, Lung, Colon, Spleen, Lymph Node, Tonsil, Acute Myeloid Leukemia*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3448	Tinto Predilute	3.0 ml
BSB 3449	Tinto Predilute	7.0 ml
BSB 3450	Tinto Predilute	15.0 ml
BSB 3451	Concentrate	0.1 ml
BSB 3452	Concentrate	0.5 ml
BSB 3453	Concentrate	1.0 ml
BSB 3454	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD34, MMab



IHC of CD34 on a FFPE Kidney Tissue

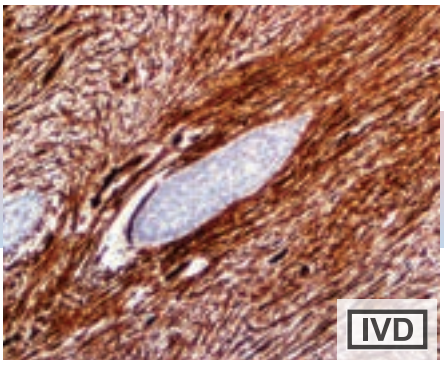
CD34 functions as a cell-cell adhesion factor and cell-surface glycoprotein. It may also mediate the attachment of stem cells to bone marrow extracellular matrixes or directly to stromal cells. Cells expressing CD34 are normally found in the umbilical cord and bone marrow as hematopoletic cells, and in vascular endothelium. In addition to stem cell recognition, CD34 is expressed by vascular endothelium; it appears that proliferating endothelial cells express this molecule in greater amounts than resting cells. In comparison to factor VIII R Antigen, CD34 stains are stronger and appear to be more sensitive in nature.

In tumors, CD34 is found in Alveolar Soft Part Sarcoma, pre B-ALL (positive in 75%), AML (40%), AMLM7 (most), Dermatofibrosarcoma Protuberans, Gastrointestinal Stromal Tumors, Giant Cell Fibroblastoma, Granulocytic Sarcoma, Kaposi's Sarcoma, Liposarcoma, Malignant Fibrous Histiocytoma, Malignant Peripheral Nerve Sheath tumors, Mengingeal Hemangiopericytomas, Meningiomas, Neurofibromas, Schwannomas, and Papillary Thyroid Carcinoma. A negative CD34 may exclude Ewing's Sarcoma/PNET, Myofibrosarcoma of the breast, and Inflammatory Myofibroblastic tumors of the stomach.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *QBEnd/10*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Placenta, Appendix*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 5225	Tinto Predilute	3.0 ml
BSB 5226	Tinto Predilute	7.0 ml
BSB 5227	Tinto Predilute	15.0 ml
BSB 5228	Concentrate	0.1 ml
BSB 5229	Concentrate	0.5 ml
BSB 5230	Concentrate	1.0 ml
BSB 5231	Control Slides	5

CD34, RMab



IHC of CD34 on a FFPE Dermatofibrosarcoma Protuberans

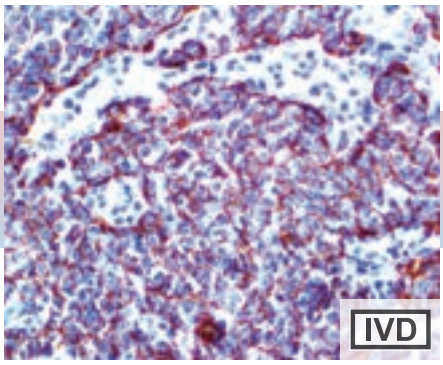
CD34 functions as a cell-cell adhesion factor and cell-surface glycoprotein. It may also mediate the attachment of stem cells to bone marrow extracellular matrixes or directly to stromal cells. Cells expressing CD34 are normally found in the umbilical cord and bone marrow as hematopoletic cells, and in vascular endothelium. In addition to stem cell recognition, CD34 is expressed by vascular endothelium; it appears that proliferating endothelial cells express this molecule in greater amounts than resting cells. In comparison to factor VIII R Antigen, CD34 stains are stronger and appear to be more sensitive in nature.

In tumors, CD34 is found in Alveolar Soft Part Sarcoma, pre B-ALL (positive in 75%), AML(40%), AMLM7 (most), Dermatofibrosarcoma Protuberans, Gastrointestinal Stromal Tumors, Giant Cell Fibroblastoma, Granulocytic Sarcoma, Kaposi's Sarcoma, Liposarcoma, Malignant Fibrous Histiocytoma, Malignant Peripheral Nerve Sheath tumors, Mengingeal Hemangiopericytomas, Meningiomas, Neurofibromas, Schwannomas, and Papillary Thyroid Carcinoma. A negative CD34 may exclude Ewing's Sarcoma/PNET, Myofibrosarcoma of the breast, and Inflammatory Myofibroblastic tumors of the stomach.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP88*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Placenta, Appendix*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat, Sheep, Dog, Pig, Loxodonta Africana*

CAT. #	PRESENTATION	VOL/QTY
BSB 6485	Tinto Predilute	3.0 ml
BSB 6486	Tinto Predilute	7.0 ml
BSB 6487	Tinto Predilute	15.0 ml
BSB 6488	Concentrate	0.1 ml
BSB 6489	Concentrate	0.5 ml
BSB 6490	Concentrate	1.0 ml
BSB 6491	Control Slides	5

CD35, MMab



IHC of CD35 on a FFPE Tonsil Tissue

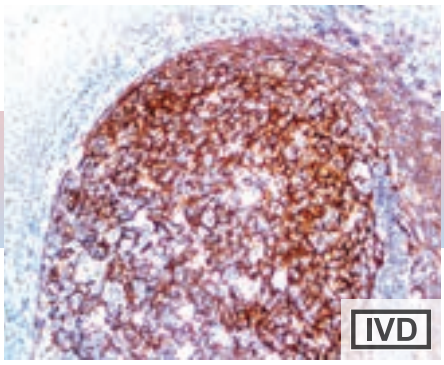
CD35 (erythrocyte complement receptor 1 or CR1, also known as C3b/C4b receptor and immune adherence receptor) serves as the main system for processing and clearance of complement-opsonized immune complexes. The number of CR1 molecules decreases with aging of erythrocytes in normal individuals and is also decreased in pathological conditions such as Systemic Lupus Erythematosus (SLE), HIV infection, some Hemolytic Anemias and other conditions featuring immune complexes.

Anti-CD35 is considered a mature B-cell marker, which labels follicular dendritic reticulum cells and tumors derived from such cells such as Follicular Dendritic Cell Tumor/Sarcoma. CD35 antigen is found in erythrocytes, B-cells, and a subset of T-cells, monocytes, as well as in eosinophils and neutrophils.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-132*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-5237-3	Tinto Predilute	3.0 ml
BSB-5237-7	Tinto Predilute	7.0 ml
BSB-5237-15	Tinto Predilute	15.0 ml
BSB-5237-01	Concentrate	0.1 ml
BSB-5237-05	Concentrate	0.5 ml
BSB-5237-1	Concentrate	1.0 ml
BSB-5237-CS	Control Slides	5

CD35, RMab



IHC of CD35 on a FFPE Tonsil Tissue

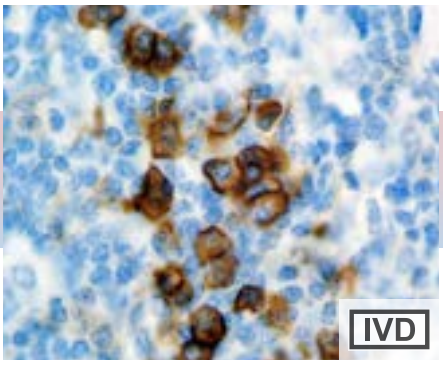
CD35 (erythrocyte complement receptor 1 or CR1, also known as C3b/C4b receptor and immune adherence receptor) serves as the main system for processing and clearance of complement- opsonized immune complexes. The number of CR1 molecules decreases with aging of erythrocytes in normal individuals and is also decreased in pathological conditions such as Systemic Lupus Erythematosus (SLE), HIV infection, some Hemolytic Anemias and other conditions featuring immune complexes.

Anti-CD35 is considered a mature B-cell marker, which labels follicular dendritic reticulum cells and tumors derived from such cells such as Follicular Dendritic Cell Tumor/Sarcoma. CD35 antigen is found in erythrocytes, B-cells, and a subset of T-cells, monocytes, as well as in eosinophils and neutrophils.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP197*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6492	Tinto Predilute	3.0 ml
BSB 6493	Tinto Predilute	7.0 ml
BSB 6494	Tinto Predilute	15.0 ml
BSB 6495	Concentrate	0.1 ml
BSB 6496	Concentrate	0.5 ml
BSB 6497	Concentrate	1.0 ml
BSB 6498	Control Slides	5

CD38, MMab



IHC of CD38 on a FFPE Tonsil Tissue

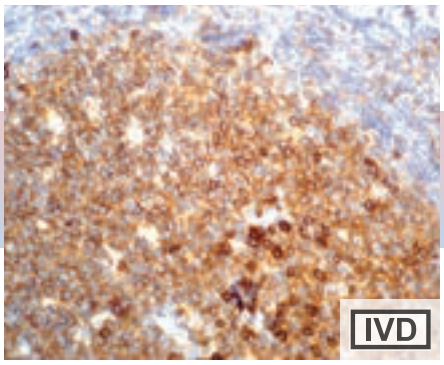
CD38 is a glycoprotein found on the surface of many immune cells (white blood cells), including CD4+, CD8+, B and natural killer cells. It is a marker of cell activation. The CD38 protein has been connected to HIV infection, Leukemias, Myelomas, solid tumors, Type II Diabetes Mellitus and bone metabolism, as well as some genetically-determined conditions. It has also been used as a prognostic marker in Leukemia. CD38 is highly expressed on thymocytes. It is also expressed by early cells of B and T lineages, NK cells, plasma cells, monocytes and macrophages, and may be detected on cells from Multiple Myeloma, ALL (B and T) and some AML.

Monoclonal antibodies to CD38 have been shown to be useful in subtyping of Lymphomas and Leukemias, inhibition of B-lymphopoiesis, detection of plasma cells, protection of B-cells from apoptosis, and as a marker for activated B and T-cell proliferation.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *SPC32*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node, Spleen, Prostate, Salivary Gland*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Rabbit*

CAT. #	PRESENTATION	VOL/QTY
BSB 6198	Tinto Predilute	3.0 ml
BSB 6199	Tinto Predilute	7.0 ml
BSB 6200	Tinto Predilute	15.0 ml
BSB 6201	Concentrate	0.1 ml
BSB 6202	Concentrate	0.5 ml
BSB 6203	Concentrate	1.0 ml
BSB 6204	Control Slides	5

CD38, RMab



IHC of CD38 on a FFPE Tonsil Tissue

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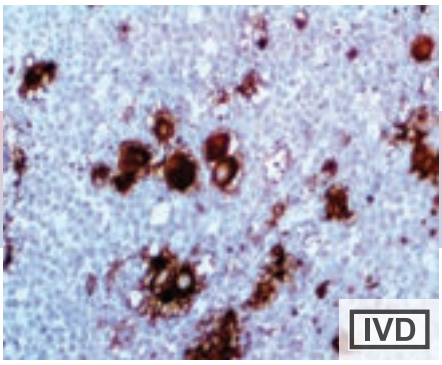
Monoclonal antibodies to CD38 have been shown to be useful in subtyping of Lymphomas and Leukemias, inhibition of B-lymphopoiesis, detection of plasma cells, protection of B-cells from apoptosis, and as a marker for activated B and T-cell proliferation.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP135*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Breast*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6499	Tinto Predilute	3.0 ml
BSB 6500	Tinto Predilute	7.0 ml
BSB 6501	Tinto Predilute	15.0 ml
BSB 6502	Concentrate	0.1 ml
BSB 6503	Concentrate	0.5 ml
BSB 6504	Concentrate	1.0 ml
BSB 6505	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD41/Integrin alpha 11b, RMab



IHC of CD41/Integrin alpha IIb on a FFPE Bone Marrow Tissue

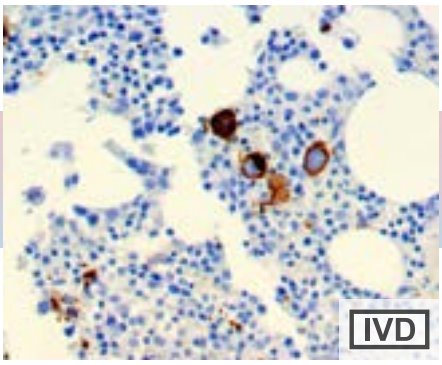
ITGA2B encodes CD41, or integrin alpha IIb. Integrins are heterodimeric integral membrane proteins composed of an alpha chain and a beta chain. Alpha chain IIb undergoes post-translational cleavage to yield disulfide-linked light and heavy chains that join with beta 3 to form a fibrinogen receptor expressed in platelets that plays a crucial role in coagulation. Mutations that interfere with this role result in thrombasthenia. In addition to adhesion, integrins are known to participate in cell-surface medicated signalling.

CD41 expression has been found on platelets, megakaryocyes, and immature hematopoietic progenitors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP178*
ISOTYPE: *IgG*
CONTROL: *Spleen, Bone Marrow*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6506	Tinto Predilute	3.0 ml
BSB 6507	Tinto Predilute	7.0 ml
BSB 6508	Tinto Predilute	15.0 ml
BSB 6509	Concentrate	0.1 ml
BSB 6510	Concentrate	0.5 ml
BSB 6511	Concentrate	1.0 ml
BSB 6512	Control Slides	5

CD42b, RMab



IHC of CD42b on a FFPE Bone Marrow Tissue

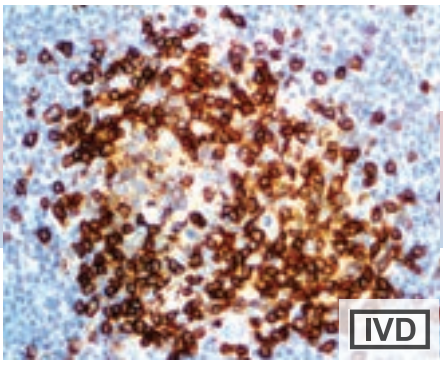
CD42b Platelet glycoprotein Ib alpha chain also known as glycoprotein Ib (platelet), alpha polypeptide is a protein that in humans is encoded by the GP1BA gene. The Gp Ib functions as a receptor for von Willebrand factor (VWF), which includes noncovalent association of the alpha and beta subunits with platelet glycoprotein IX and platelet glycoprotein V. The binding of the GP Ib-IX-V complex to VWF facilitates initial platelet adhesion to vascular subendothelium after vascular injury, and also initiates signaling events within the platelet that lead to enhanced platelet activation, thrombosis, and hemostasis. This gene encodes the alpha subunit. Several polymorphisms and mutations have been described in this gene, some of which are the cause of Bernard-Soulier syndromes and platelet-type von Willebrand disease (1).

CD42b is a marker of megakaryocytes and platelets and used in the Diagnosis of AML-M7 to distinguish AML-M7 (CD42b+) from acute myelosis with myelofibrosis (usually CD42b -). Acute megakaryoblastic leukemia has a significantly higher proportion of blasts expressing CD42b (2). Patients with Histoplasma capsulatum infections have been noted with unusual IHC positivity of the platelet associated marker CD42b/GP1b expressed on the surface of this fungal organisms. Evaluation of additional cases demonstrated that a majority of histoplasmosis cases (83%) showed positive staining with CD42b/GP1b, comparable to GMS stain results (3).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP409*
ISOTYPE: *IgG*
CONTROL: *Bone Marrow, Spleen*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3504	Tinto Predilute	3.0 ml
BSB 3505	Tinto Predilute	7.0 ml
BSB 3506	Tinto Predilute	15.0 ml
BSB 3507	Concentrate	0.1 ml
BSB 3508	Concentrate	0.5 ml
BSB 3509	Concentrate	1.0 ml
BSB 3510	Control Slides	5

CD43, MMab



IHC of CD43 on a FFPE Tonsil Tissue

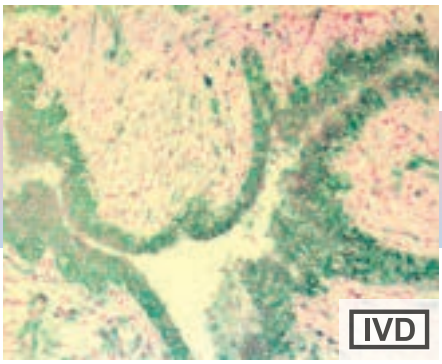
CD43 (leukosialin, sialophorin, or leukocyte sialoglycoprotein) is one of the major glycoproteins expressed in all thymocytes and T-cells. It plays a role in the physiochemical properties of the T-cell surface and in lectin binding. During T-cell activation, CD43 is actively removed from the T-cell antigen-presenting cell contact site, suggesting a negative regulatory role in adaptive immune response.

This antibody has been found useful in identification and classification of T-cell malignancies and low grade B-cell Lymphomas. CD43 expression is seen in some cases of B-cell Lymphocytic Lymphoma and Centrocytic Lymphoma. When used in combination with CD45 and CD20, effective immunophenotyping of the majority of Lymphomas can be obtained. Co-staining of a lymphoid infiltrate with CD20 and CD3 argues against a reactive process and favors Lymphoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *MT1*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5239	Tinto Predilute	3.0 ml
BSB 5240	Tinto Predilute	7.0 ml
BSB 5241	Tinto Predilute	15.0 ml
BSB 5242	Concentrate	0.1 ml
BSB 5243	Concentrate	0.5 ml
BSB 5244	Concentrate	1.0 ml
BSB 5245	Control Slides	5

CD44, MMab



IHC of CD44 on a FFPE Breast Fibroadenoma Tissue

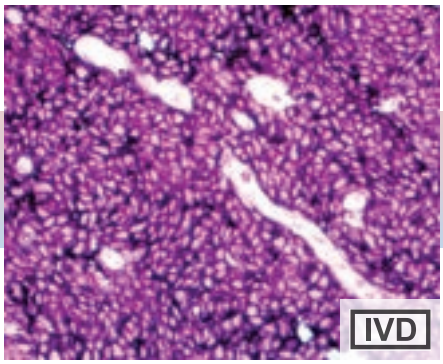
The CD44 protein is a cell-surface glycoprotein involved in cell-cell interactions, cell adhesion and migration. CD44 is also known as Homing-cell adhesion molecule (H-CAM) and Phagocytic glycoprotein-1 (PgP-1). A specialized sialofucosylated glycoform of CD44 called HCELL is found natively on human hematopoietic stem cells and functions as a "bone-homing receptor", directing migration of human hematopoietic stem cells and mesenchymal stem cells to bone marrow.

This protein participates in a wide variety of cellular functions including lymphocyte activation, recirculation and homing, hematopoiesis, and tumor metastasis. Transcripts for this gene undergo complex alternative splicing that results in many functionally distinct isoforms; however, the full-length nature of some of these variants has not been determined. Splice variants of CD44 on Colon Cancer cells display the HCELL glycoform, which mediates binding to vascular E-selectin under hemodynamic flow conditions, a critical step in Colon Cancer metastasis. In addition, variations in CD44 are reported as cell surface markers for some breast and prostate cancer stem cells and have been seen as an indicator of increased survival time in Epithelial Ovarian Cancer patients.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-12*
ISOTYPE: *IgG2A*
CONTROL: *Urothelium, Tonsil, Kidney, Breast, Liver, Skin, Prostate, Thymus, Spleen, Lymph Node, Esophageal Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6233	Tinto Predilute	3.0 ml
BSB 6234	Tinto Predilute	7.0 ml
BSB 6235	Tinto Predilute	15.0 ml
BSB 6236	Concentrate	0.1 ml
BSB 6237	Concentrate	0.5 ml
BSB 6238	Concentrate	1.0 ml
BSB 6239	Control Slides	5

CD45, MMab



IHC of CD45 on a FFPE Tonsil Tissue

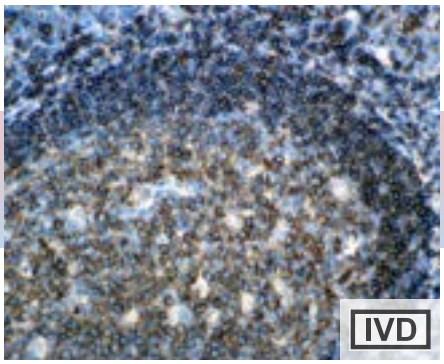
The CD45 antigen is a protein which was originally called Leukocyte Common Antigen. It is a Type I transmembrane protein which is in various forms present on all differentiated hematopoietic cells except erythrocytes and assists in the activation of those cells (a form of co-stimulation). It is expressed in Lymphomas, B-cell Chronic Lymphocytic Leukemia, Hairy Cell Leukemia, and Acute Non-lymphocytic Leukemia.

CD45 is a monoclonal antibody that is routinely used to aid in the differential diagnosis of undifferentiated neoplasms, whenever malignant Lymphoma is suspected by the morphological or clinical data. It is a highly specific antibody; thus, a positive result is highly indicative of lymphoid or myeloid origin. Certain types of lymphoid neoplasms may lack CD45 (Hodgkin's Disease, some T-cell Lymphomas and some Leukemias) so its absence does not rule out a hematolymphoid tumor. This antibody is exclusively expressed by cells of hematopoietic lineage and is present in most benign and malignant lymphocytes, erythrocytes and plasma cell precursors.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *2B11 & PD7/26*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Thymus, Spleen*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5246	Tinto Predilute	3.0 ml
BSB 5247	Tinto Predilute	7.0 ml
BSB 5248	Tinto Predilute	15.0 ml
BSB 5249	Concentrate	0.1 ml
BSB 5250	Concentrate	0.5 ml
BSB 5251	Concentrate	1.0 ml
BSB 5252	Control Slides	5

CD45R, MMab



IHC of CD45R on a FFPE Tonsil Tissue

CD45R contains an extracellular domain, a single transmembrane segment and two tandem intracytoplasmic catalytic domains. It is specifically expressed in hematopoietic cells and has been shown to be an essential regulator of T and B-cell antigen-receptor signaling. It functions through either direct interaction with components of the antigen receptor complexes, or by activating various Src family kinases required for the antigen-receptor signaling. CD45R also suppresses JAK kinases, and thus functions as a regulator of cytokine-receptor signaling.

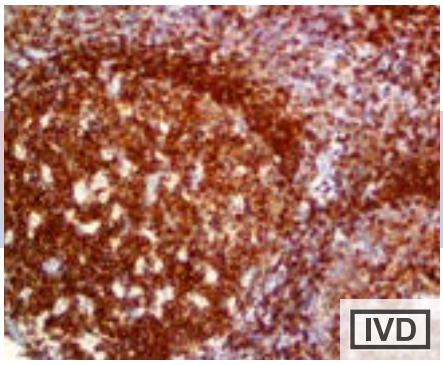
CD45R represents a restricted form of the CD45 family, which primarily recognizes only cells of B lineage from proB-cell through mature B lymphocytes and, prior to the availability of anti-CD19 MAbs, was commonly used as a pan B-cell marker. It also reacts with certain activated T-cells, as well as non-MHC restricted lytically active lymphokine-activated killer (LAK) cells. MB1 antibody stains preferentially B-cells and their neoplasms but is less specific, as it will also react with some T-cell Lymphomas and Non-lymphoid Tumors. The antigen for this antibody is in the membrane of all B-cells with the exception of plasma cells and some mature T-cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *MB1*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6254	Tinto Predilute	3.0 ml
BSB 6255	Tinto Predilute	7.0 ml
BSB 6256	Tinto Predilute	15.0 ml
BSB 6257	Concentrate	0.1 ml
BSB 6258	Concentrate	0.5 ml
BSB 6259	Concentrate	1.0 ml
BSB 6260	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD45RA, MMab



IHC of CD45RA on a FFPE Tonsil Tissue

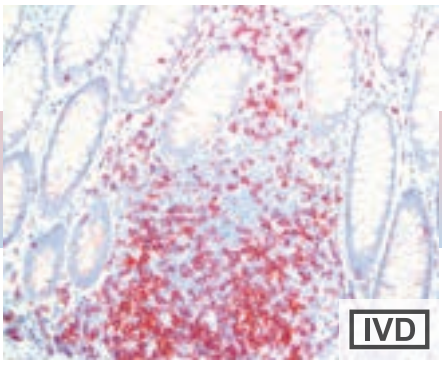
CD45 is a complex molecule and is comprised of different glycoproteins ranging from 180-240 kDa. Expression of CD45 is found on all hemopoietic cells. Detection of the different isoforms can distinguish between different cell forms (e.g., naive T-cells and memory T-cells). CD45RA is an isoform of the CD45 complex and has restricted expression between different subtypes of lymphoid cells.

CD45RA antibody reacts with mature, non-activated T and B-cells. CD45RA is also reactive with medullary thymocytes, mantle-zone lymphocytes in follicles of lymph nodes, spleen and lymphocytes of the paracortex. CD45RA shows no reactivity with cortical thymocytes, immature T-cells or activated B-cells in germinal centers.

ANTIBODY TYPE: *MouseMonoclonal*
CLONE: *4KB5*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5253	Tinto Predilute	3.0 ml
BSB 5254	Tinto Predilute	7.0 ml
BSB 5255	Tinto Predilute	15.0 ml
BSB 5256	Concentrate	0.1 ml
BSB 5257	Concentrate	0.5 ml
BSB 5258	Concentrate	1.0 ml
BSB 5259	Control Slides	5

CD45RO, MMab



IHC of CD45RO on a FFPE Colon Tissue

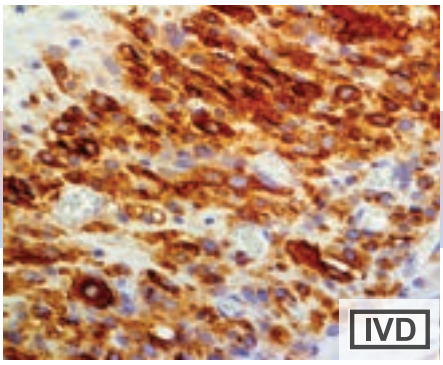
The CD45 family consists of multiple members that are all products of a single complex gene. Three isoforms of CD45 exist: on B-lymphocytes, where the protein is called B220 (its molecular mass is 220 kDA); on naive T-lymphocytes, where it is called CD45 RA, and on activated and memory T-lymphocytes, where it is called CD45 RO. CD45RO is a single-chain, transmembraneous glycoprotein which represents the low molecular weight isoform of the Leukocyte Common Antigen (LCA). It is expressed on most thymocytes, about 45% of peripheral blood T-cells, virtually all T-cells in skin reactive infiltrates, and the majority of T-cell malignancies. It is also found on a subset of B-cells and on exceptional B-cell Lymphomas.

CD45RO (T-Cell, Pan) antibody reacts with thymocytes and activated T-cells, but only on a subpopulation of resting T-cells. This antibody shows no reactivity with B-cells, making it a good marker for T-cell tumors to be phenotyped. In addition, granulocytes and monocytes are also labeled with this antibody. T-Cell, Pan has been designated as CD45RO at The International Leukocyte Typing Workshop.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *UCHL-1*
ISOTYPE: *IgG2a/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat, Non-human Primate*

CAT. #	PRESENTATION	VOL/QTY
BSB 5260	Tinto Predilute	3.0 ml
BSB 5261	Tinto Predilute	7.0 ml
BSB 5262	Tinto Predilute	15.0 ml
BSB 5263	Concentrate	0.1 ml
BSB 5264	Concentrate	0.5 ml
BSB 5265	Concentrate	1.0 ml
BSB 5266	Control Slides	5

CD56, MMab



IHC of CD56 on a FFPE Neuroblastoma Tissue

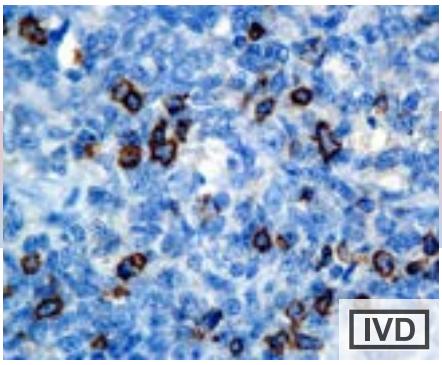
CD56 or Neural-Cell Adhesion Molecule (NCAM) is a homophilic binding glycoprotein expressed on the surface of neurons, glia and skeletal muscle. CD56 has been implicated in cell-cell adhesion, neurite outgrowth, synaptic plasticity, and learning and memory.

Normal cells that stain positively for CD56 include NK cells, activated T-cells, brain and cerebellum, and neuroendocrine tissues. Tumors that are CD56-positive are Myeloma, Myeloid Leukemia, Neuroendocrine tumors, Wilm's Tumor, Adult Neuroblastoma, NK/T cell Lymphomas, Pancreatic Acinar-cell Carcinoma, Pheochromocytoma, and Small-cell Lung Carcinoma. It is also expressed on some mesodermally-derived tumors (Rhabdomyosarcoma). Ewing's Sarcoma/PNET is CD56-negative.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *123C3.D5*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas, Tonsil, Neuroblastoma, Brain, Thyroid, Prostate, Colon, Lung SCC*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5267	Tinto Predilute	3.0 ml
BSB 5268	Tinto Predilute	7.0 ml
BSB 5269	Tinto Predilute	15.0 ml
BSB 5270	Concentrate	0.1 ml
BSB 5271	Concentrate	0.5 ml
BSB 5272	Concentrate	1.0 ml
BSB 5273	Control Slides	5

CD57, MMab



IHC of CD57 on a FFPE Tonsil Tissue

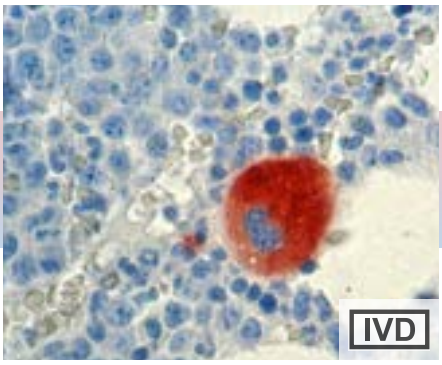
CD57 (NK-1) recognizes an oligosaccharide (MW 100-110 kDa) antigenic determinant on myeloid cells and on a variety of polypeptides, lipids and chondroitan sulfate proteoglycans. This surface antigen is associated with myelin-associated glycoprotein (MAG). The CD57 antigen is present on 15-20% of normal peripheral blood mononuclear cells. It is expressed on a subset of natural killer cells (60%) and on a subset of T-lymphocytes. This carbohydrate is also present on N-CAM in the nervous system.

Follicular Center-cell Lymphomas often contain many NK cells within the neoplastic follicles. NK-1 reportedly also reacts with a variety of cell types in non-lymphoid tissues. NK-1 stains neuroendocrine cells and their tumors, including Carcinoid Tumor and Medulloblastomas. NK-1 also reacts with a variety of cell types in non-lymphoid tissues, including Neurofibroma, Ganglioneuroma, and Prostate Carcinoma.

ANTIBODY TYPE: *Mouset Monoclonal*
CLONE: *BSB-10*
ISOTYPE: *IgM/K*
CONTROL: *Tonsil, Lymph Node, Spleen, Prostate, Breast, Brain*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5274	Tinto Predilute	3.0 ml
BSB 5275	Tinto Predilute	7.0 ml
BSB 5276	Tinto Predilute	15.0 ml
BSB 5277	Concentrate	0.1 ml
BSB 5278	Concentrate	0.5 ml
BSB 5279	Concentrate	1.0 ml
BSB 5280	Control Slides	5

CD61, MMab



IHC of CD61 on a FFPE Bone Marrow Tissue

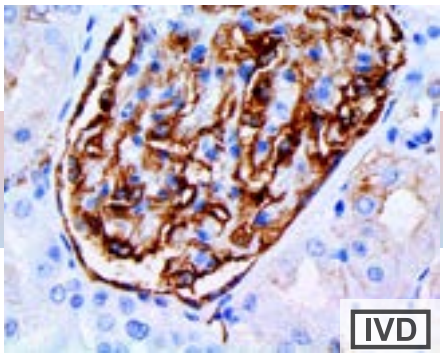
CD61 is a glycoprotein found on megakaryocytes (bone marrow cells), platelets and their precursors. CD61 antigen plays a role in platelet aggregation and also as a receptor for fibrinogen, fibronectin, von Willebrand factor and vitronectrin.

CD61 labels the IIIa subunit of the noncovalently-linked glycoprotein heterodimer IIb/IIIa complex present on human platelets and their precursors. This antibody is useful in identifying megakaryoblastic differentiation as seen in Megakaryoblastic Leukemia.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *2F2*
ISOTYPE: *IgG1/K*
CONTROL: *Bone Marrow*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5281	Tinto Predilute	3.0 ml
BSB 5282	Tinto Predilute	7.0 ml
BSB 5283	Tinto Predilute	15.0 ml
BSB 5284	Concentrate	0.1 ml
BSB 5285	Concentrate	0.5 ml
BSB 5286	Concentrate	1.0 ml
BSB 5287	Control Slides	5

CD61, RMab



IHC of CD61 on an FFPE Kidney Tissue

CD61 is a glycoprotein found on megakaryocytes (bone marrow cells), platelets and their precursors. CD61 antigen plays a role in platelet aggregation and also as a receptor for fibrinogen, fibronectin, von Willebrand factor and vitronectin.

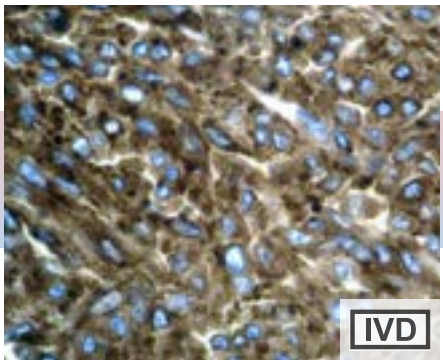
CD61 labels the IIIa subunit of the noncovalently-linked glycoprotein heterodimer IIb/IIIa complex present on human platelets and their precursors. This antibody is useful in identifying megakaryoblastic differentiation as seen in Megakaryoblastic Leukemia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP65*
ISOTYPE: *IgG*
CONTROL: *Brain, Kidney, Testis, Bone Marrow*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3511	Tinto Predilute	3.0 ml
BSB 3512	Tinto Predilute	7.0 ml
BSB 3513	Tinto Predilute	15.0 ml
BSB 3514	Concentrate	0.1 ml
BSB 3515	Concentrate	0.5 ml
BSB 3516	Concentrate	1.0 ml
BSB 3517	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD63, MMab



IHC of CD63 on a FFPE Melanoma Tissue

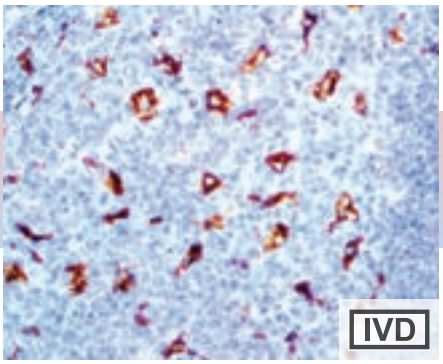
The protein encoded by CD63 gene is a member of the transmembrane-4 superfamily, also known as the tetraspanin family, and mediates signal-transduction events that play a role in the regulation of cell development, activation, growth and motility. This encoded protein is a cell-surface glycoprotein that is known to complex with integrins. It may function as a blood-platelet activation marker. Deficiency of this protein is associated with Hermansky-Pudlak Syndrome. This gene has been associated with tumor progression. CD63 is a good marker for flow-cytometric quantification of in vitro-activated basophils for diagnosis of IgE-mediated allergy. The test is commonly designated as a basophil activation test.

Anti-CD63 reacts with a 53 kDa protein. The antigen was originally designated as a lysosomal membrane protein characterized as an activation-dependent platelet surface antigen. In fact, the CD63 antigen has a diverse distribution on the surface and in the cytoplasm of many cell types including lymphoid, myeloid and endothelial cells and Melanoma. It is weakly expressed in granulocytes, B and T-cells. It has been quite useful in identifying Malignant Melanoma. CD63 is thought to be associated with the early stages of Melanoma tumor progression (in regulation of motility and adhesion of Melanoma cells).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *NKI/C3*
ISOTYPE: *IgG1/K*
CONTROL: *Skin, Malignant Melanoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6296	Tinto Predilute	3.0 ml
BSB 6297	Tinto Predilute	7.0 ml
BSB 6298	Tinto Predilute	15.0 ml
BSB 6299	Concentrate	0.1 ml
BSB 6300	Concentrate	0.5 ml
BSB 6301	Concentrate	1.0 ml
BSB 6302	Control Slides	5

CD68, MMab



IHC of CD68 on a FFPE Tonsil Tissue

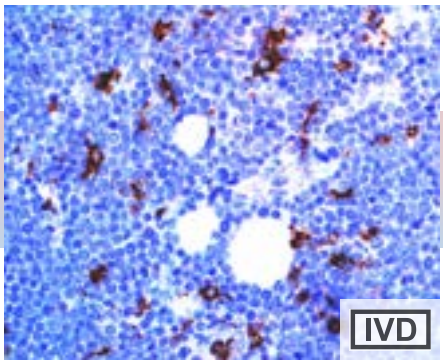
The CD68 antigen is a heavily glycosylated transmembrane protein of 87-115 kDa which is specifically expressed by tissue macrophages, Langerhans cells and, at low levels, by dendritic cells. CD68 could play a role in phagocytic activities of tissue macrophages, both in intracellular lysosomal metabolism and extracellular cell-cell and cell-pathogen interactions.

CD68 marks cells of monocyte/macrophage lineage. This antibody is capable of staining monocytes, Kupffer cells, osteoclasts, granulocytes and their precursors; Lymphomas are negative or show a few granules. This antibody may be useful for the identification of Myelomonocytic and Histiocytic Tumors. CD68 may help to distinguish Malignant Fibrous Histiocytoma from other Pleomorphic Sarcomas. However, since CD68 detects a formalin-resistant epitope that may be associated with lysosomal granules, other lysosome-rich cells may also produce positive results.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-8*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rabbit, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5288	Tinto Predilute	3.0 ml
BSB 5289	Tinto Predilute	7.0 ml
BSB 5290	Tinto Predilute	15.0 ml
BSB 5291	Concentrate	0.1 ml
BSB 5292	Concentrate	0.5 ml
BSB 5293	Concentrate	1.0 ml
BSB 5294	Control Slides	5

CD68, MMab



IHC of CD68 on a FFPE Lymphomblastic Lymphoma Tissue

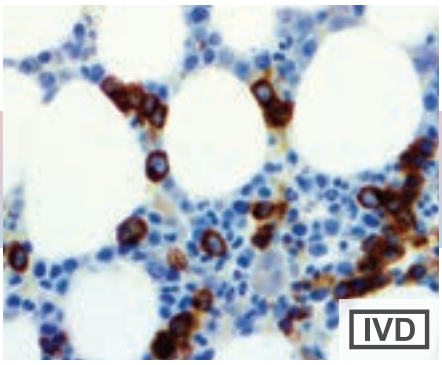
The CD68 antigen is a heavily glycosylated transmembrane protein of 87-115 kDa which is specifically expressed by tissue macrophages, Langerhans cells and, at low levels, by dendritic cells. CD68 could play a role in phagocytic activities of tissue macrophages, both in intracellular lysosomal metabolism and extracellular cell-cell and cell-pathogen interactions.

CD68 marks cells of monocyte/macrophage lineage. This antibody is capable of staining monocytes, Kupffer cells, osteoclasts, granulocytes and their precursors; Lymphomas are negative or show a few granules. This antibody may be useful for the identification of Myelomonocytic and Histiocytic Tumors. CD68 may help to distinguish Malignant Fibrous Histiocytoma from other Pleomorphic Sarcomas. However, since CD68 detects a formalin-resistant epitope that may be associated with lysosomal granules, other lysosome-rich cells may also produce positive results.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *KP-1*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Hamster, Mouse, Non-Human Primate, Porcine, Rabbit, Rat, Cat, Monkey*

CAT. #	PRESENTATION	VOL/QTY
BSB 2712	Tinto Predilute	3.0 ml
BSB 2713	Tinto Predilute	7.0 ml
BSB 2714	Tinto Predilute	15.0 ml
BSB 2715	Concentrate	0.1 ml
BSB 2716	Concentrate	0.5 ml
BSB 2717	Concentrate	1.0 ml
BSB 2718	Control Slides	5

CD71, MMab



IHC of CD71 on a FFPE Bone Marrow Tissue

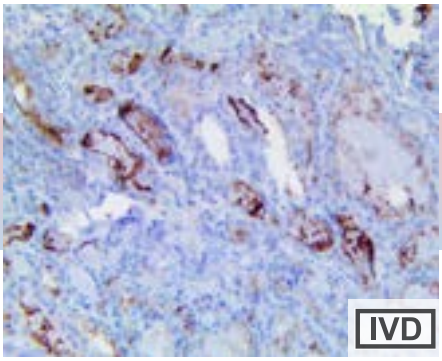
CD71, also known as Transferrin Receptor Protein 1 (TfR1) is a protein encoded by the TFRC gene. CD71 is required for iron delivery from transferrin to cells. It is most highly expressed on placental syncytiotrophoblasts, myocytes, basal keratinocytes, hepatocytes, endocrine pancreas, spermatocytes, and erythroid precursors. The level of transferrin receptor expression is highest in the early erythroid precursors through intermediate normoblast phase, after which expression decreasess through the reticulocyte phase.

The high level of CD71 within erythroid precursors makes it an excellent marker for erythroid components within bone marrow biopsy specimens without interference from mature erythrocytes. It may also be used in the determination of erythroid leukemia, benign erythroid proliferative disorders, and myelodysplastic syndrome.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *10F11*
ISOTYPE: *IgG2b*
CONTROL: *Bone Marrow, Placenta, Adrenal, Tonsil, Skin*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6520	Tinto Predilute	3.0 ml
BSB 6521	Tinto Predilute	7.0 ml
BSB 6522	Tinto Predilute	15.0 ml
BSB 6523	Concentrate	0.1 ml
BSB 6524	Concentrate	0.5 ml
BSB 6525	Concentrate	1.0 ml
BSB 6526	Control Slides	5

CD73/NT5E, RMab



IHC of CD73/NT5E on a FFPE Papillary Thyroid Carcinoma Tissue

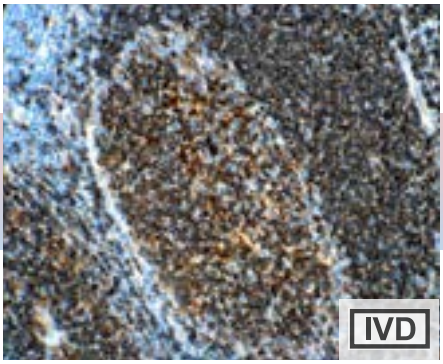
Ecto-5′-nucleotidase (NT5E), or also known as CD73, encoded by the NT5E gene on the human chromosome 6q14.3, is a dimer of two identical 70 kDa subunits. As a plasma membrane protein and expressed in various cell types, CD73 hydrolyzes extracellular adenosine monophosphate (AMP) into adenosine and inorganic phosphate. It performs homeostatic functions and plays an important role in immunity and inflammation.

In a study that analyzed several publications conducting IHC analysis, CD73 overexpression was found to be associated with several types of human cancers including Bladder, Brain, Invasive Lobular Breast, Esophageal, Gastric, Pancreatic, Rectal mucinous, Renal Cell, Lung Large Cell, oral cavity Squamous Cell, Melanoma, and Lung Adenocarcinoma Cancers. Studies also found that lymph node metastases correlated with high CD73 expression. One study found that CD73 expression is frequently higher in NSCLC tissue, compared to normal tissue, which indicates the prognostic value of CD73 in the tumorigenesis of NSCLC. Another study revealed the prognostic potential of CD73 as a biomarker in Breast Cancer, since CD73 is associated with cancer cell invasion, migration and lymph node metastasis. Other studies showed a positive correlation between CD73 expression with Colorectal Cancer malignancy, and metastatic Melanomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM431*
ISOTYPE: *IgG*
CONTROL: *Placenta, Adrenal Gland, Liver, Testis, Transitional Cell Carcinoma, Ovarian Serous Carcinoma*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3716-3	Tinto Predilute	3.0 ml
BSB-3716-7	Tinto Predilute	7.0 ml
BSB-3716-15	Tinto Predilute	15.0 ml
BSB-3716-01	Concentrate	0.1 ml
BSB-3716-05	Concentrate	0.5 ml
BSB-3716-1	Concentrate	1.0 ml
BSB-3716-CS	Control Slides	5

CD74, MMab



IHC of CD74 on a FFPE Tonsil Tissue

CD74, also known as the MHC Class II-associated invariant chain (II), is a Type II transmembrane protein which binds to the peptide-binding groove of newly-synthesized MHC class II alpha/beta heterodimers and prevents their premature association with endogenous polypeptides. CD74 is expressed primarily by antigen-presenting cells such as B-lymphocytes (from before the pre-B-cell stage to before the plasma-cell stage), macrophages and monocytes, together with many epithelial cells.

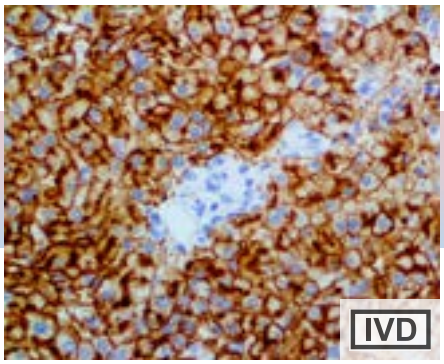
CD74 stains predominantly germinal-center lymphocytes and B-cell lymphomas but rarely T-cell lymphomas. It stains the cell membrane but a paranuclear globular labeling is also noted. CD74 is useful in differentiating Atypical Fibroxanthoma from Malignant Fibrous Histiocytoma, as well as Small-cell Lung Carcinoma from Non-small cell Lung Carcinomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *LN2*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Thymus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5295	Tinto Predilute	3.0 ml
BSB 5296	Tinto Predilute	7.0 ml
BSB 5297	Tinto Predilute	15.0 ml
BSB 5298	Concentrate	0.1 ml
BSB 5299	Concentrate	0.5 ml
BSB 5300	Concentrate	1.0 ml
BSB 5301	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD75, MMab



IHC of CD75 on a FFPE Liver Tissue

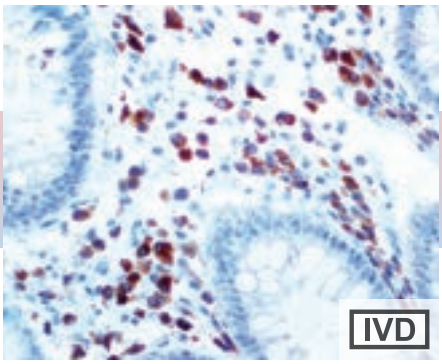
CD75, also known as CDw75 or Beta-galactoside alpha-2,6-sialyltransferase 1(ST6GAL-1) is an enzyme that in humans is encoded by the ST6GAL1 gene. The protein encoded by this gene is a type II membrane protein that catalyzes the transfer of sialic acid from CMP-sialic acid to galactose-containing substrates. The encoded protein, which is normally found in the Golgi but which can be proteolytically processed to a soluble form, is involved in the generation of the cell-surface carbohydrate determinants and differentiation antigens HB-6, CDw75, and CD76.

CD75 is a antibody which labels germinal centre B-cells as well as epithelial cells, however is absent in plasma cells. It reacts with RBC precursors of bone marrow, ductal and ciliated epithelial cells of kidney, breast, prostate, pancreas, lung, and with glioblastomas, astrocytomas, and Reed Sternberg cells in lymphocyte predominant Hodgkin's disease. It is shown to be a helpful antibody for ascribing a B-cell phenotype in known lymphoid tissues.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *LN-1*
ISOTYPE: *IgM/K*
CONTROL: *Liver, Prostate, Kidney, Tonsil*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2719	Tinto Predilute	3.0 ml
BSB 2720	Tinto Predilute	7.0 ml
BSB 2721	Tinto Predilute	15.0 ml
BSB 2722	Concentrate	0.1 ml
BSB 2723	Concentrate	0.5 ml
BSB 2724	Concentrate	1.0 ml
BSB 2725	Control Slides	5

CD79a, MMab



IHC of CD79a on a FFPE Colon Tissue

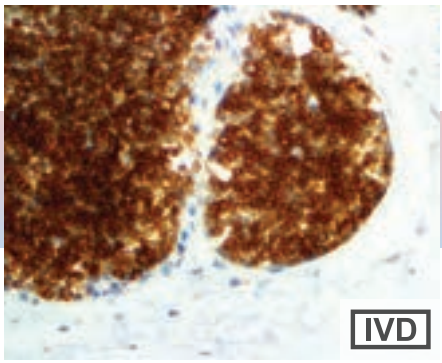
CD79a is non-covalently associated with membrane-bound immunoglobulins on B-cells to constitute the B-cell Ag receptor. CD79a first appears at pre B-cell stage and persists until the plasma-cell stage, where it is found as an intracellular component. CD79a is found in the majority of Acute Leukemias of precursor B-cell type, in B-cell lines, B-cell Lymphomas, and in some Myelomas.

CD79a is a B-cell marker that is generally used to complement CD20. This antibody will stain many of the same Lymphomas as CD20, but also stains more B-precursor Lymphoid Leukemias than CD20. CD79a also stains more cases of Plasma-cell Myeloma and occasionally some types of endothelial cells as well. CD79a will stain many cases of Acute Promyelocytic Leukemia (FAB-M3), but only rarely stains other types of Myeloid Leukemia.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *JCB117*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Colon, Spleen*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5302	Tinto Predilute	3.0 ml
BSB 5303	Tinto Predilute	7.0 ml
BSB 5304	Tinto Predilute	15.0 ml
BSB 5305	Concentrate	0.1 ml
BSB 5306	Concentrate	0.5 ml
BSB 5307	Concentrate	1.0 ml
BSB 5308	Control Slides	5

CD99, MMab



IHC of CD99 on a FFPE Thymus Tissue

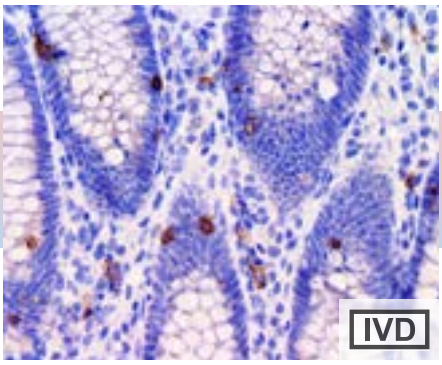
CD99, also known as MIC-2 or single-chain Type-1 glycoprotein, is a human protein encoded by the CD99 gene. The protein has a MW of 32 kD. It is expressed on all leukocytes but highest on thymocytes, and is believed to augment T-cell adhesion and apoptosis of double-positive T-cells. It also participates in migration and activation.

The CD99 antigen is found on the cell membrane of Ewing's Sarcoma and Primitive Peripheral Neuroectodermal Tumors (PNET). It is also present on a variety of other cell types including bone marrow, lymph nodes, spleen, cortical thymocytes, granulosa cells of the ovary, beta cells, CNS ependymal cells, Sertoli's cells of the testis and a few endothelial cells. Mature granulocytes, however, tend to express very little or no CD99. MIC-2 has also been identified in Lymphoblastic Lymphoma, Rhabdomyosarcoma, Mesenchymal Chondrosarcoma, and Thymoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-9*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas, Thymus, Ependyma, Ewing's Sarcoma & Soft Tissue*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5309	Tinto Predilute	3.0 ml
BSB 5310	Tinto Predilute	7.0 ml
BSB 5311	Tinto Predilute	15.0 ml
BSB 5312	Concentrate	0.1 ml
BSB 5313	Concentrate	0.5 ml
BSB 5314	Concentrate	1.0 ml
BSB 5315	Control Slides	5

CD103/ITGAE, RMab



IHC of CD103 on a FFPE Colon Tissue

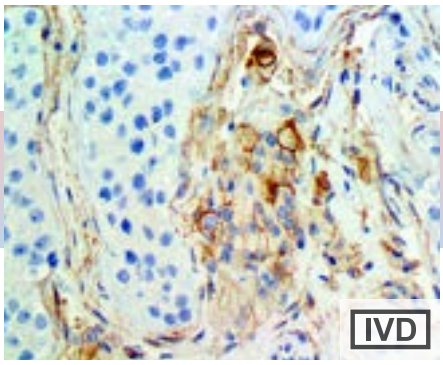
Integrin, alpha E (ITGAE), also known as CD103, is an integrin protein that in human is encoded by the ITGAE gene. CD103 binds integrin beta 7 (β7– ITGB7) to form the complete heterodimeric integrin molecule αEβ7. CD103 is expressed widely on intraepithelial lymphocyte (IEL) T cells (both α β T cells and γ δ T cells) and on some peripheral regulatory T cells (Tregs). It has also been reported on lamina propria T cells. A subset of dendritic cells in the gut mucosa and in mesenteric lymph nodes also expresses this marker and is known as CD103 DCs. The chief ligand for αEβ7 is E-cadherin, an adhesion molecule found on epithelial cells.

CD103 has been found in mononuclear cells in the interfollicular area of lymph nodes and in intraepithelial cells in the overlying mucosa located primarily toward the basal layer of the tonsil. CD103 is useful in identifying Hairy Cell Leukemia, which is positive for this marker in most cases in contrast to other hematologic malignancies which are negative for CD103, with the exception of Splenic Marginal Zone Lymphoma, which rarely expresses CD103. The high sensitivity of anti-CD103 for Hairy Cell Leukemia makes this marker valuable when distinguishing this malignancy from other B-cell neoplasms.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP206*
ISOTYPE: *IgG*
CONTROL: *Skin, colon, Tonsil, Thymus, Spleen, Hairy Cell Leukemia*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2859	Tinto Predilute	3.0 ml
BSB 2860	Tinto Predilute	7.0 ml
BSB 2861	Tinto Predilute	15.0 ml
BSB 2862	Concentrate	0.1 ml
BSB 2863	Concentrate	0.5 ml
BSB 2864	Concentrate	1.0 ml
BSB 2865	Control Slides	5

CD105, RMab



IHC of CD105 on a FFPE Testis Tissue

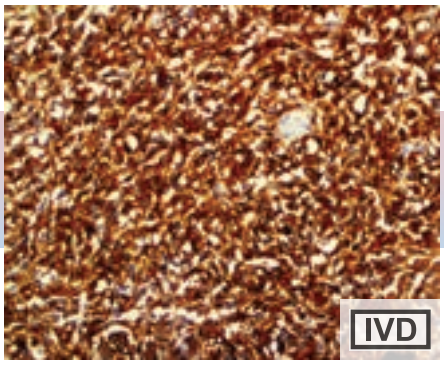
CD105/Endoglin is a Type I membrane glycoprotein located on cell surfaces and is part of the TGF beta receptor complex. This protein has been found on endothelial cells, activated macrophages, fibroblasts, and smooth-muscle cells. Endoglin has a role in the development of the cardiovascular system and in vascular remodeling. Its expression is regulated during heart development. In humans, Endoglin may be involved in the autosomal dominant disorder known as Hereditary Hemorrhagic Telangiectasia Type 1.

CD105 is highly expressed in endothelial cells during tumor angiogenesis and inflammation, with weak or negative expression in vascular endothelium of normal tissues. Angiogenesis is controlled by angiogenic factors, mostly secreted by tumor cells. Vascular Endothelial Growth Factor (VEGF) is a potent angiogenic growth factor that stimulates endothelial cell proliferation and induces microvessel permeability. Studies have demonstrated a correlation between VEGF expression and vascular density. Angiogenesis has been proposed as a promising prognostic marker in a variety of tumors. Most studies of angiogenesis have been done with pan-endothelial markers such as CD31 or CD34. Endoglin is a more specific and sensitive marker for tumor angiogenesis than CD31, as it labels only newly-formed blood vessels and may serve as a prognostic marker for Prostate Adenocarcinoma, and cancers of the lung, stomach, breast, and brain. CD105 may serve as a target for anti-angiogenesis therapy.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP274*
ISOTYPE: *IgG*
CONTROL: *Spleen, Tonsil, Cervix, Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2866	Tinto Predilute	3.0 ml
BSB 2867	Tinto Predilute	7.0 ml
BSB 2868	Tinto Predilute	15.0 ml
BSB 2869	Concentrate	0.1 ml
BSB 2870	Concentrate	0.5 ml
BSB 2871	Concentrate	1.0 ml
BSB 2872	Control Slides	5

CD117, RMab



IHC of CD117 on a FFPE GIST Tissue

CD117 is a tyrosine-kinase receptor for stem cell factor (SCF), also known as "steel factor" or "c-kit ligand". C-kit is a polypeptide that activates bone marrow precursors of a number of blood cells, but its receptor is also present in other cells. C-kit mutations in the interstitial cells of Cajal in the digestive tract are probably the key to Gastrointestinal Stromal Tumors (GISTs).

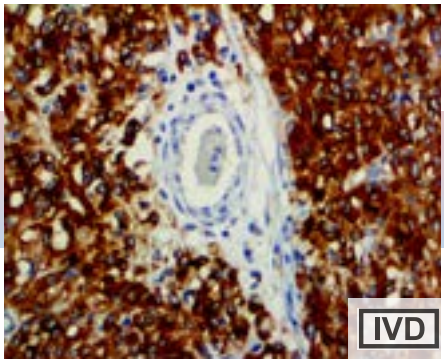
CD117 is found on interstitial cells of Cajal, germ cells, bone marrow stem cells, melanocytes, breast epithelium and mast cells. This receptor is found on a wide variety of tumor cells (Follicular and Papillary Carcinoma of the Thyroid, Adenocarcinomas from endometrium, lung, ovary, pancreas, breast; Malignant Melanoma, Endodermal Sinus Tumor, Small-cell Carcinoma) but has been particularly useful in differentiating Gastrointestinal Stromal Tumors (GIST) from Kaposi's Sarcoma and tumors of smooth-muscle origin.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP10*
ISOTYPE: *IgG*
CONTROL: *Skin, Testis, Breast, GIST, Colon, Brain, Tonsil*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Monkey, Marmoset*

CAT. #	PRESENTATION	VOL/QTY
BSB 5316	Tinto Predilute	3.0 ml
BSB 5317	Tinto Predilute	7.0 ml
BSB 5318	Tinto Predilute	15.0 ml
BSB 5319	Concentrate	0.1 ml
BSB 5320	Concentrate	0.5 ml
BSB 5321	Concentrate	1.0 ml
BSB 5322	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD117, RMab



IHC of CD117 on a FFPE GIST Tissue

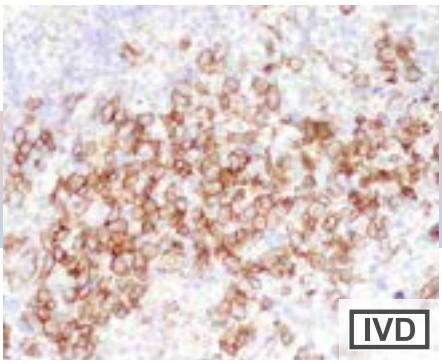
CD117 is a tyrosine-kinase receptor for stem cell factor (SCF), also known as "steel factor" or "c-kit ligand". C-kit is a polypeptide that activates bone marrow precursors of a number of blood cells, but its receptor is also present in other cells. C-kit mutations in the interstitial cells of Cajal in the digestive tract are probably the key to Gastrointestinal Stromal Tumors (GISTs), and explain the efficacy of imatinib in the management of these rare malignancies.

CD117 is found on interstitial cells of Cajal, germ cells, bone marrow stem cells, melanocytes, breast epithelium and mast cells. This receptor is found on a wide variety of tumor cells (Follicular and Papillary Carcinoma of the Thyroid, Adenocarcinomas from endometrium, lung, ovary, pancreas, breast; Malignant Melanoma, Endodermal Sinus Tumor, Small-cell Carcinoma) but has been particularly useful in differentiating Gastrointestinal Stromal Tumors (GIST) from Kaposi's Sarcoma and tumors of smooth-muscle origin.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM359*
ISOTYPE: *IgG*
CONTROL: *Skin, Testis, Breast, GIST, Colon, Brain, Tonsil*
LOCALIZATION: *Cytoplasmic, Nuclear, Membranous*
SPECIES REACTIVITY: *Human, Monkey, Predicted: Marmoset*

CAT. #	PRESENTATION	VOL/QTY
BSB-3758-3	Tinto Predilute	3.0 ml
BSB-3758-7	Tinto Predilute	7.0 ml
BSB-3758-15	Tinto Predilute	15.0 ml
BSB-3758-01	Concentrate	0.1 ml
BSB-3758-05	Concentrate	0.5 ml
BSB-3758-1	Concentrate	1.0 ml
BSB-3758-CS	Control Slides	5

CD123 IL-3Ra, MMab



IHC of CD123 on a FFPE Kikuchi-Fujimoto Disease Tissue

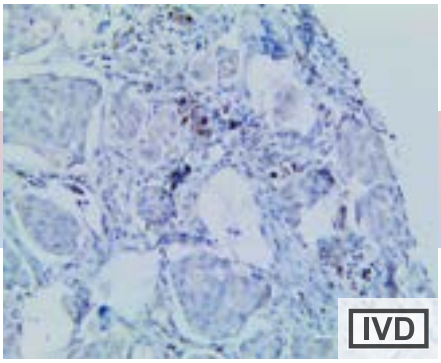
CD123 is α chain of the IL-3 receptor. This 60-70 kDa transmembrane protein, by itself, binds to IL-3 with rather low affinity. However, when associated with CD131 (common β chain), the protein binds to IL-3 with high affinity. The gene coding for the receptor is located in the pseudoautosomal region of the X and Y chromosomes. The receptor belongs to the Type I cytokine-receptor family and is a heterodimer with a unique alpha chain paired with the common beta (beta c or CDw131) subunit.

The CD123 receptor, found on pluripotent progenitor cells, induces tyrosine phosphorylation within the cell and promotes proliferation and differentiation within the hematopoietic cell lines. CD123 is expressed by myeloid precursors, macrophages, dendritic cells, mast cells, basophils, and megakaryocytes.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-59*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Kikuchi-Fujimoto*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5323	Tinto Predilute	3.0 ml
BSB 5324	Tinto Predilute	7.0 ml
BSB 5325	Tinto Predilute	15.0 ml
BSB 5326	Concentrate	0.1 ml
BSB 5327	Concentrate	0.5 ml
BSB 5328	Concentrate	1.0 ml
BSB 5329	Control Slides	5

CD137/TNFRSF9, MMab



IHC of CD137/TNFRSF9 on a FFPE Transitional Cell Carcinoma Tissue

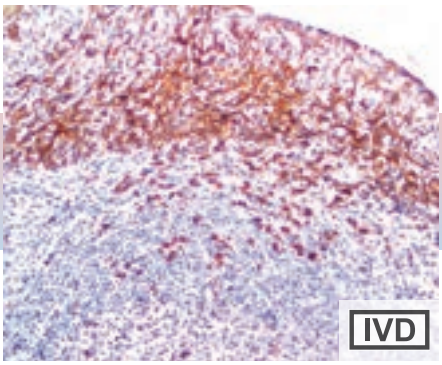
CD137, or tumor necrosis factor receptor superfamily member 9 (TNFRSF9), also known as 4-1BB, is encoded by the TNFRSF9 gene on chromosome 1p36.23. CD137/TNFRSF9 is expressed on the surface of certain immune cells, such as Follicular Dendritic Cells, Monocytes, Mast Cells and Granulocytes. CD137/TNFRSF9 is barely detected on resting T cells or T-cell lines, and expression of CD137 is therefore activation dependent. It is found on activated CD4+, CD8+ or Natural Killer Cells. Activation of CD137 by its ligand, CD137L, upregulates survival genes, enhances cell division, induces cytokine production, and prevents activation-induced cell death in T cells.

One study demonstrated CD137/TNFRSF9 positive IHC staining in a majority of Classical Hodgkin Lymphoma (CHL) tissues, indicating its usefulness as a diagnostic biomarker for CHL. CD137/TNFRSF9 was also found to be a highly specific immunohistochemical marker of Neoplastic Follicular Dendritic Cells. Further studies indicate the value of CD137/TNFRSF9 as a prognostic marker in Diffuse Large B-cell Lymphomas, tumor cell differentiation in Gastric Cancer as well as the correlation between CD137/TNFRSF9 expression and bone metastasis of Breast Cancer. CD137/TNFRSF9 is considerably up-regulated in human Gliomas when compared with normal brain tissue.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-159*
ISOTYPE: *IgM*
CONTROL: *Colon, Stomach, Tonsil, Testis, Transitional Cell Carcinoma, DBC, Hepatocellular Carcinoma, Diffuse Type Gastric Carcinoma*
LOCALIZATION: *Nuclear, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3717-3	Tinto Predilute	3.0 ml
BSB-3717-7	Tinto Predilute	7.0 ml
BSB-3717-15	Tinto Predilute	15.0 ml
BSB-3717-01	Concentrate	0.1 ml
BSB-3717-05	Concentrate	0.5 ml
BSB-3717-1	Concentrate	1.0 ml
BSB-3717-CS	Control Slides	5

CD138, MMab



IHC of CD138 on a FFPE Tonsil Tissue

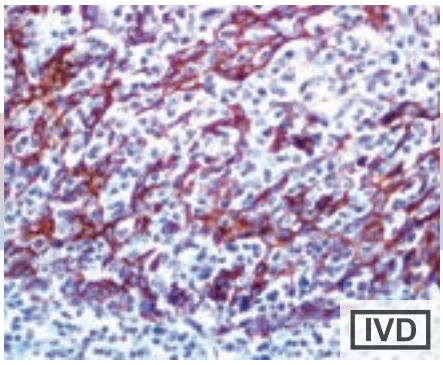
CD138/Syndecan-1 is a transmembrane heparin-sulphate proteoglycan which is made up of one core protein and five glycosaminoglycans. CD138 is expected to play a role in cell adhesion. It is expressed on the surface of pre B-cells and plasma cells but is absent from mature B-cells.

Anti-CD138/syndecan-1 is a useful marker for labeling normal and neoplastic plasma cells and Plasmacytoid Lymphomas. It is a selective marker for B-cell Lymphoblastic Leukemia and Lymphoplasmocytoid Leukemia. It is lost from the apoptotic myeloma cells, and thus, is a useful marker for viable Myeloma cells. Various forms of Hodgkin's Disease have also shown positive staining with this antibody.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *B-A38*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Liver, Kidney, Breast, Lymph Node, Cervix, Plasmacytoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5330	Tinto Predilute	3.0 ml
BSB 5331	Tinto Predilute	7.0 ml
BSB 5332	Tinto Predilute	15.0 ml
BSB 5333	Concentrate	0.1 ml
BSB 5334	Concentrate	0.5 ml
BSB 5335	Concentrate	1.0 ml
BSB 5336	Control Slides	5

CD138, RMab



IHC of CD138 on a FFPE Tonsil Tissue

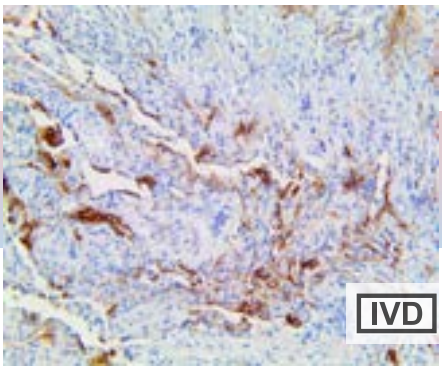
CD138/Syndecan-1 is a transmembrane heparin-sulphate proteoglycan consisting of one core protein and five glycosaminoglycans. CD138 is suspected to play a role in cell adhesion. It is expressed on the surface of pre B-cells and plasma cells but is absent from mature B-cells.

Anti-CD138/syndecan-1 is a useful marker for labeling normal and neoplastic plasma cells and Plasmacytoid Lymphomas. It is a selective marker for B-cell Lymphoblastic Leukemia and Lymphoplasmocytoid Leukemia. It is lost from the apoptotic myeloma cells, and thus, is a useful marker for viable Myeloma cells. Various forms of Hodgkin's Disease have also shown positive staining with this antibody.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP201*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Liver, Kidney, Breast, Lymph Node, Cervix, Plasmacytoma, Adrenal, Skin, Colon, Lung*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human,Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6527	Tinto Predilute	3.0 ml
BSB 6528	Tinto Predilute	7.0 ml
BSB 6529	Tinto Predilute	15.0 ml
BSB 6530	Concentrate	0.1 ml
BSB 6531	Concentrate	0.5 ml
BSB 6532	Concentrate	1.0 ml
BSB 6533	Control Slides	5

CD142/TF/Coagulation Factor III, MMab



IHC of CD142/TF/Coagulation Factor III on a FFPE SARS-Cov-2 Infected Lung Tissue

CD142, also known as Tissue Factor (TF) or Coagulation Factor III or Thromboplastin, is encoded by the F3 gene located on chromosome 1p21.3. CD142 /TF is a 46 kDa sized integral membrane glycoprotein. Upon complex formation with coagulation factor VII, extrinsic blood coagulation is activated by a catalytic cascade that involves specific proteolysis.

CD142/TF is not only associated with the progression, but also with the overall survival rate of many cancers, including breast, gastrointestinal, liver, pancreatic, and prostate cancer. A study that investigated CD142 expression in non-small-cell lung cancer (NSCLC) found that immunohistochemical staining indicatates the critical role of CD142 in the progression of NSCLC. A study found increased CD142 levels in breast cancer tissue as well as a correlation between poor survival and high levels of CD142 expression in breast cancer patients.

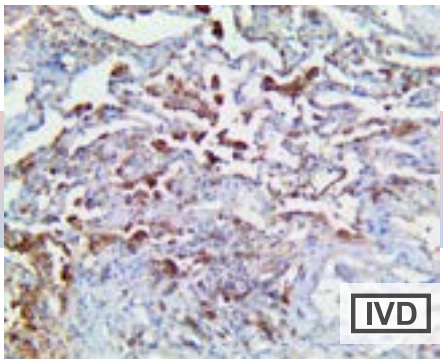
The SARS-CoV-2 virus triggers the synthesis and release of pro-inflammatory cytokines. One of theem is a TNF-α which has been implicated in promoting overexpression of tissue factor (TF) in platelets and macrophages. TF may be a critical mediator associated with the development of thrombotic phenomena in COVID-19.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-143*
ISOTYPE: *IgG2b*
CONTROL: *Placenta, Cervix, Colon, Pancreas, Brain, Kidney, Testis, Pancreatic Carcinoma, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3718-3	Tinto Predilute	3.0 ml
BSB-3718-7	Tinto Predilute	7.0 ml
BSB-3718-15	Tinto Predilute	15.0 ml
BSB-3718-01	Concentrate	0.1 ml
BSB-3718-05	Concentrate	0.5 ml
BSB-3718-1	Concentrate	1.0 ml
BSB-3718-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CD147, MMab



IHC of CD147 on a FFPE SARS-Cov-2 Infected Lung Tissue

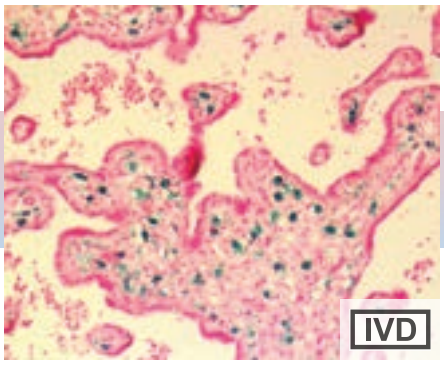
CD147 is a transmembrane glycoprotein also known as Basigin or EMMPRIN (Extracellular Matrix Metalloproteinase Inducer), participating in tumor development and viral entry pathways. CD147 is a member of the immunoglobulin superfamily, upregulated in asthmatic, diabetic, and other inflammatory pathways where it induces expression of Matrix Metalloproteinase 1 and 9. CD147 and its effectors are induced by high-glucose concentration in monocytes and promote their migration. CD147 also participates in fibroblast differentiation through TGF-b1-induced signaling pathways, and is a marker of undifferentiated human embryonic stem cells.

CD147 has been found to be upregulated in cancer stem cells, resulting in increased metabolism through lactic acid export, increased production of hyaluronan, inhibiting apoptosis, and acting as a main upstream stimulator of matrix metalloproteinases. In clinical studies, CD147 has been associated with larger tumors, deeper invasion, and more lymphocytes. CD147 also facilitates the entry of malaria parasite Plasmodium falciparum into red blood cells, and the entry of coronaviruses into human cells by binding the spike glycoprotein, functioning as the second receptor for SARS-CoV-2 and potential participant in pulmonary fibrosis.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-137*
ISOTYPE: *IgG1*
CONTROL: *Testis, Colon, Kidney, Stomach, Brain*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3704-3	Tinto Predilute	3.0 ml
BSB-3704-7	Tinto Predilute	7.0 ml
BSB-3704-15	Tinto Predilute	15.0 ml
BSB-3704-01	Concentrate	0.1 ml
BSB-3704-05	Concentrate	0.5 ml
BSB-3704-1	Concentrate	1.0 ml
BSB-3704-CS	Control Slides	5

CD163, MMab



IHC of CD163 on a FFPE Placenta Tissue

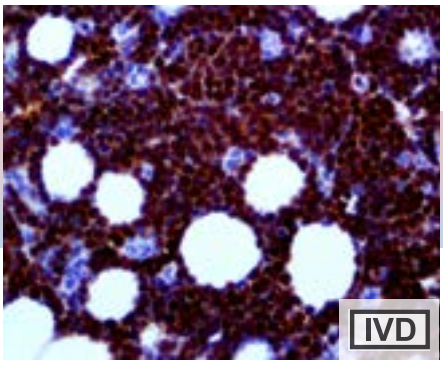
CD163 is a 130 kDa membrane glycoprotein. CD163 was recently identified as an acute phase-regulated transmembrane protein whose function is to mediate the endocytosis of haptoglobin-hemoglobin complexes. Solubilized in plasma, CD163 functions as an anti-inflammatory signal and has many roles in disease processes that range from autoimmune conditions such as Rheumatoid Arthritis to Atherosclerosis. CD163 is expressed exclusively on the cell surface of human monocytes and macrophages that evolve predominantly in the late phase of inflammation, and is, therefore, very useful for macrophage-phenotyping. This receptor is expressed on the surface of monocytes (low expression) and histiocytes (high expression).

Staining for CD163 has been helpful in distinguishing synovial macrophages from synovial intimal fibroblasts in the setting of Rheumatoid Arthritis, where its specificity for macrophages was found to be superior to that of CD68, which does not discriminate between these cell types. Flow-cytometry studies have confirmed that CD163 expression is limited to Leukemias with monocytic differentiation. Positive staining can be seen in the skin (histiocytes), gut, Kupffer cells, a few aveolar macrophages, the main population of macrophages in the placenta, and in varying degrees in macrophages in inflammed tissue including tumor tissue, depending on the inflammatory stage. Red-pulp, not white-pulp, macrophages in the spleen and cortical macrophages of the thymus are stained by CD163.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *10D6*
ISOTYPE: *IgG1*
CONTROL: *Placenta, Tonsil, Lymph Node, Inflamed Tissue, H. Pylori Infected Tissue*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6303	Tinto Predilute	3.0 ml
BSB 6304	Tinto Predilute	7.0 ml
BSB 6305	Tinto Predilute	15.0 ml
BSB 6306	Concentrate	0.1 ml
BSB 6307	Concentrate	0.5 ml
BSB 6308	Concentrate	1.0 ml
BSB 6309	Control Slides	5

CDK2, RMab



IHC of CDK2 on a FFPE Lymphoblastic Lymphoma Tissue

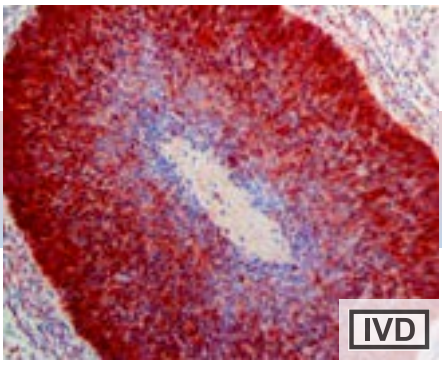
CDK2 (also known as Cyclin-dependent kinase 2 or cell division protein kinase 2) is a 33 kDa enzyme that in humans is encoded by the CDK2 gene on Chromosome 12. CDK2 is a catalytic subunit of the cyclin-dependent kinase complex, whose activity is restricted to the G1-S phase of the cell cycle, and is essential for the cellular G1/S transition.

Studies indicate that over expression of CDK2 may cause the abnormal regulation of cell-cycle, which would could directly contribute to hyper-proliferation of cancerous cells. HOX genes, which play a key role in cell differentiation and morphogenisis, are regulated by CDK2. Studies have shown that HOXA7 promoted cell proliferation (mediated by cyclin E1/CDK2) is evident in cases of Hepatocellular carcinoma, indicating that CDK2 may prove to be a useful marker in such cases.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CDK2*
ISOTYPE: *IgG*
CONTROL: *Testis, Tonsil, Prostate, Placenta, Skin, Colon, Transitional Cell Carcinoma, Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2636	Tinto Predilute	3.0 ml
BSB 2637	Tinto Predilute	7.0 ml
BSB 2638	Tinto Predilute	15.0 ml
BSB 2639	Concentrate	0.1 ml
BSB 2640	Concentrate	0.5 ml
BSB 2641	Concentrate	1.0 ml
BSB 2642	Control Slides	5

CDK4, RMab



IHC of CDK4 on a FFPE Anal Carcinoma Tissue

Cyclin-dependent kinase 4 (CDK4) is a member of the Ser/Thr protein kinase family. It is a catalytic subunit of the protein kinase complex that is important for cell cycle G1 phase progression. The activity of this kinase is restricted to the G1-S phase, which is controlled by the regulatory subunits D-type cyclins and CDK inhibitor p16 (INK4a).

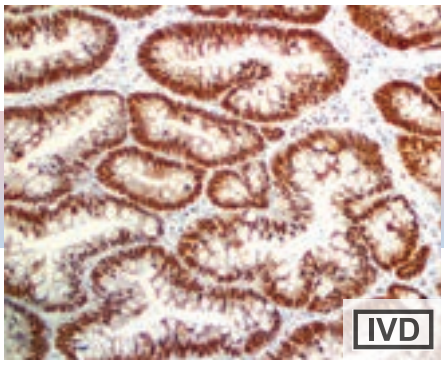
Overexpression of CDK4 has been observed in many tumor types, including oral squamous cell carcinoma and cancers of the pancreatic (endocrine tumors), lung, breast and colon. The expression of CDK4 is associated with tumor progression.

Binh et al. reported a high expression of CDK4 (92%) in atypical lipomatous tumor/well-differentiated liposarcomas (ALT-WDLPS) and dedifferentiated liposarcomas (DDLPS). CDK4 is useful in differentiating ALT-WDLPS from benign adipose tumors and to separate DDLPS from poorly differentiated sarcomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP180*
ISOTYPE: *IgG*
CONTROL: *Cervical and Colon Cancer*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2461	Tinto Predilute	3.0 ml
BSB 2462	Tinto Predilute	7.0 ml
BSB 2463	Tinto Predilute	15.0 ml
BSB 2464	Concentrate	0.1 ml
BSB 2465	Concentrate	0.5 ml
BSB 2466	Concentrate	1.0 ml
BSB 2467	Control Slides	5

CDX2, RMab



IHC of CDX2 on a FFPE Colon Adenocarcinoma Tissue

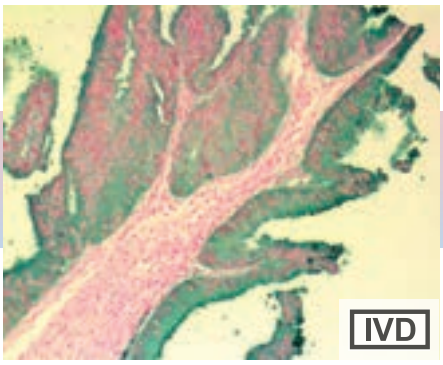
CDX2 is a caudal-type homeobox gene that encodes an intestine-specific transcription factor expressed early in intestinal development and that may be involved in the regulation of proliferation and differentiation of intestinal epithelial cells. It is expressed in the nuclei of epithelial cells throughout the intestine, from duodenum to rectum.

The CDX2 protein is expressed in Primary and Metastatic Colorectal Carcinomas and has also been demonstrated in the intestinal metaplasia of the stomach and intestinal-type gastric cancer. It is not expressed in the normal gastric mucosa. Loss of CDX2 protein expression has been correlated with loss of differentiation in colorectal cancers. Anti-CDX2 antibody has been useful in distinguishing the gastrointestinal origin of Metastatic Adenocarcinomas and carcinoids. Studies have shown that CDX2 is a superior marker compared to CK20. A high percentage of Mucinous Carcinomas of the Ovary also stain positively with this antibody, as well as Carcinomas from the upper gastrointestinal tract.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP25*
ISOTYPE: *IgG*
CONTROL: *Colon, Colon Adenocarcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Rabbit*

CAT. #	PRESENTATION	VOL/QTY
BSB 6057	Tinto Predilute	3.0 ml
BSB 6058	Tinto Predilute	7.0 ml
BSB 6059	Tinto Predilute	15.0 ml
BSB 6060	Concentrate	0.1 ml
BSB 6061	Concentrate	0.5 ml
BSB 6062	Concentrate	1.0 ml
BSB 6063	Control Slides	5

CEA, RMab



IHC of CEA on a FFPE Colon Adenocarcinoma Tissue

Carcinoembryonic antigen (CEA) is a glycoprotein involved in cell adhesion. It is normally produced during fetal development, but the production of CEA stops before birth. Therefore, it is not usually present in the blood of healthy adults, although levels are raised in heavy smokers. CEA is synthesized during development in the fetal gut, and is re-expressed in increased amounts in Intestinal Carcinomas and several other tumors.

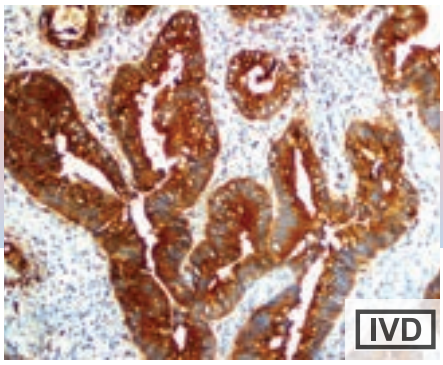
CEA is employed essentially as a tool to assist in the distinction between Adenocarcinoma and Malignant Mesotheliomas of the epithelial type, along with other markers for mucosubstances such as Leu M1 and Ber-EP4. Another suggested use of CEA is the immunophenotyping of various Metastatic Adenocarcinomas as a means of identifying their origin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-13*
ISOTYPE: *IgG1/K*
CONTROL: *Colon, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5337	Tinto Predilute	3.0 ml
BSB 5338	Tinto Predilute	7.0 ml
BSB 5339	Tinto Predilute	15.0 ml
BSB 5340	Concentrate	0.1 ml
BSB 5341	Concentrate	0.5 ml
BSB 5342	Concentrate	1.0 ml
BSB 5343	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CEA, RPab



IHC of CEA on a FFPE Colon Adenocarcinoma Tissue

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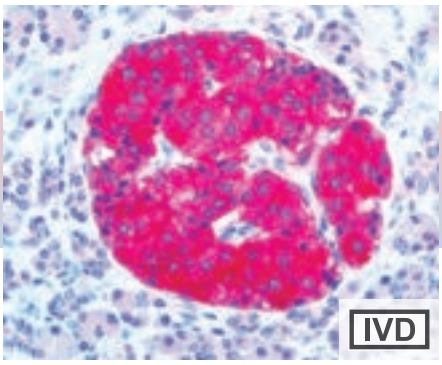
CEA is employed essentially as a tool to assist in the distinction between Adenocarcinoma and Malignant Mesotheliomas of the epithelial type, along with other markers for mucosubstances such as Leu M1 and Ber-EP4. Another suggested use of CEA is the immunophenotyping of various Metastatic Adenocarcinomas as a means of identifying their origin.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Colon, Tonsil, Fallopian Tube, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6534	Tinto Predilute	3.0 ml
BSB 6535	Tinto Predilute	7.0 ml
BSB 6536	Tinto Predilute	15.0 ml
BSB 6537	Concentrate	0.1 ml
BSB 6538	Concentrate	0.5 ml
BSB 6539	Concentrate	1.0 ml
BSB 6540	Control Slides	5

Chromogranin A, MMab



IHC of Chromogranin A on a FFPE Pancreas Tissue

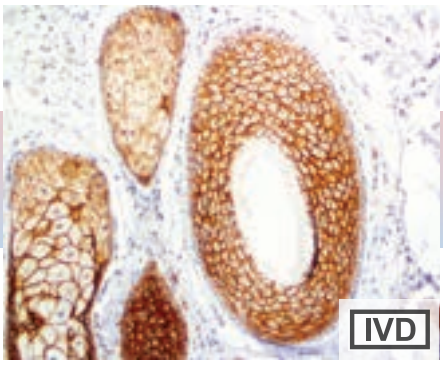
Chromogranin A is a member of the chromogranin/secretogranin family of neuroendocrine secretory proteins. Examples of cells producing chromogranin A are the adrenal medulla, enterochromaffin-like cells and beta cells of the pancreas. The function of chromogranin A is unknown but it is a precursor to 3 functional peptides: vasostatin, pancreastatin and parastatin. These peptides negatively modulate the neuroendocrine function of the releasing cell (autocrine) or nearby cells (paracrine).

Chromogranin A is an excellent marker for Carcinoid Tumors, Pheochromocytomas, Paragangliomas, and other Neuroendocrine Tumors. Coexpression of chromogranin A and neuron-specific enolase (NSE) is common in neuroendocrine neoplasms. It has been identified in a wide variety of endocrine tissues including the pituitary, pancreas, hypothalamus, thymus, thyroid, intestine and parathyroid. It is generally accepted that the co-expression of certain keratins and chromogranin means neuroendocrine lineage. The presence of strong chromogranin staining and absence of keratin staining should raise the possibility of paraganglioma. Most pituitary adenomas and prolactinomas readily express chromogranin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *LK2H10*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas, Pituitary, Colon, Brain*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Rat, Rabbit, Porcine*

CAT. #	PRESENTATION	VOL/QTY
BSB 5344	Tinto Predilute	3.0 ml
BSB 5345	Tinto Predilute	7.0 ml
BSB 5346	Tinto Predilute	15.0 ml
BSB 5347	Concentrate	0.1 ml
BSB 5348	Concentrate	0.5 ml
BSB 5349	Concentrate	1.0 ml
BSB 5350	Control Slides	5

Claudin-1, RPab



IHC of Claudin-1 on a FFPE Skin Tissue

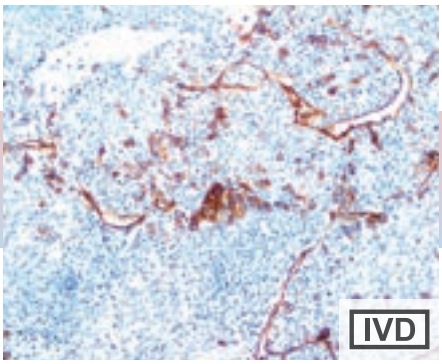
Claudin 1 is an integral membrane protein and a component of tight junction strands. Tight junctions represent one mode of cell-to-cell adhesion in epithelial or endothelial cell sheets, forming continuous seals around cells and serving as a physical barrier to prevent solutes and water from passing freely through the paracellular space. These junctions are composed of sets of continuous networking strands in the outwardly facing cytoplasmic leaflet, with complementary grooves in the inwardly facing extracytoplasmic leaflet.

Claudin-1 stains membraines of cells and is found in nearly all carcinomas, with stains much stronger in carcinoma cells than in normal tissue cells.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL*Skin, Small Intestine, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6562	Tinto Predilute	3.0 ml
BSB 6563	Tinto Predilute	7.0 ml
BSB 6564	Tinto Predilute	15.0 ml
BSB 6565	Concentrate	0.1 ml
BSB 6566	Concentrate	0.5 ml
BSB 6567	Concentrate	1.0 ml
BSB 6568	Control Slides	5

Claudin-5, RMab



IHC of Claudin-5 on a FFPE Liver Tissue

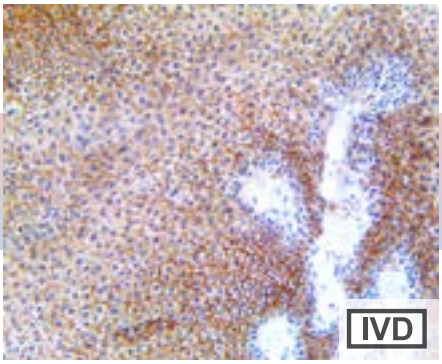
Claudin-5 is a member of the claudin family. Claudins are integral membrane proteins and components of tight junction strands. Tight junction (TJ) strands serve as a physical barrier to prevent solutes and water from passing freely through the paracellular space between epithelial or endothelial cell sheets. Claudin-5 is an endothelial cell-specific component of TJ strands. Mutations in Claudin-5 have been found in patients with velocardiofacial syndrome.

Claudin-5 labels endothelial cells and has been used as a marker for endothelial lesions. Claudin-5 is also found in bronchial and lung epithelial cells. In tumors, Claudin-5 expression has been found in lung adenocarcinoma and squamous carcinoma. In serous ovarian adenocarcinoma, increased Claudin-5 expression is associated with aggressive behavior.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP224*
ISOTYPE: *IgG*
CONTROL: *Liver, Vascular Tissue, Placenta, Colon, Kidney, Fallopian Tube*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2398	Tinto Predilute	3.0 ml
BSB 2399	Tinto Predilute	7.0 ml
BSB 2400	Tinto Predilute	15.0 ml
BSB 2401	Concentrate	0.1 ml
BSB 2402	Concentrate	0.5 ml
BSB 2403	Concentrate	1.0 ml
BSB 2404	Control Slides	5

Claudin-7, RMab



IHC of Claudin-7 on a FFPE Transitional Cell Carcinoma Tissue

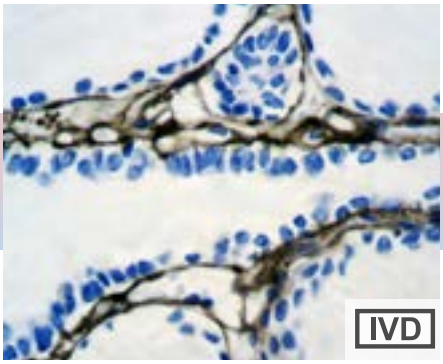
Claudin-7 is encoded by the CLDN7 gene and is a member of the claudin family. Claudin-7 is a component of tight junctions and plays important roles in maintaining cell polarity and tightly connecting the barriers between cells. Abnormal Claudin-7 protein expression is closely related to tumor occurrence, development, and metastasis.

Claudin-7 expression is down-regulated in Colorectal Cancer (CRC) and Lung Cancer tissues and loss of Claudin-7 is associated with the degree of cancer cell differentiation and metastasis. Claudin-7 may serve as a tumor suppressor, as it is involved in pathways of cell proliferation and epithelial barrier formation through Integrin signaling networks. The deficient extracellular matrix in cells with low Claudin-7 expression promotes abnormal growth patterns and metastasis in Ductal and Lobular Breast Carcinomas, and Claudin-7 expression is lost in ~50% of primary tumors in Breast Cancers. While Claudin-7 downregulation was found in Esophageal, Head/Neck, and Prostate Cancers, overexpression of Claudin-7 is found in many Ovarian Cancers and may also lead to increased tumor invasiveness.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP399*
ISOTYPE: *IgG*
CONTROL: *Breast, Colon, Fallopian Tube, Pancreas, Kidney, Transitional Cell Carcinoma*
LOCALIZATION: *Membranous, Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3719-3	Tinto Predilute	3.0 ml
BSB-3719-7	Tinto Predilute	7.0 ml
BSB-3719-15	Tinto Predilute	15.0 ml
BSB-3719-01	Concentrate	0.1 ml
BSB-3719-05	Concentrate	0.5 ml
BSB-3719-1	Concentrate	1.0 ml
BSB-3719-CS	Control Slides	5

Collagen Type IV, MMab



IHC of Collagen IV on a FFPE Skin Tissue

Collagen is the main protein of connective tissue in animals and the most abundant protein in mammals, making up about 25% of the total protein content. Collagen IV is a major constituent of the basement membranes, along with laminins and enactins. It is composed of the alpha 1 IV chain and alpha 2 IV chain in a 2:1 ratio. It can form insoluble fibers with high tensile strength.

Normal tissue stains with this antibody in a manner consistent with the sites of mesenchymal elements and epithelial basal laminae. Antibody to collagen IV is useful in detecting the loss of parts of basement membrane in carcinomas. Collagen IV can also be useful in the classification of soft tissue tumors; Schwanomas, Leiomyomas, and their well-differentiated malignant counterparts usually immunoreact to this antibody. The vascular nature of neoplasms, Hemangiopericytoma, Angiosarcoma and Epithelioid Hemangioendothelioma can be observed with this antibody.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *CIV22*
ISOTYPE: *IgG1/K*
CONTROL: *Muscle, Lung*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Dog, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5351	Tinto Predilute	3.0 ml
BSB 5352	Tinto Predilute	7.0 ml
BSB 5353	Tinto Predilute	15.0 ml
BSB 5354	Concentrate	0.1 ml
BSB 5355	Concentrate	0.5 ml
BSB 5356	Concentrate	1.0 ml
BSB 5357	Control Slides	5

Bio SB
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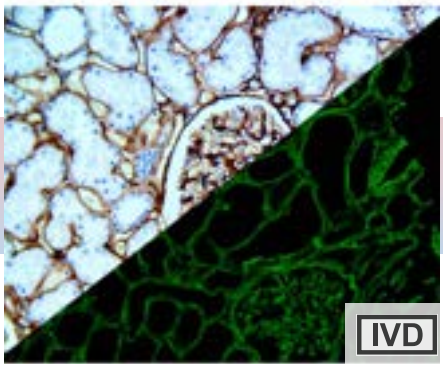
Collagen Type IV, RMab



IHC of Collagen Type IV on a FFPE Kidney Tissue

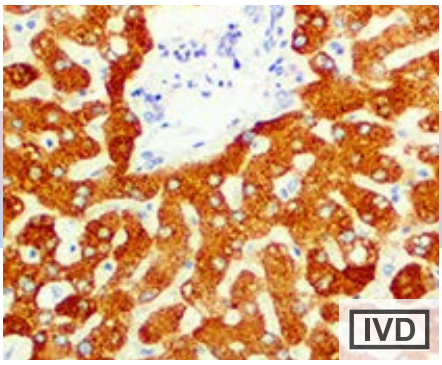
Collagen is the main protein of connective tissue in animals and the most abundant protein in mammals, making up about 25% of the total protein content. Collagen IV is a major constituent of the basement membranes, along with laminins and enactins. It is composed of the alpha 1 IV chain and alpha 2 IV chain in a 2:1 ratio. It can form insoluble fibers with high tensile strength.

Normal tissue stains with this antibody in a manner consistent with the sites of mesenchymal elements and epithelial basal laminae. Antibody to collagen IV is useful in detecting the loss of parts of basement membrane in carcinomas. Collagen IV can also be useful in the classification of soft tissue tumors; Schwanomas, Leiomyomas, and their well-differentiated malignant counterparts usually immune react to this antibody. The vascular nature of neoplasms, Hemangiopericytoma, Angiosarcoma and Epithelioid Hemangioendothelioma can be observed with this antibody.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-COL4*
ISOTYPE: *IgG*
CONTROL: *Muscle, Lung, Breast, Placenta, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Membranous, Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3777-3	Tinto Predilute	3.0 ml
BSB-3777-7	Tinto Predilute	7.0 ml
BSB-3777-15	Tinto Predilute	15.0 ml
BSB-3777-01	Concentrate	0.1 ml
BSB-3777-05	Concentrate	0.5 ml
BSB-3777-1	Concentrate	1.0 ml
BSB-3777-CS	Control Slides	5

COX-2, RMab



IHC of COX-2 on a FFPE Liver Tissue

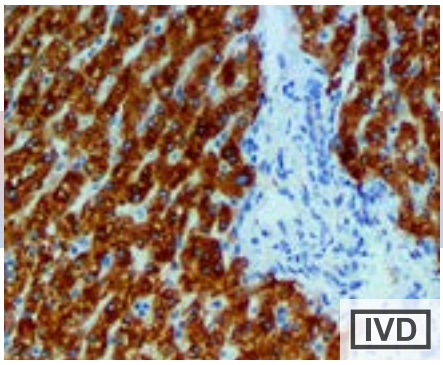
Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase), also known as cyclooxygenase-2 or COX-2, is an enzyme that in humans is encoded by the PTGS2 gene and it is involved in the conversion of arachidonic acid to prostaglandin H2, an important precursor of prostacyclin and thromboxane A2, among others. Pharmacological inhibition of COX can provide relief from the symptoms of inflammation and pain; this is the method of action of well-known drugs such as aspirin and ibuprofen. COX-2 inhibition by nonsteroidal anti-inflammatory agents has been shown to decrease angiogenesis and tumor growth, and promote apoptosis.

The expression of COX-2 is upregulated in many cancers. COX-2 overexpression has been associated with increased microvascular density, and VEGF protein expression in head and neck Squamous Cell Carcinomas and is a poor prognostic indicator in this entity as well. COX-2 overexpression has also been suggested as a poor prognostic indicator in Carcinomas of the Colon, Breast, Pancreas, and Adenocarcinomas of the Lung.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-COX2*
ISOTYPE: *IgG*
CONTROL: *Colon, Testis, Kidney, Placenta, Liver, Fallopian Tube, Pancreas, Tonsil, Thymus, Breast, Adenocarcinoma of Colon, Bladder TCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5358	Tinto Predilute	3.0 ml
BSB 5359	Tinto Predilute	7.0 ml
BSB 5360	Tinto Predilute	15.0 ml
BSB 5361	Concentrate	0.1 ml
BSB 5362	Concentrate	0.5 ml
BSB 5363	Concentrate	1.0 ml
BSB 5364	Control Slides	5

COX-2, RMab



IHC of COX2 on a FFPE Liver Tissue

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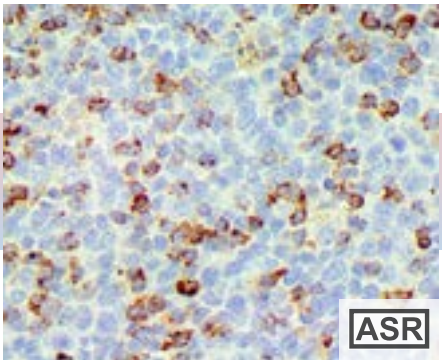
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP293*
ISOTYPE: *IgG*
CONTROL: *Colon, Stomach, Pancreas, Breast, Lung, Adenocarcinoma of Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2873	Tinto Predilute	3.0 ml
BSB 2874	Tinto Predilute	7.0 ml
BSB 2875	Tinto Predilute	15.0 ml
BSB 2876	Concentrate	0.1 ml
BSB 2877	Concentrate	0.5 ml
BSB 2878	Concentrate	1.0 ml
BSB 2879	Control Slides	5

CTLA-4/CD152, MMab



IHC of CTLA-4 on a FFPE Tonsil

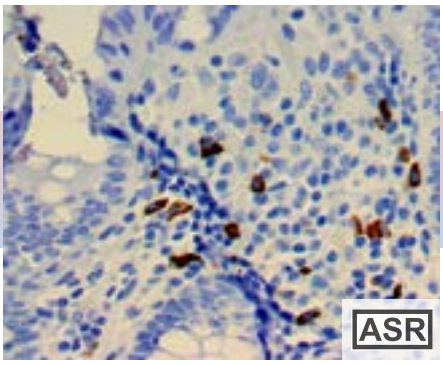
CTLA4 or CTLA-4 (cytotoxic T-lymphocyte-associated protein 4), classified as CD152, is a protein receptor known to functions as an immune checkpoint which downregulates the immune system. CTLA4 is found on the surface of T cells, and acts as an "off" switch when bound to CD80 or CD86 on the surface of antigen-presenting cells. CTLA4 is a member of the immunoglobulin superfamily that is expressed on the surface of Helper T cells and transmits an inhibitory signal to T cells. CTLA4 transmits an inhibitory signal to T cells, whereas CD28 transmits a stimulatory signal. Intracellular CTLA4 is also found in regulatory T cells and may be important to their function. T cell activation through the T cell receptor and CD28 leads to increased expression of CTLA-4, an inhibitory receptor for B7 molecules.

Mutations in this gene have been associated with insulin-dependent diabetes mellitus, Graves' disease, Hashimoto's thyroiditis, celiac disease, systemic lupus erythematosus, thyroid-associated orbitopathy, primary biliary cirrhosis and other autoimmune diseases. Polymorphisms of the CTLA-4 gene are associated with autoimmune diseases such as autoimmune thyroid disease and multiple sclerosis, though this association is often weak.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-88*
ISOTYPE: *IgG2a/K*
CONTROL: *Tonsil, Lymph Node, Colon, Thymus*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat, Dog, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2880	Tinto Predilute	3.0 ml
BSB 2881	Tinto Predilute	7.0 ml
BSB 2882	Tinto Predilute	15.0 ml
BSB 2883	Concentrate	0.1 ml
BSB 2884	Concentrate	0.5 ml
BSB 2885	Concentrate	1.0 ml
BSB 2886	Control Slides	5

CTLA4, RMab



IHC of CTLA-4 on a FFPE Colon Tissue

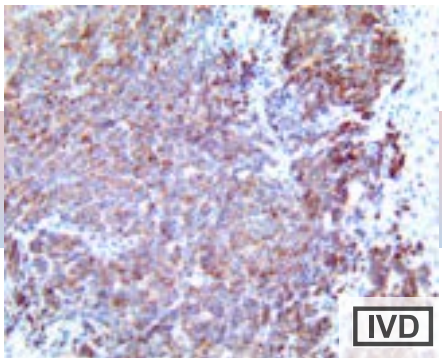
CTLA4 or CTLA-4 (cytotoxic T-lymphocyte-associated protein 4), classified as CD152, is a protein receptor known to functions as an immune checkpoint which downregulates the immune system. CTLA4 is found on the surface of T cells, and acts as an "off" switch when bound to CD80 or CD86 on the surface of antigen-presenting cells. The CTLA-4 protein is encoded by the Ctla4 gene in mice and the CTLA4 gene in humans. CTLA4 is a member of the immunoglobulin superfamily that is expressed on the surface of Helper T cells and transmits an inhibitory signal to T cells.

Mutations in this gene have been associated with insulin-dependent diabetes mellitus, Graves' disease, Hashimoto's thyroiditis, celiac disease, systemic lupus erythematosus, thyroid-associated orbitopathy, primary biliary cirrhosis and other autoimmune diseases. Polymorphisms of the CTLA-4 gene are associated with autoimmune diseases such as autoimmune thyroid disease and multiple sclerosis, though this association is often weak. In Systemic Lupus Erythematosus (SLE), the splice variant sCTLA-4 is found to be aberrantly produced and found in the serum of patients with active SLE. Germline haploinsufficiency of CTLA4 leads to CTLA4 deficiency or CHAI disease (CTLA4 haploinsufficiency with autoimmune infiltration), a rare genetic disorder of the immune system.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-CTLA4*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Colon, Thymus*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3483	Tinto Predilute	3.0 ml
BSB 3484	Tinto Predilute	7.0 ml
BSB 3485	Tinto Predilute	15.0 ml
BSB 3486	Concentrate	0.1 ml
BSB 3487	Concentrate	0.5 ml
BSB 3488	Concentrate	1.0 ml
BSB 3489	Control Slides	5

CXCL12/SDF-1, MMab



IHC of CXCL12/SDF-1 on a FFPE HER2 Negative Breast Carcinoma Tissue

The cytokine C-X-C motif chemokine 12 (CXCL12) is synthesized by metastasis target tissues and has been shown to attract tumor cells that express the receptor, C-X-C chemokine receptor type 4 (CXCR4). CXCL12 is involved in tumor protection and metastasis, where it induces angiogenesis and epithelial-to-mesenchymal transition and inhibits apoptosis and host immune response. CXCL12 is highly expressed in cancer-associated fibroblasts and tumor stroma, where it sequesters T cells and prevents them from infiltrating and attacking the tumor.

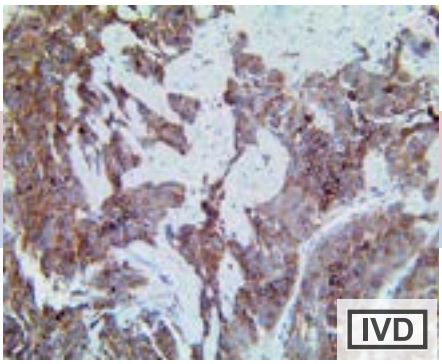
Expression of CXCL12 and CXCR4 in breast, pancreatic, esophageal, lung, prostate, and ovarian Cancers increases angiogenesis and is associated with poor prognosis, especially in the presence of HER2-neu which inhibits degradation of the CXCL12/CXCR4 signaling complex. Expression of CXCL12 in organs like lungs, lymph nodes, bone marrow, liver increases likelihood of metastasis to those sites. CXCL12 expression and activity is controlled by hypoxia, ACKR3 (CXCR7) receptor, and post-translational modifications; CXCL12 hypermethylation has been reported in gastric, breast, colon, lung, and prostate cancer. A large study found high CXCL12 expression associated with reduced overall survival in patients with oesophagogastric, pancreatic and lung cancer, whereas in breast cancer patients high CXCL12 expression conferred an overall survival advantage.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-165*
ISOTYPE: *IgG1*
CONTROL: *Testis, Breast, Colon, Fallopian Tube, Tonsil, Transitional Cell Carcinoma, T cell Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3713-3	Tinto Predilute	3.0 ml
BSB-3713-7	Tinto Predilute	7.0 ml
BSB-3713-15	Tinto Predilute	15.0 ml
BSB-3713-01	Concentrate	0.1 ml
BSB-3713-05	Concentrate	0.5 ml
BSB-3713-1	Concentrate	1.0 ml
BSB-3713-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

CXCR4/CD184/Fusin, RMab



IHC of CXCR4/CD184/Fusin on a FFPE Lung Neuroendocrine Tissue

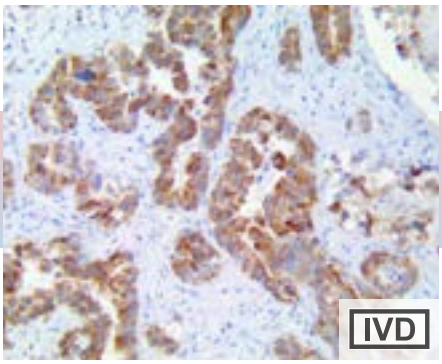
Chemokine Receptor 4 (CXCR4, also CD184 or Fusin) is a homeostatic chemokine. Its major function is to regulate hematopoietic cell trafficking and secondary lymphoid tissue architecture. CXCR4 is widely expressed on Hematopoietic cells, including CD34+ HSC, T Lymphocytes, B Lymphocytes, Monocytes, Macrophages, Neutrophils, and Eosinophils, as well as organs including Brain, Heart, Colon, and Kidney, and Endothelial cells, Epithelial cells, and Smooth Muscle progenitors.

With roles in cell homing and tissue repair, CXCR4 is involved in cancer cell physiology, survival, and metastasis in >20 cancer types. CXCR4 induces and recruits stem cells and promotes angiogenesis in tumors, and responds to CXCL12 expression to promote metastasis in cancers of the Bone, Brain, Breast, Lung, Liver, Kidney, and other tissues. The SDF-1/CXCR4 axis plays a crucial role in engraftment, where CXCR4 expression is correlated with inflammation and graft rejection. The most studied role for CXCL12 chemokine and its receptor CXCR4 in Breast Cancer pathogenesis is the metastasis event, although several reports have demonstrated its involvement in other processes, such as angiogenesis and tumor growth. It has been found that CXCR4 is required for Breast Cancer cell migration to other sites such as Lung, Bone, and Lymph nodes, which express high levels of CXCL12 chemokine. Therefore, CXCR4 is being considered a prognostic marker in Breast Cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP394*
ISOTYPE: *IgG*
CONTROL: *Fallopian Tube, Adrenal Gland, Stomach, Kidney, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma, Tonsil, Testis*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB-3758-3	Tinto Predilute	3.0 ml
BSB-3758-7	Tinto Predilute	7.0 ml
BSB-3758-15	Tinto Predilute	15.0 ml
BSB-3758-01	Concentrate	0.1 ml
BSB-3758-05	Concentrate	0.5 ml
BSB-3758-1	Concentrate	1.0 ml
BSB-3758-CS	Control Slides	5

CXCR5/CD185, RPab



IHC of CXCR5/CD185 on a FFPE Lung Adenocarcinoma Tissue

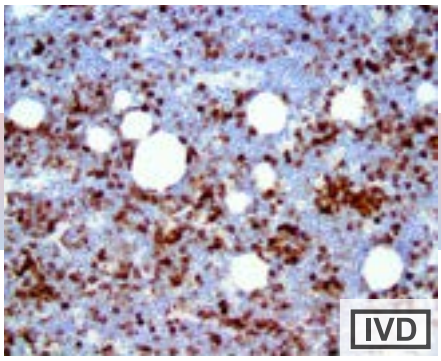
The G-protein coupled receptor (GPCR) or C-X-C motif chemokine receptor 5, CXCR5, also known as or Burkitt lymphoma receptor 1 (BLR1), plays fundamental roles in inflammatory, infectious and immune responses. Current evidence also indicates that the CXCL13:CXCR5 axis orchestrates cell-cell interactions that regulate lymphocyte infiltration within the tumor microenvironment, thereby determining responsiveness to cytotoxic and immune-targeted therapies. CXCR5 is expressed in mature B-cells and Burkitt's lymphoma.

CXCR5 is highly expressed in primary and secondary follicles within gastric lymphomas. non-small cell lung cancer (NSCLC) tissues express CXCR5, which correlates with stage/grade of the disease. Higher CXCR5 expression and migration by NSCLC cells suggest a role in migration and metastasis of primary lung tumors in response to CXCL13. These findings indicate that differential expression patterns of CXCR5 and CXCL13 in two subtypes (squamous cell carcinoma and adenocarcinoma) of NSCLC are associated with differences in their prognosis and survival. It has been proposed that CXCR5/CXCL13, either alone or in combination, could be used as a prognostic biomarker for lung cancer. Other studies have shown that CXCR5 overexpression in breast cancer patients highly correlates with lymph node metastases, and elevated CXCR5 expression may contribute to abnormal cell survival and migration in breast tumors that lack functional p53 protein.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG2b*
CONTROL: *Placenta, Brain, Lung, Transitional Cell Carcinoma, Testis, Ovarian Serous Carcinoma, Hepatocellular Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3721-3	Tinto Predilute	3.0 ml
BSB-3721-7	Tinto Predilute	7.0 ml
BSB-3721-15	Tinto Predilute	15.0 ml
BSB-3721-01	Concentrate	0.1 ml
BSB-3721-05	Concentrate	0.5 ml
BSB-3721-1	Concentrate	1.0 ml
BSB-3721-CS	Control Slides	5

Cyclin B1, RMab



IHC of Cyclin B1 on a FFPE Lymphoblastic Lymphoma Tissue

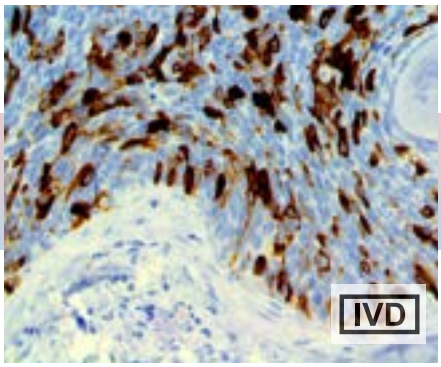
Cyclin B1 is a regulatory protein involved with mitosis. It complexes with p34(cdc2) to form the maturation-promoting factor (MPF). Cyclin B1 contributes to the switch-like all or none behavior of the cell in deciding to commit mitosis. Its activation is well regulated, and positive feedback loops ensure that once the cyclin B1-Cdk1 complex is activated it is not deactivated. Cyclin B1-Cdk1 is involved in the early events of mitosis, such as chromosome condensation, nuclear envelope breakdown, and spindle pole assembly. Before mitosis almost all cyclin B1 in the cell is located in the cytoplasm, but in late prophase it relocates to the nucleus. At the end of mitosis, cyclin B1 is targeted for degradation by the APC through its APC localization sequence, permitting the cell to exit mitosis.

Cyclin B1 has been shown to be overexpressed in various tumor types.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-B1*
ISOTYPE: *IgG*
CONTROL: *Cervix, HSIL Cervix*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6548	Tinto Predilute	3.0 ml
BSB 6549	Tinto Predilute	7.0 ml
BSB 6550	Tinto Predilute	15.0 ml
BSB 6551	Concentrate	0.1 ml
BSB 6552	Concentrate	0.5 ml
BSB 6553	Concentrate	1.0 ml
BSB 6554	Control Slides	5

Cyclin B1, RMab



IHC of Cyclin B1 on FPPE Anal Carcinoma Tissue

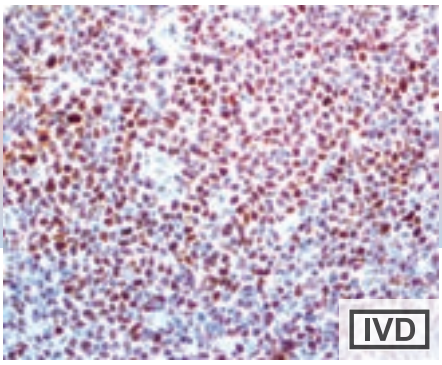
Cyclin B1 is a regulatory protein involved with mitosis. It complexes with p34(cdc2) to form the maturation-promoting factor (MPF). Cyclin B1 contributes to the switch-like all or none behavior of the cell in deciding to commit mitosis. Its activation is well regulated, and positive feedback loops ensure that once the cyclin

B1-Cdk1 complex is activated, it is not deactivated. Cyclin B1-Cdk1 is involved in the early events of mitosis, such as chromosome condensation, nuclear envelope breakdown, and spindle pole assembly. Before mitosis almost all cyclin B1 in the cell is located in the cytoplasm, but in late prophase it relocates to the nucleus. At the end of mitosis, cyclin B1 is targeted for degradation by the APC through its APC localization sequence, permitting the cell to exit mitosis. Cyclin B1 has been shown to be overexpressed in various tumor types.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM281*
ISOTYPE: *IgG*
CONTROL: *Cervix, HSIL Cervix*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3760-3	Tinto Predilute	3.0 ml
BSB-3760-7	Tinto Predilute	7.0 ml
BSB-3760-15	Tinto Predilute	15.0 ml
BSB-3760-01	Concentrate	0.1 ml
BSB-3760-05	Concentrate	0.5 ml
BSB-3760-1	Concentrate	1.0 ml
BSB-3760-CS	Control Slides	5

Cyclin D1, RMab



IHC of Cyclin D1 on a FFPE Mantle Cell Lymphoma Tissue

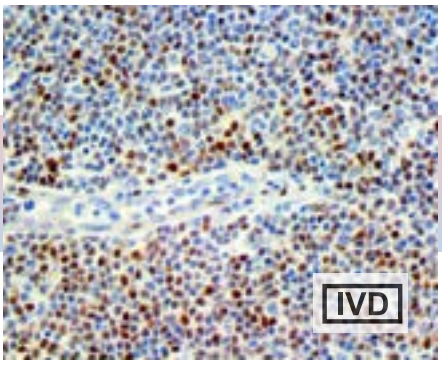
Cyclins are a family of proteins involved in the progression of cells through the cell cycle. Cyclins form a complex with their partner, cyclin-dependent kinase (Cdk), which activates the latter's protein kinase function. Cyclins are so named because they are produced or degraded as needed in order to drive the cell through the different stages of the cell cycle. When its concentrations in the cell are low, the cyclin detaches from the Cdk, inhibiting the enzyme's activity, probably by causing a protein chain to block the enzymatic site.

Cyclin D1 or PRAD-1 or bcl-1 is one of the key cell-cycle regulators, and functions in association with Cdk4 and/or Cdk6 by phosphorylating the Rb protein. It is a putative proto-oncogene overexpressed in a wide variety of human neoplasms including Mantle Cell Lymphomas (MCL).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT14*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Placenta, Brain, Pituitary, Adrenal, Cervix, Breast, Mantle Cell Lymphoma, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5365	Tinto Predilute	3.0 ml
BSB 5366	Tinto Predilute	7.0 ml
BSB 5367	Tinto Predilute	15.0 ml
BSB 5368	Concentrate	0.1 ml
BSB 5369	Concentrate	0.5 ml
BSB 5370	Concentrate	1.0 ml
BSB 5371	Control Slides	5

Cyclin D1, RMab



IHC of Cyclin D1 on FPPE Mantle Cell Carcinoma Tissue

Cyclins are a family of proteins involved in the progression of cells through the cell cycle. Cyclins form a complex with their partner, cyclin-dependent kinase (Cdk), which activates the latter's protein kinase function. Cyclins are so named because they are produced or degraded as needed in order to drive the cell through the different stages of the cell cycle. When its concentrations in the cell are low, the cyclin detaches from the Cdk, inhibiting the enzyme's activity, probably by causing a protein chain to block the enzymatic site.

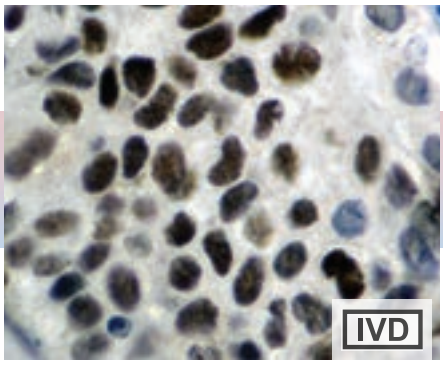
Cyclin D1 or PRAD-1 or bcl-1 is one of the key cell-cycle regulators, and functions in association with Cdk4 and/or Cdk6 by phosphorylating the Rb protein. It is a putative proto-oncogene overexpressed in a wide variety of human neoplasms including Mantle Cell Lymphomas. Cyclin D1 has been found to be overexpressed in breast carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM241*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Placenta, Brain, Cervix, Breast, Mantle Cell Lymphoma, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Predicted: Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3761-3	Tinto Predilute	3.0 ml
BSB-3761-7	Tinto Predilute	7.0 ml
BSB-3761-15	Tinto Predilute	15.0 ml
BSB-3761-01	Concentrate	0.1 ml
BSB-3761-05	Concentrate	0.5 ml
BSB-3761-1	Concentrate	1.0 ml
BSB-3761-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Cyclin E1, RMab



IHC of Cyclin E1 on a FFPE Breast Carcinoma Tissue

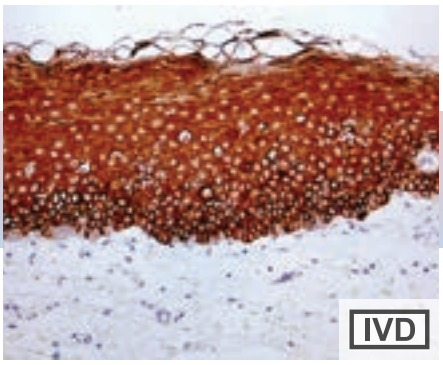
Cyclin E1 forms a complex with and functions as a regulatory subunit of CDK2, whose activity is required for cell cycle G1/S transition phase of the cell cycle that detremines cell division. The Cyclin E/CDK2 complex phosphorylates p27Kip1 (an inhibitor of Cyclin D), taggint it for degradation and thus promoting expression of Cyclin A, allowing progression to the S phase. This protein accumulates at the G1-S phase boundary and is degraded as cells progress through S phase. Apart from the function in cell cycle progression, cyclin E/CDK2 plays a role in the centrosome cycle by phosphorylating nucleophosmin (NPM). NPM is then released from binding to an unduplicated centrosome, thereby triggering duplication. Cyclin E/CDK2 has also been shown to regulate the apoptotic response to DNA damage via phosphorylation of FOXO1.

Overexpression of Cyclin E correlates with tumorigenesis. It is involved in various types of cancers, including breast, colon, bladder, skin, and lung cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP126*
ISOTYPE: *IgG*
CONTROL: *Placenta, Bladder, Colon, Breast Cancer, Ovarian Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6555	Tinto Predilute	3.0 ml
BSB 6556	Tinto Predilute	7.0 ml
BSB 6557	Tinto Predilute	15.0 ml
BSB 6558	Concentrate	0.1 ml
BSB 6559	Concentrate	0.5 ml
BSB 6560	Concentrate	1.0 ml
BSB 6561	Control Slides	5

Cytokeratin 4, RMab



IHC of Cytokeratin 4 on a FFPE Oral Mucosa Tissue

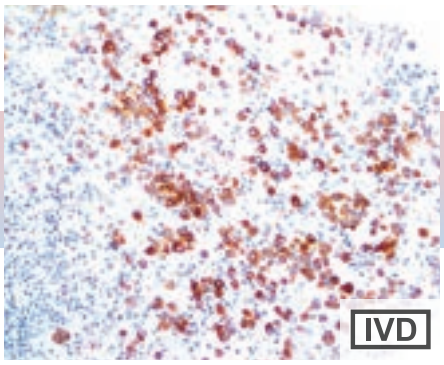
Cytokeratin 4 is a type II cytokeratin and is specifically found in differentiated layers of the mucosal and esophageal epithelia together with Cytokeratin 13. Mutations in the genes encoding this protein (KRT4) have been associated with White Sponge Nevus, characterized by oral, esophageal, and anal leukoplakia.

A decreased expression of CK4 is associated with head and neck squamous carcinoma. It is helpful in the differentiation of squamous cell carcinoma of esophagus origin from that of thyroid origin.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP4*
ISOTYPE: *IgG*
CONTROL: *Cornea, Anus, Larynx, Pharynx, Tongue, Prostate, Tonsil, Cervix, Squamous Epithelium of Esophagus, Cervical Squamous Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6590	Tinto Predilute	3.0 ml
BSB 6591	Tinto Predilute	7.0 ml
BSB 6592	Tinto Predilute	15.0 ml
BSB 6593	Concentrate	0.1 ml
BSB 6594	Concentrate	0.5 ml
BSB 6595	Concentrate	1.0 ml
BSB 6596	Control Slides	5

Cytokeratin 5, RMab



IHC of Cytokeratin 5 on a FFPE Mesothelioma Tissue

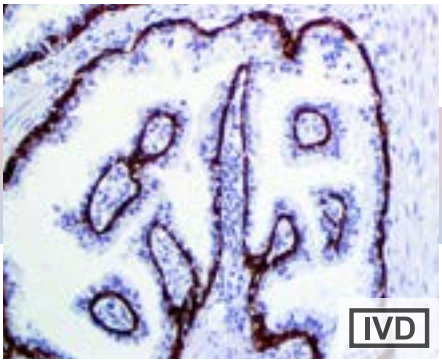
Cytokeratin 5 is a type II cytokeratin found in squamous cell epithelium, myoepithelial cells of the breast and the basal cells of the prostate. Both Cytokeratin 5 and its corresponding partner, Cytokeratin 14, are essential for formation of 8-nm filaments.

Cytokeratin 5 is expressed in most Epithelial Mesotheliomas but not by most Pulmonary Adenocarcinomas and can be used to differentiate between the two.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP24*
ISOTYPE: *IgG*
CONTROL: *Prostate, Breast, Placenta, Skin, Mesothelioma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6597	Tinto Predilute	3.0 ml
BSB 6598	Tinto Predilute	7.0 ml
BSB 6599	Tinto Predilute	15.0 ml
BSB 6600	Concentrate	0.1 ml
BSB 6601	Concentrate	0.5 ml
BSB 6602	Concentrate	1.0 ml
BSB 6603	Control Slides	5

Cytokeratin 5 & 6, MMab



IHC of Cytokeratin 5 and 6 on a FFPE Prostatic Adenocarcinoma Tissue

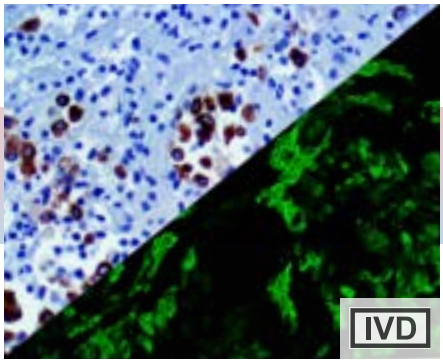
Cytokeratin 5 (58 kDa) is a high-molecular weight, basic type of cytokeratin expressed in basal, intermediate and superficial-cell layers of stratified epithelia as well as transitional epithelia, complex epithelia, mesothelial cells and Mesothelioma. Cytokeratin 6 (56 kD) is also a high-molecular weight, basic type cytokeratin expressed by proliferating squamous epithelium often paired with Cytokeratin 16.

CK 5 and 6 are positively seen in nearly 100% of Malignant Mesotheliomas and is rarely seen in Lung Adenocarcinomas. CK 5 and 6 can positively be seen in undifferentiated Large-cell Carcinoma as well as Squamous Carcinoma. Fewer than 10% of Carcinomas of the breast, colon, and prostate stain positively for this marker. CK 5 and 6 have also been used successfully as a myoepithelial cell marker in the prostate to determine malignancy.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *D5/16 B4*
ISOTYPE: *IgG1*
CONTROL: *Prostate, Mesothelioma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5400	Tinto Predilute	3.0 ml
BSB 5401	Tinto Predilute	7.0 ml
BSB 5402	Tinto Predilute	15.0 ml
BSB 5403	Concentrate	0.1 ml
BSB 5404	Concentrate	0.5 ml
BSB 5405	Concentrate	1.0 ml
BSB 5406	Control Slides	5

Cytokeratin 5 & 6, RMab



IHC and IF of Cytokeratin 4 & 6 on an FFPE Mesothelioma Tissue (IHC) an FFPE Colon Carcinoma Tissue (IF)

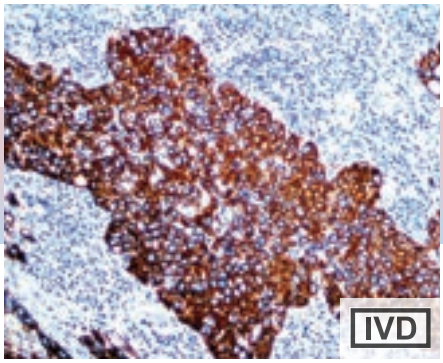
Cytokeratin 5 (58 kDa) is a high-molecular weight, basic type of cytokeratin expressed in basal, intermediate and superficial-cell layers of stratified epithelia as well as transitional epithelia, complex epithelia, mesothelial cells and Mesothelioma. Cytokeratin 6 (56 kD) is also a high-molecular weight, basic type cytokeratin expressed by proliferating squamous epithelium often paired with Cytokeratin 16.

CK 5 and 6 are positively seen in nearly 100% of Malignant Mesotheliomas and are rarely seen in Lung Adenocarcinomas. CK 5 and 6 can positively be seen in undifferentiated Large-cell Carcinoma as well as Squamous Carcinoma. Fewer than 10% of Carcinomas of the breast, colon, and prostate stain positively for this marker. CK 5 and 6 have also been used successfully as a myoepithelial cell marker in the prostate to determine malignancy.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP24 & EP67*
ISOTYPE: *IgG*
CONTROL: *Prostate, Mesothelioma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6604	Tinto Predilute	3.0 ml
BSB 6605	Tinto Predilute	7.0 ml
BSB 6606	Tinto Predilute	15.0 ml
BSB 6607	Concentrate	0.1 ml
BSB 6608	Concentrate	0.5 ml
BSB 6609	Concentrate	1.0 ml
BSB 6610	Control Slides	5

Cytokeratin 6, RMab



IHC of Cytokeratin 6 on a FFPE Cervical Cancer Tissue

Cytokeratin 6 is a type II cytokeratin known for its strong induction in stratified epithelia that features an enhanced cell proliferation rate or abnormal differentiation during wound healing in several diseases (such as psoriasis, actinic keratosis) and in cancer. It can be found on stratified epithelia including oral mucosa, esophagus, basal layer of epidermis, the outer root sheath of hair follicles, and in glandular epithelia.

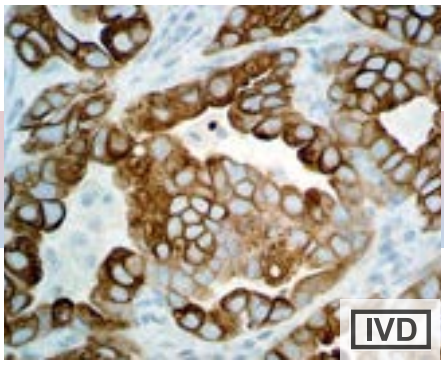
Together, CK 5 & 6 can be used to differentiate Mesothelioma (positive) from Lung Carcinoma (negative) or metastatic carcinoma (negative), and can also be used to distinguish between Ductal Hyperplasia of the breast (positive) from Solid Papillary DCIS (negative).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP67*
ISOTYPE: *IgG*
CONTROL: *Oral Mucosa, Esophagus, Skin, Glandular Epithelia*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6639	Tinto Predilute	3.0 ml
BSB 6640	Tinto Predilute	7.0 ml
BSB 6641	Tinto Predilute	15.0 ml
BSB 6642	Concentrate	0.1 ml
BSB 6643	Concentrate	0.5 ml
BSB 6644	Concentrate	1.0 ml
BSB 6645	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Cytokeratin 7, MMab



IHC of Cytokeratin 7 on a FFPE Lung Adenocarcinoma Tissue

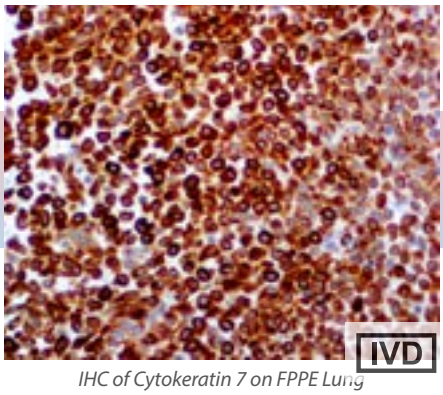
Cytokeratin 7 (CK7) reacts with proteins that are found in most ductal, glandular and transitional epithelium of the urinary tract and bile duct epithelial cells. CK 7 distinguishes between lung and breast epithelium that stain positive, and colon and prostate epithelial cells that are negative.

This antibody also reacts with many benign and malignant epithelial lesions (e.g., Adenocarcinomas of the ovary, breast and lung). Further, in frozen sections, the antibody has been shown to label the rete epithelium in the testis, epididymis epithelium, and the surface epithelium of the stomach and duodenum. Transitional-cell Carcinomas are positive and Prostate Cancers are negative. This antibody does not recognize intermediate filament proteins, nor does it recognize non-epithelial tissues such as blood vessels, connective tissue, etc.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *OV-TL 13/30*
ISOTYPE: *IgG1/K*
CONTROL: *Salivary Gland, Placenta, Breast, Thyroid, Cervix, Pancreas, Fallopian Tube, Transitional Cell Carcinoma, Lung Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5407	Tinto Predilute	3.0 ml
BSB 5408	Tinto Predilute	7.0 ml
BSB 5409	Tinto Predilute	15.0 ml
BSB 5410	Concentrate	0.1 ml
BSB 5411	Concentrate	0.5 ml
BSB 5412	Concentrate	1.0 ml
BSB 5413	Control Slides	5

Cytokeratin 7, RMab



IHC of Cytokeratin 7 on FPPE Lung Carcinoma Tissue

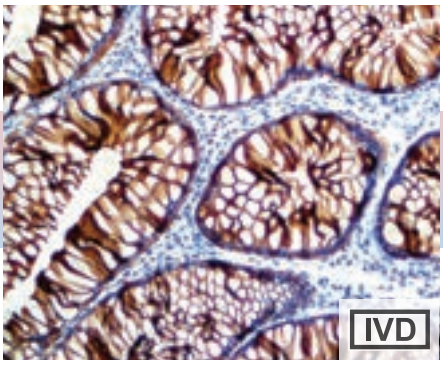
Cytokeratin 7 (CK7) reacts with proteins that are found in most ductal, glandular and transitional epithelium of the urinary tract and bile duct epithelial cells. CK7 distinguishes between lung and breast epithelium that stain positive, and colon and prostate epithelial cells that are negative.

This antibody also reacts with many benign and malignant epithelial lesions (e.g., Adenocarcinomas of the ovary, breast and lung). Further, in frozen sections, the antibody has been shown to label the rete epithelium in the testis, epididymis epithelium, and the surface epithelium of the stomach and duodenum. Transitional-cell Carcinomas are positive and Prostate Cancers are negative. This antibody does not recognize intermediate filament proteins, nor does it recognize non-epithelial tissues such as blood vessels, connective tissue, etc.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM284*
ISOTYPE: *IgG*
CONTROL: *Salivary Gland, Placenta, Breast, Thyroid, Cervix, Lung Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3764-3	Tinto Predilute	3.0 ml
BSB-3764-7	Tinto Predilute	7.0 ml
BSB-3764-15	Tinto Predilute	15.0 ml
BSB-3764-01	Concentrate	0.1 ml
BSB-3764-05	Concentrate	0.5 ml
BSB-3764-1	Concentrate	1.0 ml
BSB-3764-CS	Control Slides	5

Cytokeratin 8 , RMab



IHC of Cytokeratin 8 on a FFPE Colon Tissue

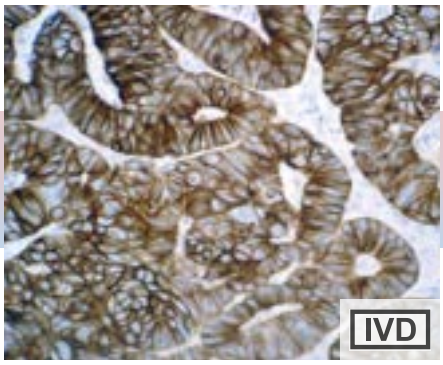
Cytokeratin 8, also known as type II cytoskeletal 8, is a protein that is often paired with Cytokeratin 18. They are perhaps the most commonly found products of the intermediate filament gene family, and are expressed in single-layer epithelial tissues of the body. Cytokeratin 8 is an intermediate filament protein produced early in embryogenesis.

Anti-Cytokeratin 8 can be used to detect Adenocarcinomas with simple epithelium origin. It can be used to distinguish between Duct (peripheral staining) from Lobular (perinuclear staining) Breast Carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP17*
ISOTYPE: *IgG*
CONTROL: *Colon, Prostate, Kidney, Liver, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6660	Tinto Predilute	3.0 ml
BSB 6661	Tinto Predilute	7.0 ml
BSB 6662	Tinto Predilute	15.0 ml
BSB 6663	Concentrate	0.1 ml
BSB 6664	Concentrate	0.5 ml
BSB 6665	Concentrate	1.0 ml
BSB 6666	Control Slides	5

Cytokeratin 8 & 18, MMab



IHC of Cytokeratin 8 and 18 on a FFPE Colon Carcinoma Tissue

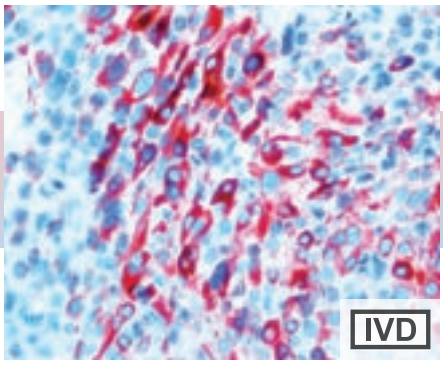
Cytokeratin 8 belongs to the Type II (basic) subfamily of high molecular-weight keratins and exists in combination with Cytokeratin 18 (Type I [acidic] subfamily of low molecular weight keratins). They are perhaps the most commonly found products of the intermediate filament gene family, and are expressed in single-layer epithelial tissues of the body.

Cytokeratins 8 and 18 can be found in most simple epithelium (e.g., thyroid, female breast, gastrointestinal tract, and respiratory tract). Adenocarcinomas and most Non-keratinizing Squamous Carcinomas will stain, but Keratinizing Squamous Carcinomas will not. This antibody is used when attempting to demonstrate the presence of Paget cells; there is very little keratin 18 in the normal epidermis so only Paget cells will stain. This approach facilitates the interpretation using immunostains and is more sensitive than mucin histochemistry.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *B22.1/B23.1*
ISOTYPE: *IgG1*
CONTROL: *Breast, Ovary, GI, Prostate, Pancreas, Salivary Gland*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5414	Tinto Predilute	3.0 ml
BSB 5415	Tinto Predilute	7.0 ml
BSB 5416	Tinto Predilute	15.0 ml
BSB 5417	Concentrate	0.1 ml
BSB 5418	Concentrate	0.5 ml
BSB 5419	Concentrate	1.0 ml
BSB 5420	Control Slides	5

Cytokeratin 10, RMab



IHC of Cytokeratin 10 on a FFPE Cervical Carcinoma Tissue

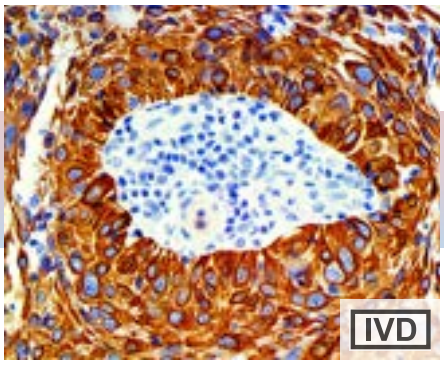
Cytokeratin 10 is a type I cytokeratin, which belongs to the superfamily of intermediate filament (IF) proteins. It is expressed in the subprabasal cell layers of certain stratified epithelia, notably epidermis, and is typically associated with Cytokeratin 1.

Anti-Cytokeratin 10 is helpful in identification of more differentiated squamous cell carcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP97*
ISOTYPE: *IgG*
CONTROL: *Squamous Cell Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6667	Tinto Predilute	3.0 ml
BSB 6668	Tinto Predilute	7.0 ml
BSB 6669	Tinto Predilute	15.0 ml
BSB 6670	Concentrate	0.1 ml
BSB 6671	Concentrate	0.5 ml
BSB 6672	Concentrate	1.0 ml
BSB 6673	Control Slides	5

Cytokeratin 14, MMab



IHC of Cytokeratin 14 on a FFPE Cervix Tissue

Cytokeratin 14 is a Type I polypeptide found in basal cells of squamous epithelia, some glandular epithelia, myoepithelium, and mesothelial cells. It is usually found as a heterotetramer with two cytokeratin 5 molecules, and a Type II keratin. Together, they form the cytoskeleton of epithelial cells. Mutations in the genes for these cytokeratins are associated with Epidermolysis Bullosa Simplex.

Cytokeratin 14 has been studied as a prognostic marker in Breast Cancer. This antibody labels the basal layer of stratifying squamous and non-squamous epithelia. The staining pattern is cytoplasmic. It recognizes Basal Cell Carcinomas and Squamous Cell Carcinomas. Anti-CK 14 has been demonstrated to be useful in differentiating Squamous Cell Carcinomas from other epithelial tumors. This antibody has also been useful in separating oncocytic tumors of the kidney from renal mimics, as well as in determining metaplastic Carcinomas of the Breast.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *LL002*
ISOTYPE: *IgG3*
CONTROL: *Squamous Mucosa, Prostate, Breast, Tonsil, Salivary Gland, Skin, Cervix Carcinoma, Squamous Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6219	Tinto Predilute	3.0 ml
BSB 6220	Tinto Predilute	7.0 ml
BSB 6221	Tinto Predilute	15.0 ml
BSB 6222	Concentrate	0.1 ml
BSB 6223	Concentrate	0.5 ml
BSB 6224	Concentrate	1.0 ml
BSB 6225	Control Slides	5

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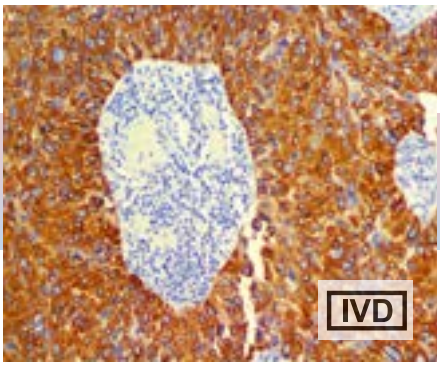
Cytokeratin 14, RMab



IHC of Cytokeratin 14 on FPPE Cervical Cancer Tissue

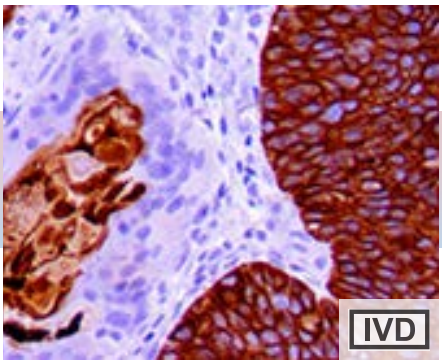
Cytokeratin 14 is a Type I polypeptide found in basal cells of squamous epithelia, some glandular epithelia, myoepithelium, and mesothelial cells. It is usually found as a heterotetramer with two cytokeratin 5 molecules, and a Type II keratin. Together, they form the cytoskeleton of epithelial cells. Mutations in the genes for these cytokeratins are associated with Epidermolysis Bullosa Simplex.

Cytokeratin 14 has been studied as a prognostic marker in Breast Cancer. This antibody labels the basal layer of stratified squamous and non-squamous epithelia. The staining pattern is cytoplasmic and recognizes Basal Cell Carcinomas and Squamous Cell Carcinomas. Anti-CK14 has been demonstrated to be useful in differentiating Squamous Cell Carcinomas from other epithelial tumors. This antibody has also been useful in separating oncocytic tumors of the kidney from renal mimics, as well as in determining metaplastic Carcinomas of the Breast.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM328*
ISOTYPE: *IgG*
CONTROL: *Squamous Mucosa, Prostate, Breast, Tonsil, Salivary Gland, Skin, Cervix Carcinoma, Squamous Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3762-3	Tinto Predilute	3.0 ml
BSB-3762-7	Tinto Predilute	7.0 ml
BSB-3762-15	Tinto Predilute	15.0 ml
BSB-3762-01	Concentrate	0.1 ml
BSB-3762-05	Concentrate	0.5 ml
BSB-3762-1	Concentrate	1.0 ml
BSB-3762-CS	Control Slides	5

Cytokeratin 16, RMab



IHC of Cytokeratin 16 on a FFPE Anal Carcinoma Tissue

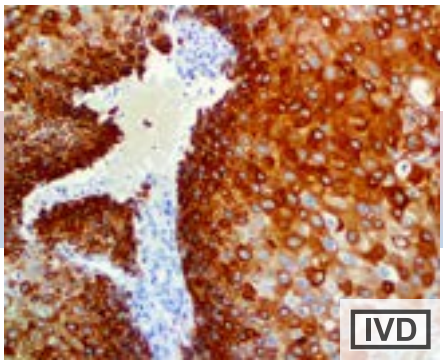
Cytokeratin 16 (CK16) is a protein that in humans is encoded by the KRT16 gene. Cytokeratin 16 is a type I cytokeratin. It is paired with cytokeratin 6 in a number of epithelial tissues, including nail bed, esophagus, tongue, and hair follicles. Mutations in the gene encoding this protein are associated with the genetic skin disorders pachyonychia congenita, non-epidermolytic palmoplantar keratoderma and unilateral palmoplantar verrucous nevus.

Studies have proposed a modulatory role of CK16 in cell proliferation, suggesting its utility as a marker for proliferation. Rapid induction of CK16 expression near the edge of wounds, upregulation in response to epidermal growth factor stimulus, and overexpression in hyperproliferative disorders, including psoriasis and chronic contact dermatitis, support this assertion. In psoriasis, the severity of disease is correlated with the amount of CK16. Additionally, CK16 expression has been described in neoplasms of multiple tissues. Progressive CK16 abundance and intensity were observed with increased grade of severity of cervical intraepithelial neoplasia lesions. Furthermore, 10% of invasive carcinomas were diffusely or focally positive. In keratocystic odontogenic tumors, CK16 was observed in 79% of cases. These observations support CK16 as a marker of hyperproliferation.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP27*
ISOTYPE: *IgG*
CONTROL: *Skin, Prostate, Breast, Cervix, Salivary Gland, SCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2887	Tinto Predilute	3.0 ml
BSB 2888	Tinto Predilute	7.0 ml
BSB 2889	Tinto Predilute	15.0 ml
BSB 2890	Concentrate	0.1 ml
BSB 2891	Concentrate	0.5 ml
BSB 2892	Concentrate	1.0 ml
BSB 2893	Control Slides	5

Cytokeratin 17, MMab



IHC of Cytokeratin 17 on a FFPE Cervical Carcinoma Tissue

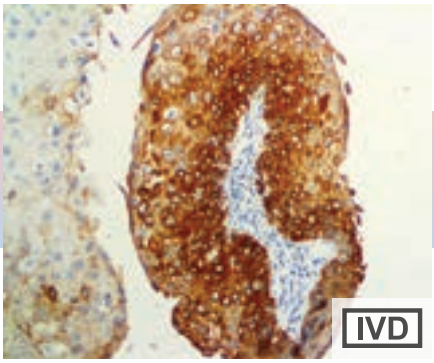
Cytokeratin 17 (CK 17) is a Type I cytokeratin with a MW of 46 kD found sometimes in association with Cytokeratin 7. Cytokeratin 17 is found in nail beds, hair follicles, sebaceous glands, and other epidermal appendages. Mutations in the gene encoding this protein lead to Jackson-Lawler type Pachyonychia Congenita and Steatocystoma Multiplex.

Cytokeratin 17 antibody has been used to distinguish immature Cervical Squamous Metaplasia from High Grade Cervical Intraepithelial Neoplasia (CIN III). Anti-CK 17 also labels myoepithelial cells in the benign breast tissue. CK 17 can be useful when included in a panel of antibodies against TTF-1, napsin A, CK 5&6, p63, and SOX-2 for diagnostic differentiation between lung adenocarcinoma (LADC) and lung squamous cell carcinoma (SCLC), especially for poorly-differentiated lung carcinoma. CK 17 is expressed in SCLC much higher than in LADC. In breast carcinomas, approximately 20% of patients show no expression of ER, PR and Her2, which are defined as triple negative tumor. Eighty-five percent of the triple negative breast carcinomas immunoreact with basal cytokeratins including anti-CK 17. The histologic differentiation of ampullary cancer, intestinal vs. pancreatobiliary, is very important for treatment. Usually anti-CK 17 and anti-MUC1 immunoreactivity represents pancreatobiliary subtype whereas anti-MUC2 and anti-CDX-2 positivity defines intestinal subtype.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-33*
ISOTYPE: *IgG2a/K*
CONTROL: *Skin, Testis, Breast, Cervix, Cervical Carcinoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Goat, Pig*

CAT. #	PRESENTATION	VOL/QTY
BSB 2726	Tinto Predilute	3.0 ml
BSB 2727	Tinto Predilute	7.0 ml
BSB 2728	Tinto Predilute	15.0 ml
BSB 2729	Concentrate	0.1 ml
BSB 2730	Concentrate	0.5 ml
BSB 2731	Concentrate	1.0 ml
BSB 2732	Control Slides	5

Cytokeratin 17, RMab



IHC of Cytokeratin 17 on a FFPE Cervical Cancer Tissue

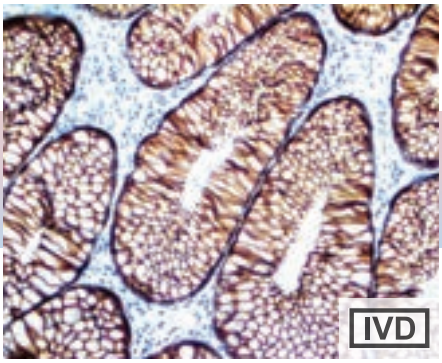
Cytokeratin 17 is a Type I cytokeratin with a MW of 46 kD found sometimes in association with Cytokeratin 7. It is found in nail beds, hair follicles, sebaceous glands, and other epidermal appendages. Mutations in the gene encoding this protein lead to Jackson-Lawler type Pachyonychia Congenita and Steatocystoma Multiplex.

Cytokeratin 17 antibody has been used to distinguish immature Cervical Squamous Metaplasia from high grade Cervical Intraepithelial Neoplasia (CIN III). Anti-CK 17 also labels myoepithelial cells in the benign breast tissue. CK 17 labeling of Breast Carcinoma cells (so-called basal phenotype) has been associated with a poor prognosis.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *EP98*
ISOTYPE: *IgG*
CONTROL: *Skin, Testis, Breast, Cervix, Colon, Salivary Gland, Cervical Carcinoma, Bladder TCC,Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6184	Tinto Predilute	3.0 ml
BSB 6185	Tinto Predilute	7.0 ml
BSB 6186	Tinto Predilute	15.0 ml
BSB 6187	Concentrate	0.1 ml
BSB 6188	Concentrate	0.5 ml
BSB 6189	Concentrate	1.0 ml
BSB 6190	Control Slides	5

Cytokeratin 18, MMab



IHC of Cytokeratin 18 on a FFPE Colon Tissue

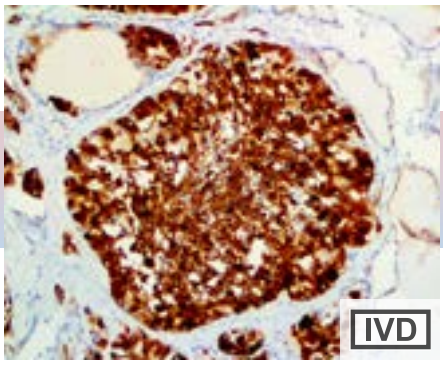
Cytokeratin 18 is a type I cytokeratin and is typically partnered with Cytokeratin 8. They are expressed in simple and glandular and transitional epithelial cells but not in stratified epithelial cells.

Cytokeratin 18 antibody stains positively in Adenocarcinomas originating from simple and glandular epithelium, and also in poorly differentiated tumor cells of Squamous Carcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *EP30*
ISOTYPE: *IgG*
CONTROL: *Liver, Kidney, Breast, GI, Prostate, Fallopian Tube*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6695	Tinto Predilute	3.0 ml
BSB 6696	Tinto Predilute	7.0 ml
BSB 6697	Tinto Predilute	15.0 ml
BSB 6698	Concentrate	0.1 ml
BSB 6699	Concentrate	0.5 ml
BSB 6700	Concentrate	1.0 ml
BSB 6701	Control Slides	5

Cytokeratin 19, MMab



IHC of Cytokeratin 19 on a FFPE Thyroid Carcinoma Tissue

Cytokeratin 19 is a Type I cytokeratin. Unlike its related family members, this smallest-known acidic cytokeratin is not paired with a basic cytokeratin in epithelial cells. It is specifically found in the periderm, the transientlysuperficial layer that envelopes the developing epidermis.

Anti-Cytokeratin 19 reacts with a wide variety of epithelium and epithelial malignancies including Adenocarcinomas of the colon, stomach, pancreas, biliary tract, liver and breast. Perhaps the most useful application is the identification of Thyroid Carcinoma of the papillary type, although Follicular Carcinoma is also labeled by this antibody approximately 50-60% of the time. Cytokeratin 19 is not expressed in hepatocytes; therefore, this antibody is useful in the identification of liver metastasis. The degree of Cytokeratin 19 positivity in Breast Cancer distinguishes malignant from benign tumors. Cytokeratin 19 is often coexpressed with Cytokeratin 7.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-34*
ISOTYPE: *IgG1/K*
CONTROL: *Colon, Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2733	Tinto Predilute	3.0 ml
BSB 2734	Tinto Predilute	7.0 ml
BSB 2735	Tinto Predilute	15.0 ml
BSB 2736	Concentrate	0.1 ml
BSB 2737	Concentrate	0.5 ml
BSB 2738	Concentrate	1.0 ml
BSB 2739	Control Slides	5

Bio SB
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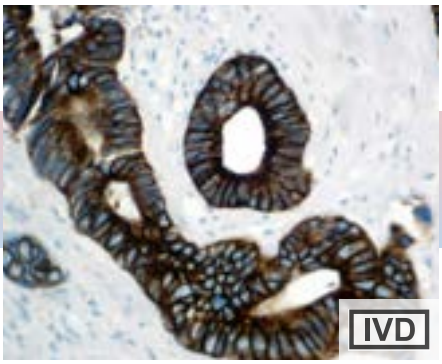
Cytokeratin 19, RMab



IHC of Cytokeratin 19 on a FFPE Tonsil Tissue

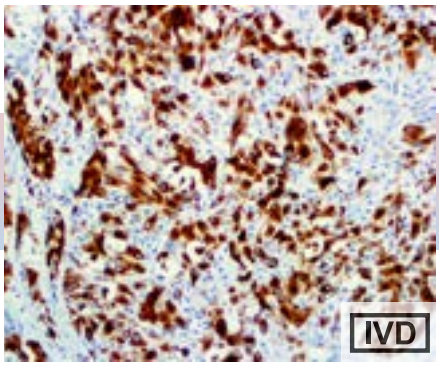
Cytokeratin 19 is a Type I cytokeratin. Unlike its related family members, this smallest-known acidic cytokeratin is not paired with a basic cytokeratin in epithelial cells. It is specifically found in the periderm, the transiently-superficial layer that envelopes the developing epidermis.

Anti-Cytokeratin 19 reacts with a wide variety of epithelium and epithelial malignancies including Adenocarcinomas of the colon, stomach, pancreas, biliary tract, liver and breast. Perhaps the most useful application is the identification of Thyroid Carcinoma of the papillary type, although Follicular Carcinoma is also labeled by this antibody approximately 50-60% of the time. Cytokeratin 19 is not expressed in hepatocytes; therefore, this antibody is useful in the identification of liver metastasis. The degree of Cytokeratin 19 positivity in Breast Cancer distinguishes malignant from benign tumors. Cytokeratin 19 is often coexpressed with Cytokeratin 7.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP72*
ISOTYPE: *IgG*
CONTROL: *Colon, Bladder, Thyroid Carcinoma, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, M ouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5379	Tinto Predilute	3.0 ml
BSB 5380	Tinto Predilute	7.0 ml
BSB 5381	Tinto Predilute	15.0 ml
BSB 5382	Concentrate	0.1 ml
BSB 5383	Concentrate	0.5 ml
BSB 5384	Concentrate	1.0 ml
BSB 5385	Control Slides	5

Cytokeratin 19, RMab



IHC of Cytokeratin 19 on FPPE Thyroid Carcinoma Tissue

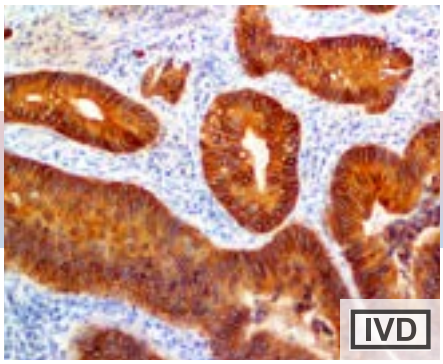
Cytokeratin 19 is a Type I cytokeratin. Unlike its related family members, this smallest-known acidic cytokeratin is not paired with a basic cytokeratin in epithelial cells. It is specifically found in the periderm, the transiently superficial layer that envelops the developing epidermis.

Anti-Cytokeratin 19 reacts with a wide variety of epithelium and epithelial malignancies including Adenocarcinomas of the colon, stomach, pancreas, biliary tract, liver and breast. Perhaps the most useful application is the identification of Thyroid Carcinoma of the papillary type, although Follicular Carcinoma is also labeled by this antibody approximately 50-60% of the time. Cytokeratin 19 is not expressed in hepatocytes; therefore, this antibody is useful in the identification of liver metastasis. The degree of Cytokeratin 19 positivity in Breast Cancer distinguishes malignant from benign tumors. Cytokeratin 19 is often coexpressed with Cytokeratin 7.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM364*
ISOTYPE: *IgG*
CONTROL: *Colon, Bladder, Thyroid Carcinoma, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Predicted: Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB-3763-3	Tinto Predilute	3.0 ml
BSB-3763-7	Tinto Predilute	7.0 ml
BSB-3763-15	Tinto Predilute	15.0 ml
BSB-3763-01	Concentrate	0.1 ml
BSB-3763-05	Concentrate	0.5 ml
BSB-3763-1	Concentrate	1.0 ml
BSB-3763-CS	Control Slides	5

Cytokeratin 20, MMab



IHC of Cytokeratin 20 on a FFPE Colon Adenocarcinoma Tissue

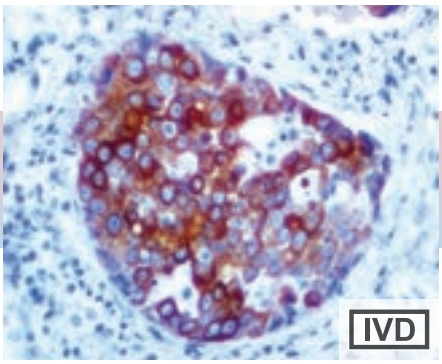
Cytokeratin 20 (CK 20) is a 46 kDa intermediate filament protein whose expression is restricted primarily to gastric and intestinal epithelium, urothelium, and Merkel cells. Cytokeratin 20 is a Type I cytokeratin. It is a major cellular protein of mature enterocytes and goblet cells found in the gastric and intestinal mucosa.

CK 20 is expressed in Adenocarcinomas of the colon, stomach, pancreas and biliary system. It is also expressed in Mucinous Ovarian Tumors, Transitional-cell Carcinomas of the urinary tract, and Merkel-cell Carcinomas. Cytokeratin 20 is useful in the differentiation of specific types of simple epithelial cells of the urinary tract and normal and malignantly-transformed epithelia. This antibody is essentially non-reactive in Squamous Cell Carcinomas and Adenocarcinomas of the Breast, Lung, and Endometrium, Non-mucinous Tumors of the Ovary, and Small-cell Carcinomas. This antibody is often used in conjunction with CK 7 and other antibodies to distinguish Colon Carcinomas (CK20+) from Ovarian, Pulmonary, and Breast Carcinomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Ks20.8*
ISOTYPE: *IgG2a/K*
CONTROL: *Colon Mucosa, Bladder, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5386	Tinto Predilute	3.0 ml
BSB 5387	Tinto Predilute	7.0 ml
BSB 5388	Tinto Predilute	15.0 ml
BSB 5389	Concentrate	0.1 ml
BSB 5390	Concentrate	0.5 ml
BSB 5391	Concentrate	1.0 ml
BSB 5392	Control Slides	5

Cytokeratin 20, RMab



IHC of Cytokeratin 20 on a FFPE Colon Cancer Metastasis to Lung Tissue

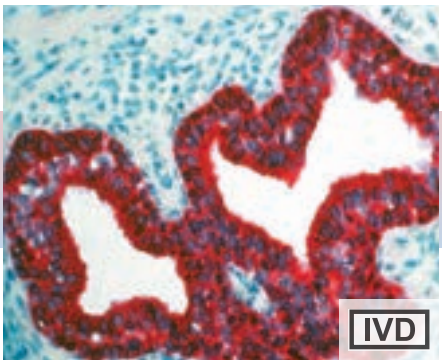
Cytokeratin 20 (CK20) is a 46 kDa intermediate filament protein whose expression is restricted primarily to gastric and intestinal epithelium, urothelium, and Merkel cells. Cytokeratin 20 is a Type I cytokeratin. It is a major cellular protein of mature enterocytes and goblet cells found in the gastric and intestinal mucosa.

CK 20 is expressed in Adenocarcinomas of the colon, stomach, pancreas and biliary system. It is also expressed in Mucinous Ovarian Tumors, Transitional-cell Carcinomas of the urinary tract, and Merkel-cell Carcinomas. Cytokeratin 20 is useful in the differentiation of specific types of simple epithelial cells of the urinary tract and normal and malignantly-transformed epithelia. This antibody is essentially non-reactive in Squamous Cell Carcinomas and Adenocarcinomas of the Breast, Lung, and Endometrium, Non-mucinous Tumors of the Ovary, and Small-cell Carcinomas. This antibody is often used in conjunction with CK7 and other antibodies to distinguish Colon Carcinomas (CK20+) from Ovarian, Pulmonary, and Breast Carcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP23*
ISOTYPE: *IgG*
CONTROL: *Colon Mucosa, Bladder, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, at, Goat, Pig, Marmoset*

CAT. #	PRESENTATION	VOL/QTY
BSB 6702	Tinto Predilute	3.0 ml
BSB 6703	Tinto Predilute	7.0 ml
BSB 6704	Tinto Predilute	15.0 ml
BSB 6705	Concentrate	0.1 ml
BSB 6706	Concentrate	0.5 ml
BSB 6707	Concentrate	1.0 ml
BSB 6708	Control Slides	5

Cytokeratin 8/35βH11, MMab



IHC of Cytokeratin 8/35βH11 on a FFPE Prostatic Adenocarcinoma Tissue

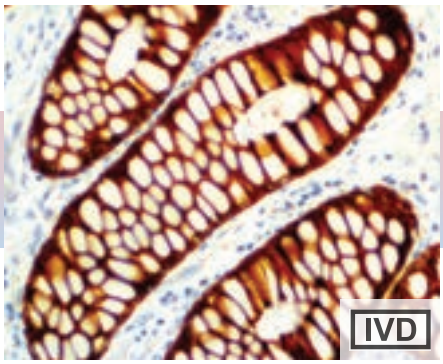
Cytokeratin 8 belongs to the Type II (basic) subfamily of high molecular-weight keratins and exists in combination with cytokeratin 18. Cytokeratin 8 is primarily found in the non-squamous epithelia and is present in the majority of Adenocarcinomas and Ductal Carcinomas. It is absent in Squamous Cell Carcinomas. Hepatocellular Carcinomas are defined by the use of antibodies that recognize only cytokeratin polypeptides 8 and 18.

Anti-Cytokeratin 8/35βH11 stains most Non-Squamous Epithelial tumors; Squamous tumors are negative for this antibody as a rule. This antibody stains Adenocarcinomas of the breast, ovary, gastrointestinal tract, thyroid, pancreas, bile duct, and salivary glands. This antibody does not react with skeletal muscle or nerve cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *35betaH11*
ISOTYPE: *IgM*
CONTROL: *Prostate, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5421	Tinto Predilute	3.0 ml
BSB 5422	Tinto Predilute	7.0 ml
BSB 5423	Tinto Predilute	15.0 ml
BSB 5424	Concentrate	0.1 ml
BSB 5425	Concentrate	0.5 ml
BSB 5426	Concentrate	1.0 ml
BSB 5427	Control Slides	5

Cytokeratin Cocktail AE1 & AE3, MMab



IHC of Cytokeratin AE1 & AE3 on a FFPE Colon Tissue

Cytokeratins are intermediate-filament keratins found in the intracytoplasmic cytoskeleton of epithelial tissue. There are two types of cytokeratins: the low-weight, acidic Type I cytokeratins and the high-weight, basic or neutral Type II cytokeratins. Cytokeratins are usually found in pairs comprising a Type I cytokeratin and a Type II cytokeratin. Expression of these cytokeratins is frequently organ or tissue-specific.

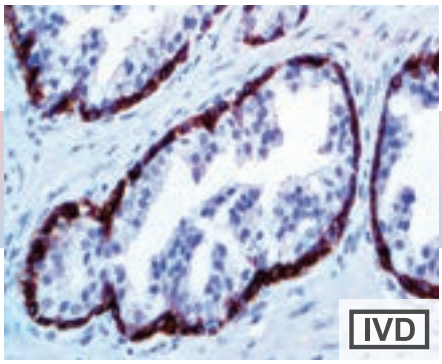
Cytokeratin cocktail AE1/AE3 is well suited to distinguish Epithelial Carcinoma from Non-epithelial malignancies and is used to aid Epithelial Tumor classification. This antibody has been used to characterize the source of various neoplasms and to study the distribution of keratin-containing cells in epithelia during normal development and during the development of epithelial neoplasms. This antibody stains cytokeratins present in normal and abnormal human tissues. This antibody has shown high sensitivity and specificity in recognizing epithelial cells of neoplastic origin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *AE1/AE3*
ISOTYPE: *Ig1*
CONTROL: *Prostate, Colon, Skin, Stomach*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse, Rat, Monkey, Rabbit, Chicken, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5428	Tinto Predilute	3.0 ml
BSB 5429	Tinto Predilute	7.0 ml
BSB 5430	Tinto Predilute	15.0 ml
BSB 5431	Concentrate	0.1 ml
BSB 5432	Concentrate	0.5 ml
BSB 5433	Concentrate	1.0 ml
BSB 5434	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Cytokeratin HMW 34BE12, MMab



IHC of Cytokeratin HMW/34βE12 on a FFPE Prostatic Adenocarcinoma Tissue

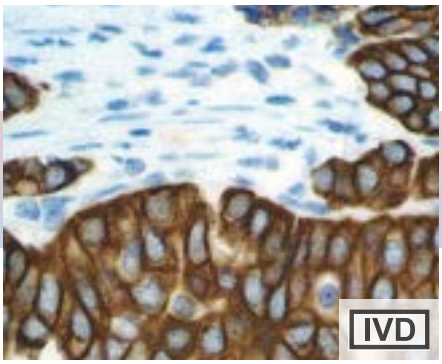
Cytokeratin 34βE12 is a High Molecular Weight cytokeratin that reacts with all squamous and ductal epithelium and stains carcinomas. This antibody recognizes cytokeratins 1, 5, 10, and 14 that are found in complex epithelia. Cytokeratin 34βE12 shows no reactivity with hepatocytes, pancreatic acinar cells, proximal renal tubules or endometrial glands; there has been no reactivity with cells derived from simple epithelia. Nerve cells, glial cells and mesenchymal tissue such as blood vessels containing only non-keratin types of intermediate filaments are not labelled; however, reactivity with smooth-muscle cells has been occasionally observed.

Mesenchymal Tumors, Lymphomas, Melanomas, Neural Tumors and Neuroendocrine Tumors are unreactive with this antibody. Cytokeratin 34βE12 has been shown to be useful in distinguishing Prostatic Adenocarcinoma from Hyperplasia of the Prostate.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *34BetaE12*
ISOTYPE: *IgG1/K*
CONTROL: *Prostate, Cervix*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Monkey, Rabbit, Cattle, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5393	Tinto Predilute	3.0 ml
BSB 5394	Tinto Predilute	7.0 ml
BSB 5395	Tinto Predilute	15.0 ml
BSB 5396	Concentrate	0.1 ml
BSB 5397	Concentrate	0.5 ml
BSB 5398	Concentrate	1.0 ml
BSB 5399	Control Slides	5

Cytokeratin HMW AE3. MMab



IHC of Cytokeratin HMW/AE3 on a FFPE Salivary Gland Tissue

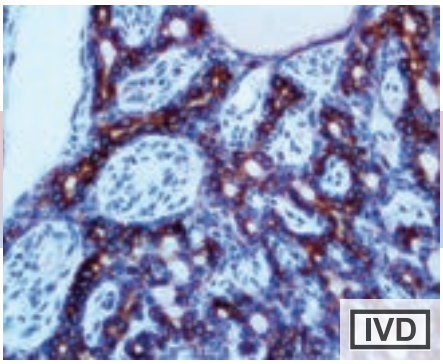
Cytokeratins are intermediate-filament keratins found in the intracytoplasmic cytoskeleton of epithelial tissue. There are two types of cytokeratins: the low-weight, acidic Type I cytokeratins and the high-weight, basic or neutral Type II cytokeratins. Cytokeratins are usually found in pairs comprising a Type I cytokeratin and a Type II cytokeratin. Expression of these cytokeratins is frequently organ or tissue-specific.

Cytokeratin, High Molecular Weight AE3 (HMW, CK 8) is capable of recognizing all basic cytokeratins; therefore, it is a broadly reactive antibody staining most epithelia and their neoplasms. Cytokeratin HMW/AE3 stains normal and neoplastic cells of epithelial origin. CK HMW is primarily found in the non-squamous epithelia and is present in the majority of Adenocarcinomas and Ductal Carcinomas. It is absent in Squamous Cell Carcinomas. Hepatocellular Carcinomas are defined by the use of antibodies that recognize only cytokeratin 8 and 18.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *AE3*
ISOTYPE: *IgG1*
CONTROL: *Prostate, Salivary Gland, Bladder*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5442	Tinto Predilute	3.0 ml
BSB 5443	Tinto Predilute	7.0 ml
BSB 5444	Tinto Predilute	15.0 ml
BSB 5445	Concentrate	0.1 ml
BSB 5446	Concentrate	0.5 ml
BSB 5447	Concentrate	1.0 ml
BSB 5448	Control Slides	5

Cytokeratin LMW/AE1, MMab



IHC of Cytokeratin LMW/AE1 on a FFPE Salivary Gland Tissue

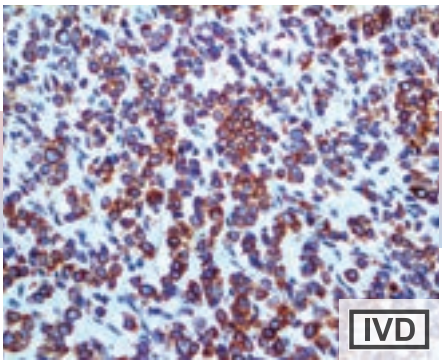
Cytokeratins are intermediate-filament keratins found in the intracytoplasmic cytoskeleton of epithelial tissue. There are two types of cytokeratins: the low-weight, acidic Type I cytokeratins and the high-weight, basic or neutral Type II cytokeratins. Cytokeratins are usually found in pairs comprising a Type I cytokeratin and a Type II cytokeratin. Expression of these cytokeratins is frequently organ or tissue-specific.

Cytokeratin Low Molecular Weight AE1 can recognize most acidic keratins, making it a broadly reactive antibody that stains most epithelia and their neoplasms. Members of the acidic and basic subfamilies are found in pairs. Each epithelium contains at least one acidic and one basic keratin so this antibody can show the distribution of keratin-containing cells in epithelia. Cytokeratin AE1 is particularly suited to distinguish poorly-differentiated Carcinomas from non-epithelial Neoplasms. This marker stains both normal and neoplastic cells of epithelial origin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *AE1*
ISOTYPE: *IgG1*
CONTROL: *Prostate, Salivary Gland, Bladder, Breast, Kidney, Pancreas, Cervix*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat, Monkey, Rabbit, Chicken, Cattle, Shrew, Fish*

CAT. #	PRESENTATION	VOL/QTY
BSB 5435	Tinto Predilute	3.0 ml
BSB 5436	Tinto Predilute	7.0 ml
BSB 5437	Tinto Predilute	15.0 ml
BSB 5438	Concentrate	0.1 ml
BSB 5439	Concentrate	0.5 ml
BSB 5440	Concentrate	1.0 ml
BSB 5441	Control Slides	5

Cytokeratin LMW CAM5.2, MMab



IHC of Cytokeratin LMW CAM5.2 on a FFPE Breast Carcinoma Tissue

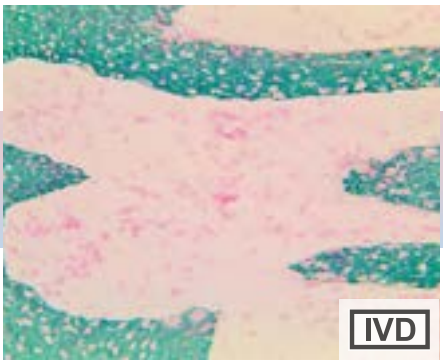
Anti-Cytokeratin (CAM5.2) antibody has a primary reactivity with human keratin proteins that correspond to Moll's peptides #7 and #8, Mr 48 and 52 kDa, respectively. Cytokeratin 7 and 8 are present in secretory epithelia of normal human tissue but not on stratified squamous epithelium.

Anti-Cytokeratin (CAM5.2) stains most epithelial-derived tissue, including liver, renal tubular epithelium, and hepatocellular and renal cell carcinomas. Anti-Cytokeratin (CAM 5.2) may not react with some squamous cell carcinomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CAM5.2*
ISOTYPE: *IgG2a/K*
CONTROL: *Colon, Breast , Ovarian Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2056	Tinto Predilute	3.0 ml
BSB 2057	Tinto Predilute	7.0 ml
BSB 2058	Tinto Predilute	15.0 ml
BSB 2059	Concentrate	0.1 ml
BSB 2060	Concentrate	0.5 ml
BSB 2061	Concentrate	1.0 ml
BSB 2062	Control Slides	5

Cytokeratin, MNF116, MMab



IHC of Cytokeratin MNF116 on a Frozen Basal Cell Carcinoma Tissue

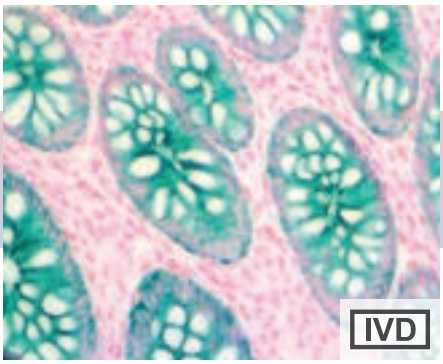
Cytokeratin MNF116 is a broad-spectrum anti-cytokeratin reacting with intermediate and low-molecular-weight keratins, ranging from 40 through 58 kD, corresponding to cytokeratin 5, 6, 8, 17 and 19. It shows a broad pattern of reactivity with human epithelial tissues from simple glandular epithelial to stratified squamous epithelia, like epidermis, mammary gland ducts, and tracheal epithelium.

Cytokeratin MNF116 is a useful aid for the classification of neoplasms of epithelial origin including Squamous Cell Carcinoma, Small Cell Carcinoma, Sarcomatoid Carcinoma, Spindle Cell Carcinoma, Epithelioid and Spindle Cell component of Malignant Mesothelioma and Adenocarcinoma. A wide range of soft tissue tumors are also positive with cytokeratin MNF116: monophasic and biphasic Synovial Sarcoma, vascular neoplasms including Epithelioid Hemangioendothelioma, Epithelioid Angiosarcoma, Epithelioid Sarcoma. Desmoplastic Small Round Cell Tumors require cytokeratin positivity for diagnosis. Smooth muscle tumors and Plasmacytoma may demonstrate aberrant expression of cytokeratin MNF116

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *MNF116*
ISOTYPE: *IgG1/k*
CONTROL: *Breast, Cervix, Skin, Colon, Colorectal. Gastric, Breast and Prostatic Carcinomas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3532	Tinto Predilute	3.0 ml
BSB 3533	Tinto Predilute	7.0 ml
BSB 3534	Tinto Predilute	15.0 ml
BSB 3535	Concentrate	0.1 ml
BSB 3536	Concentrate	0.5 ml
BSB 3537	Concentrate	1.0 ml
BSB 3538	Control Slides	5

Cytokeratin OSCAR, MMab



IHC of CK OSCAR on a FFPE Colon Tissue

Anti-Cytokeratin OSCAR is well-suited to distinguish Epithelial Carcinoma from Non-epithelial malignancies and is used to aid Epithelial Tumor classification. Anti-Cytokeratin OSCAR identifies a number of bands corresponding to cytokeratins 7, 8, 18 and 19 (additional bands – cytokeratins – may also be detected). This antibody has been used to characterize the source of various neoplasms and to study the distribution of keratin-containing cells in epithelia during normal development and during the development of epithelial neoplasms.

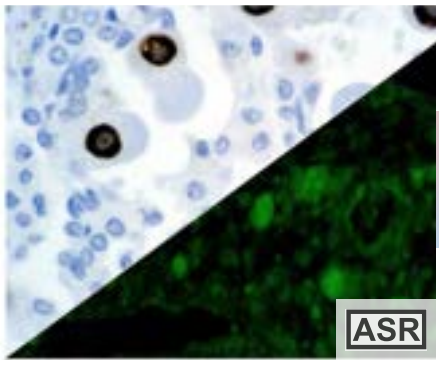
In normal tissues, OSCAR is reactive with most epithelial types tested including bile ducts and hepatocytes in liver, bladder epithelium, breast ducts, bronchial epithelium, endometrium, follicular dendritic cells of lymph node and tonsil, intestinal epithelium of the stomach, duodenum, ileum, colon, rectum, pancreas, ovarian epithelium, pancreatic acini, pituitary acini, pneumocytes, prostate, thyroid and skin. In tumors, OSCAR is reactive with most Carcinomas including Breast, TCC, RCC, Lung, Endometrial CA, Prostate CA, Ovarian CA, HCC, Colorectal CA, Stomach CA and Thyroid CA. It is negative in certain normal tissues including brain, lymphocytes and all cells of hematolymphoid origin, muscle, brain, nerves, endothelium and in certain tumors including Melanoma, Sarcoma, Lymphoma, PNET/Ewing's and GIST. This antibody has shown high sensitivity in recognizing epithelial cells and carcinomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *OSCAR*
ISOTYPE: *IgG2a*
CONTROL: *Breast, Liver, GI, Prostate, Colon, Skin, Stomach, Pancreas, Tonsil*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6177	Tinto Predilute	3.0 ml
BSB 6178	Tinto Predilute	7.0 ml
BSB 6179	Tinto Predilute	15.0 ml
BSB 6180	Concentrate	0.1 ml
BSB 6181	Concentrate	0.5 ml
BSB 6182	Concentrate	1.0 ml
BSB 6183	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Cytomegalovirus, MMab



IHC and IF of CMV on a FFPE Infected Lung Tissue

Cytomegalovirus (CMV) is a virus of the Herpesvirus group; in humans it is commonly known as HCMV or Human Herpesvirus 5 (HHV-5). CMV belongs to the Betaherpesvirinae subfamily of Herpesviridae, which also includes Roseolovirus. CMV especially attacks salivary glands. CMV infection can also be life-threatening for patients who are immunocompromised (e.g., patients with HIV or organ-transplant recipients). CMV viruses are found in many mammal species, but CMV species isolated from animals differ from human CMV in terms of genomic structure, and have not been reported to cause human disease.

This Anti-cytomegalovirus antibody cocktail reacts with two different epitopes. The DDG9 antibody reacts with a 76 kDa protein produced by CMV. CCH2 antibody reacts with the early DNA-binding protein p52. There is no cross-reactivity with other Herpesviruses or Adenoviruses. CMV infection is usually seen in immunocompromised patients and involves the GI tract, lung, heart and liver, as well as other organs.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *8B1.2, 1G5.2 & 2D4*
ISOTYPE: *IgG2a*
CONTROL: *CMV Infected Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5449	Tinto Predilute	3.0 ml
BSB 5450	Tinto Predilute	7.0 ml
BSB 5451	Tinto Predilute	15.0 ml
BSB 5452	Concentrate	0.1 ml
BSB 5453	Concentrate	0.5 ml
BSB 5454	Concentrate	1.0 ml
BSB 5455	Control Slides	5

Desmin, MMab

IHC of Desmin on a FFPE Skeletal Muscle Tissue

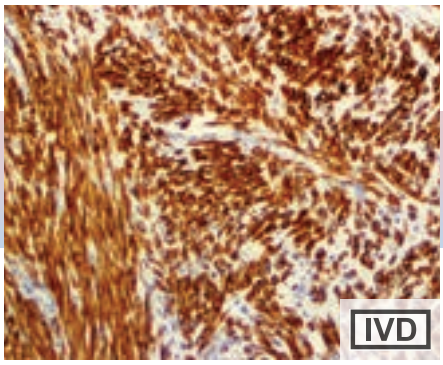
Desmin is a type of intermediate filament found near the Z line in sarcomeres. Both vimentin and desmin are characteristics of mesenchymal cells.

Desmin antibody detects a protein that is expressed by cells of normal smooth, skeletal and cardiac muscles. Light microscopy studies of Desmin have suggested that it is primarily located at or near the periphery of Z lines in striated muscle fibrils. In smooth muscle, Desmin interconnects cytoplasmic dense bodies with membrane-bound dense plaques. Desmin antibody reacts with Leiomyomas, Rhabdomyomas, and Perivascular cells of Glomus Tumors of the skin (if they are of myogenic nature). This antibody is used to demonstrate the myogenic components/derivation of tumors.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *D33*
ISOTYPE: *IgG1/K*
CONTROL: *Skeletal Muscle*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse, Rat, Chicken, Sheep, Hamster*

CAT. #	PRESENTATION	VOL/QTY
BSB 5456	Tinto Predilute	3.0 ml
BSB 5457	Tinto Predilute	7.0 ml
BSB 5458	Tinto Predilute	15.0 ml
BSB 5459	Concentrate	0.1 ml
BSB 5460	Concentrate	0.5 ml
BSB 5461	Concentrate	1.0 ml
BSB 5462	Control Slides	5

Desmin, RMab



IHC of Desmin on a FFPE Skeletal Muscle Tissue

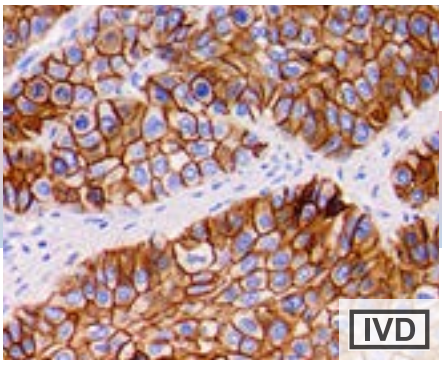
Desmin is a class III intermediate filament found near the Z line in sarcomeres. Both vimentin and desmin are characteristics of mesenchymal cells.

Desmin antibody detects a protein that is expressed by cells of normal smooth, skeletal and cardiac muscles. Light microscopy studies of desmin suggests that it is primarily located at or near the periphery of Z lines in striated muscle fibrils. In smooth muscle, Desmin interconnects cytoplasmic dense bodies with membrane bound dense plaques. Desmin antibody reacts with Leiomyomas, Rhabdomyomas, and Perivascular cells of Glomus Tumors of the skin (if they are of myogenic nature). This antibody is used to demonstrate the myogenic components/derivation of tumors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP15*
ISOTYPE: *IgG*
CONTROL: *Skeletal Muscle, Placenta, Colon, Prostate, Skin, Fallopian Tube*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat, Guinea Pig*

CAT. #	PRESENTATION	VOL/QTY
BSB 6709	Tinto Predilute	3.0 ml
BSB 6710	Tinto Predilute	7.0 ml
BSB 6711	Tinto Predilute	15.0 ml
BSB 6712	Concentrate	0.1 ml
BSB 6713	Concentrate	0.5 ml
BSB 6714	Concentrate	1.0 ml
BSB 6715	Control Slides	5

Desmoglein-3, RMab



IHC of Desmoglein-3 on a FFPE Squamous Cell Carcinoma Tissue

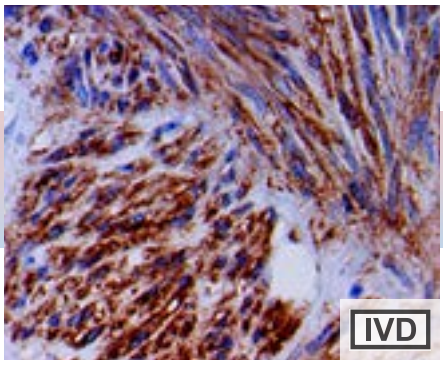
Desmoglein 3 is a protein that is encoded by the DSG3 gene on Chromosome 18. Desmoglein 3 is a calcium-binding transmembrane glycoprotein component of desmosomes in vertebrate epithelial cells. Currently, four desmoglein subfamily members have been identified and all are members of the cadherin cell adhesion molecule superfamily. This protein has been identified as the autoantigen of the autoimmune skin blistering disease pemphigus vulgaris.

Desmoglein 3 has been cited as a superior marker for Lung Squamous Cell Carcinomas, and helps distinguish lung squamous cell carcinoma cases from lung adenocarcinoma. Studies have also shown that a panel consisiting of Desmoglein-3 utilized with Napsin A can be a useful immunohistochemical marker for differentiation of lung squamous cell carcinoma and adenocarcinoma from other subtypes. Lung cases that are typically positive for Desmoglein 3 tend to have a poor clinical outcome.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP306*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Skin, Cervix, Cervical Carcinoma, Lung Squamous Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2894	Tinto Predilute	3.0 ml
BSB 2895	Tinto Predilute	7.0 ml
BSB 2896	Tinto Predilute	15.0 ml
BSB 2897	Concentrate	0.1 ml
BSB 2898	Concentrate	0.5 ml
BSB 2899	Concentrate	1.0 ml
BSB 2900	Control Slides	5

DOG1, RMab



IHC of DOG-1 on a FFPE GIST Tisse

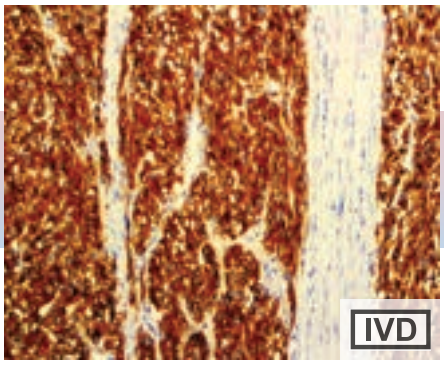
DOG1 (discovered on GIST 1), a cell-surface protein of unknown function, is expressed strongly on the cell surface of GISTs and is rarely expressed in other soft tissue tumors. Among GIST cases with c-Kit mutations, the DOG1 antibody identified 11% more cases than a c-Kit antibody.

DOG1 identifies the vast majority of both c-Kit negative and PDGFRA mutated GIST cases that may still benefit from imatinib mesylate (Gleevac), an inhibitor of the kit tyrosine kinase. In addition, DOG1 immunoreactivity is seen in fewer cases of mesenchymal and epithelial tumors, and melanomas when compared with c-Kit. The use of this highly-sensitive and specific novel marker should increase the accuracy of GIST diagnosis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-DOG1*
ISOTYPE: *IgG*
CONTROL: *GIST*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2901	Tinto Predilute	3.0 ml
BSB 2902	Tinto Predilute	7.0 ml
BSB 2903	Tinto Predilute	15.0 ml
BSB 2904	Concentrate	0.1 ml
BSB 2905	Concentrate	0.5 ml
BSB 2906	Concentrate	1.0 ml
BSB 2907	Control Slides	5

DOG-1, RMab



IHC of DOG1 on a FFPE GIST Tissue

DOG1 (discovered on GIST 1), a cell-surface protein of unknown function, is expressed strongly on the cell surface of GISTs and is rarely expressed in other soft tissue tumors. Among GIST cases with c-Kit mutations, the DOG1 antibody identified 11% more cases than a c-Kit antibody.

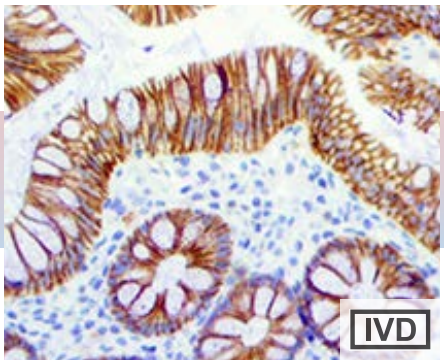
DOG1 identifies the vast majority of both c-Kit negative and PDGFRA mutated GIST cases that may still benefit from imatinib mesylate (Gleevac), an inhibitor of the kit tyrosine kinase. In addition, DOG1 immunoreactivity is seen in fewer cases of mesenchymal and epithelial tumors, and melanomas when compared with c-Kit. The use of this highly-sensitive and specific novel marker should increase the accuracy of GIST diagnosis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP332*
ISOTYPE: *IgG*
CONTROL: *Salivary Gland, Breast, GIST*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6268	Tinto Predilute	3.0 ml
BSB 6269	Tinto Predilute	7.0 ml
BSB 6270	Tinto Predilute	15.0 ml
BSB 6271	Concentrate	0.1 ml
BSB 6272	Concentrate	0.5 ml
BSB 6273	Concentrate	1.0 ml
BSB 6274	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

E-Cadherin, RMab



IHC of E-Cadherin on a FFPE Colon Tissue

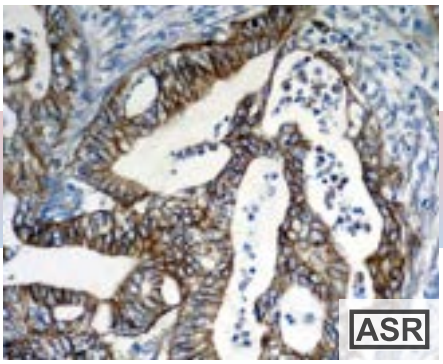
Cadherins are a class of transmembrane proteins. They play an important role in cell adhesion by ensuring cells within tissues are bound together. E-Cadherin is an adhesion protein that is expressed in cells of epithelial lineage. It stains positively in glandular epithelium as well as Adenocarcinomas of the lung and G.I. tract, and ovary. E-Cadherin has been useful in distinguishing Adenocarcinoma from Mesothelioma. It has also been shown to be positive in some Thyroid Carcinomas. It can be used to differentiate Ductal Carcinomas (positive for E-Cadherin) from Lobular Breast Carcinomas.

Loss of E-Cadherin function or expression has been implicated in cancer progression and metastasis. E-Cadherin downregulation decreases the strength of cellular adhesion within a tissue, resulting in an increase in cellular motility. This may then allow cancer cells to cross the basement membrane and invade surrounding tissues. Loss of E-Cadherin expression has been suggested as a poor prognostic sign in Breast Carcinoma and Non-Small Cell Lung Carcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP6*
ISOTYPE: *IgG*
CONTROL: *Breast, Colon, Cervix, Pancreas, Lung, Ovary, GI Tract Adenocarcinoma, Breast Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5463	Tinto Predilute	3.0 ml
BSB 5464	Tinto Predilute	7.0 ml
BSB 5465	Tinto Predilute	15.0 ml
BSB 5466	Concentrate	0.1 ml
BSB 5467	Concentrate	0.5 ml
BSB 5468	Concentrate	1.0 ml
BSB 5469	Control Slides	5

EGFR, MMab



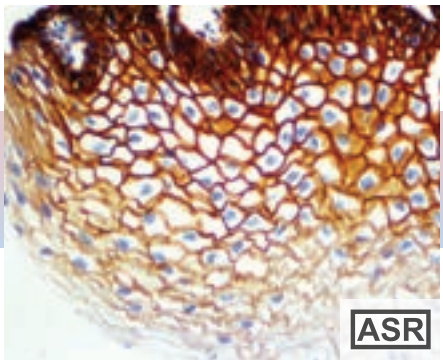
IHC of EGFR on a FFPE Colon Carcionma Tissue

Epidermal Growth Factor Receptor (EGFR) is the receptor for epidermal growth factor (EGF). It is a member of the ErbB family receptors, a subfamily of four closely related receptor tyrosine kinases: EGFR (ErbB-1), HER-2 neu (ErbB-2), HER-3 (ErbB-3) and HER-4 (ErbB-4).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *31G7*
ISOTYPE: *IgG1*
CONTROL: *Skin, Placenta, Testis, Tonsil, Pancreas, Squamos Cell Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5470	Tinto Predilute	3.0 ml
BSB 5471	Tinto Predilute	7.0 ml
BSB 5472	Tinto Predilute	15.0 ml
BSB 5473	Concentrate	0.1 ml
BSB 5474	Concentrate	0.5 ml
BSB 5475	Concentrate	1.0 ml
BSB 5476	Control Slides	5

EGFR Phospho, RMab



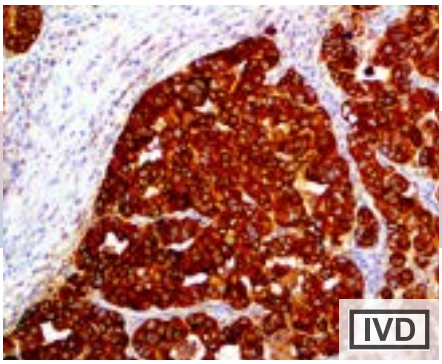
IHC of EGFR Phospho on a FFPE Cervix Tissue

Epidermal Growth Factor Receptor (EGFR) is the receptor for epidermal growth factor (EGF). It is a member of the ErbB family receptors, a subfamily of four closely related receptor tyrosine kinases: EGFR (ErbB-1), HER-2 neu (ErbB-2), HER-3 (ErbB-3) and HER-4 (ErbB-4).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP11*
ISOTYPE: *IgG*
CONTROL: *Skin, Placenta, Testis, Tonsil, Pancreas, Squamos Cell Carcinoma*
LOCALIZATION: *Cell Membrane*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6716	Tinto Predilute	3.0 ml
BSB 6717	Tinto Predilute	7.0 ml
BSB 6718	Tinto Predilute	15.0 ml
BSB 6719	Concentrate	0.1 ml
BSB 6720	Concentrate	0.5 ml
BSB 6721	Concentrate	1.0 ml
BSB 6722	Control Slides	5

EMA, MMab



IHC of EMA on a FFPE Ovarian Adenocarcinoma Tissue

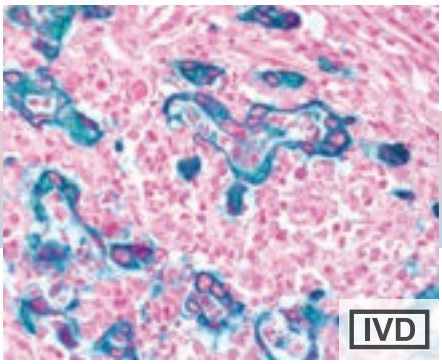
Epithelial Membrane Antigen (EMA) antibody is a mucin-like glycoprotein, shown to be useful as a pan-epithelial marker for detecting early metastatic loci of carcinoma in the bone marrow or liver. It stains normal and neoplastic cells from various tissues, including mammary epithelium, sweat glands and squamous epithelium.

Hepatocellular Carcinoma, Adrenal Carcinoma and Embryonal Carcinomas are consistently EMA negative, so keratin positivity with negative EMA favors one of these tumors. EMA is frequently positive in meningioma, which can be useful when distinguishing it from other intracranial neoplasms. The absence of EMA can also be of value since negative EMA is characteristic of some tumors including Adrenal Carcinoma, Seminomas, Paraganglioma and Hepatoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *E29*
ISOTYPE: *IgG2a/K*
CONTROL: *Breast, Skin, Colon, Kidney, Cervix*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5477	Tinto Predilute	3.0 ml
BSB 5478	Tinto Predilute	7.0 ml
BSB 5479	Tinto Predilute	15.0 ml
BSB 5480	Concentrate	0.1 ml
BSB 5481	Concentrate	0.5 ml
BSB 5482	Concentrate	1.0 ml
BSB 5483	Control Slides	5

EpCAM/Epithelial Specific Antigen, MMab



IHC of EpCAM on a FFPE Colon Carcinoma Tissue

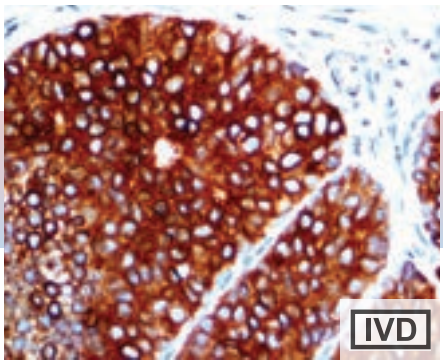
Epithelial Cell Adhesion Molecule (EpCAM) or Epithelial Specific Antigen is a 40kD cell surface antigen that is broadly distributed in epithelial cells and displays a highly conserved expression in carcinomas. These glycoproteins are located on the cell membrane surface and in the cytoplasm of virtually all epithelial cells, with the exception of most squamous epithelia, hepatocytes, renal proximal tubular cells, gastric parietal cells and myoepithelial cells. However, focal positivity may be seen in the basal layer of squamous cell epithelium of endoderm (e.g., palatine tonsils) and mesoderm (e.g., uterine cervix).

EpCAM expression has been reported to be a possible marker of early malignancy, with expression being increased in tumor cells, and de novo expression being seen in dysplastic squamous epithelium. Epithelial specific antigen has been known to play an important role as a tumor-cell marker in lymph nodes from patients with esophageal carcinoma. EpCAM can be used to distinguish among Basal Cell, Basosquamous Carcinomas and Squamous Cell Carcinomas of the skin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Ber-EP4*
ISOTYPE: *IgG1/K*
CONTROL: *Colon, Cervix, Salivary Gland, Pancreas, Breast, Thyroid, Liver, Adenocarcinomas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6275	Tinto Predilute	3.0 ml
BSB 6276	Tinto Predilute	7.0 ml
BSB 6277	Tinto Predilute	15.0 ml
BSB 6278	Concentrate	0.1 ml
BSB 6279	Concentrate	0.5 ml
BSB 6280	Concentrate	1.0 ml
BSB 6281	Control Slides	5

EpCAM/Epithelial Specific Antigen, MMab



IHC of EpCAM on a FFPE Breast Cancer Tissue

Epithelial Cell Adhesion Molecule (EpCAM) or Epithelial Specific Antigen is a 40kD cell surface antigen that is broadly distributed in epithelial cells and displays a highly conserved expression in carcinomas. These glycoproteins are located on the cell membrane surface and in the cytoplasm of virtually all epithelial cells, with the exception of most squamous epithelia, hepatocytes, renal proximal tubular cells, gastric parietal cells and myoepithelial cells. However, focal positivity may be seen in the basal layer of squamous cell epithelium ofendoderm (e.g., palatine tonsils) and mesoderm (e.g., uterine cervix).

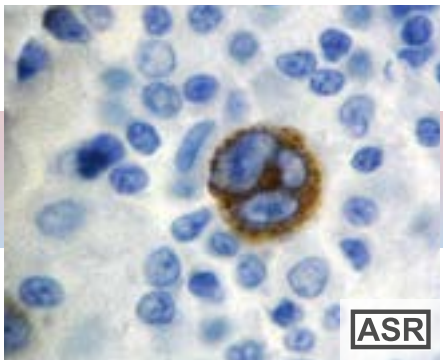
EpCAM expression has been reported to be a possible marker of early malignancy, with expression being increased in tumor cells, and de novo expression being seen in dysplastic squamous epithelium. Epithelial specific antigen has been known to play an important role as a tumor-cell marker in lymph nodes from patients with esophageal carcinoma. EpCAM can be used to distinguish among Basal Cell, Basosquamous Carcinomas and Squamous Cell Carcinomas of the skin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *MOC-31*
ISOTYPE: *IgG1/K*
CONTROL: *Adenocarcinomas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6723	Tinto Predilute	3.0 ml
BSB 6724	Tinto Predilute	7.0 ml
BSB 6725	Tinto Predilute	15.0 ml
BSB 6726	Concentrate	0.1 ml
BSB 6727	Concentrate	0.5 ml
BSB 6728	Concentrate	1.0 ml
BSB 6729	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Epstein Barr Virus LMP-1, MMab



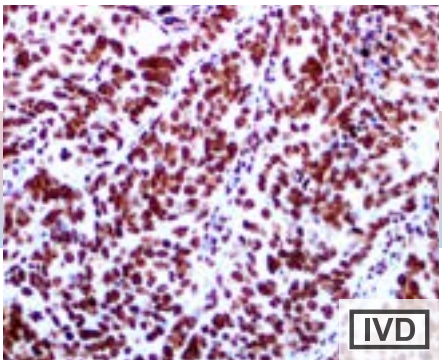
IHC of Epstein Barr Virus on a FFPE Hodgkin's Lymphoma Tissue

The Epstein-Barr virus (EBV), also called Human Herpesvirus 4 (HHV-4), is a virus of the Herpes family, and is one of the most common viruses in humans. The virus can execute many distinct programs of gene expression, which can be broadly categorized as being lytic cycle or latent cycle. The lytic cycle, or productive infection, results in staged expression of several viral proteins with the ultimate objective of producing infectious virions. The latent cycle (lysogenic) programs are those that do not result in production of virions. A very limited, distinct set of viral proteins are produced during latent cycle infection. These include Epstein-Barr nuclear antigens EBNA-1, EBNA-2, EBNA-3A, EBNA-3B, EBNA-3C, EBNA-leader protein (EBNA-LP), latent membrane proteins LMP-1, LMP-2A and LMP-2B and the Epstein-Barr encoded RNAs (EBERs). In addition, EBV codes for at least twenty microRNAs which are expressed in latently infected cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CS1-4*
ISOTYPE: *IgG1*
CONTROL: *EBV Infected Tissue, Hodgkin's Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5484	Tinto Predilute	3.0 ml
BSB 5485	Tinto Predilute	7.0 ml
BSB 5486	Tinto Predilute	15.0 ml
BSB 5487	Concentrate	0.1 ml
BSB 5488	Concentrate	0.5 ml
BSB 5489	Concentrate	1.0 ml
BSB 5490	Control Slides	5

ERCC1, RMab



IHC of ERCC1 on a FFPE Lymphoblastic Lymphoma Tissue

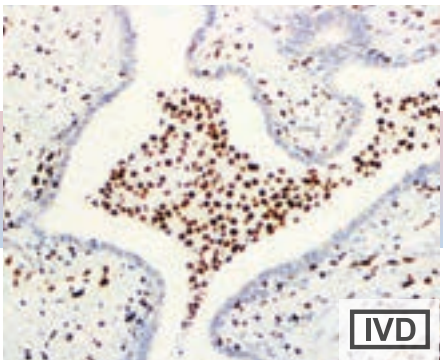
DNA excision repair protein ERCC1 is encoded by the ERCC1 gene on chromosome 19. Excision Repair Cross Complementing 1 (ERCC1) is a mammalian nucleotide excision repair (NER) enzyme involved in repair of damaged DNA. ERCC1 is a homologous to RAD10 in Saccharomyces cerevisiae, which is required in mitotic intrachromosomal recombination and repair.

ERCC1 is required in repair of cisplatin-induced DNA adducts and ultraviolet (UV)-induced DNA damage. High expression of ERCC1 has been linked to tumor progression in a variety of cancers including non-small cell lung cancer (NSCLC), squamous cell carcinoma of the head, ovarian cancer and esophageal cancer.
Increased levels of ERCC1 expression may correlate with a lower response to platinum based chemotherapies. Studies have also showed however, that In non-small cell lung carcinoma (NSCLC), surgically removed tumors that receive no further therapy have a better survival if ERCC1-positive than if ERCC1-negative.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP219*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Testis, Breast, Prostate, Fallopian Tube, Ovarian Carcinoma, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2482	Tinto Predilute	3.0 ml
BSB 2483	Tinto Predilute	7.0 ml
BSB 2484	Tinto Predilute	15.0 ml
BSB 2485	Concentrate	0.1 ml
BSB 2486	Concentrate	0.5 ml
BSB 2487	Concentrate	1.0 ml
BSB 2488	Control Slides	5

ERG, RMab



IHC of ERG on a FFPE Prostate Carcinoma Tissue

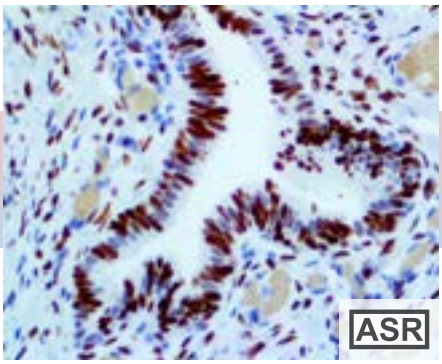
ERG belongs to the ETS family that plays important roles in cell development, differentiation, proliferation, apoptosis and tissue remodeling. The aberrant expression of several ETS proteins is involved in tumor development and progression. ERG is linked to normal processes such as mesoderm formation. TMPRSS2-ERG fusion, which occurs on account of translocations and interstitial deletions, is implicated in aggressive forms of prostate cancer.

ERG overexpression is associated with aggressive tumor behavior and patient survival in prostate cancer. ERG antibody labels endothelial cells, lymphocytes, and prostate cancer cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP111*
ISOTYPE: *IgG*
CONTROL: *Prostate, Colon, Kidney, Fallopian Tube, Tonsil, Myometrium, Skin, Brain, Breast*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6737	Tinto Predilute	3.0 ml
BSB 6738	Tinto Predilute	7.0 ml
BSB 6739	Tinto Predilute	15.0 ml
BSB 6740	Concentrate	0.1 ml
BSB 6741	Concentrate	0.5 ml
BSB 6742	Concentrate	1.0 ml
BSB 6743	Control Slides	5

Estrogen Receptor, MMab



IHC of Estrogen Receptor on a FFPE Fallopian Tube Tissue

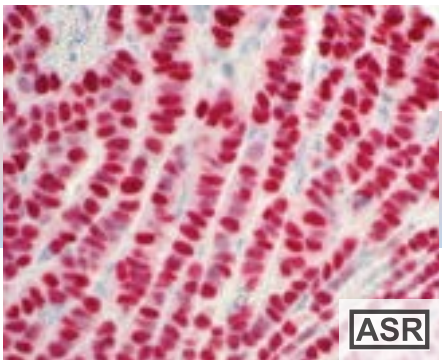
Estrogen receptor (ER) is a nuclear receptor for estrogens such as estradiol (the main endogenous human estrogen). The two different estrogen receptor proteins produced from the ESR1 and ESR2 genes are usually called the alpha and beta receptors.

This ER antibody recognizes a protein of 67 kDa, which is identified as estrogen receptor alpha.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-1*
ISOTYPE: *IgG1/K*
CONTROL: *Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2740	Tinto Predilute	3.0 ml
BSB 2741	Tinto Predilute	7.0 ml
BSB 2742	Tinto Predilute	15.0 ml
BSB 2743	Concentrate	0.1 ml
BSB 2744	Concentrate	0.5 ml
BSB 2745	Concentrate	1.0 ml
BSB 2746	Control Slides	5

Estrogen Receptor, RMab



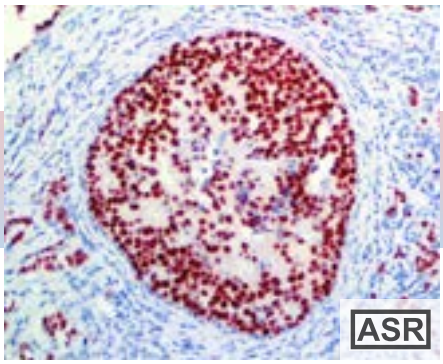
IHC of Estrogen Receptor on a FFPE Breast Tissue

Estrogen receptor (ER) is a nuclear receptor for estrogens such as estradiol (the main endogenous human estrogen). The two different estrogen receptor proteins produced from the ESR1 and ESR2 genes are usually called the alpha and beta receptors. This ER antibody recognizes a protein of 67 kDa, which is identified as estrogen receptor (ER) alpha.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT11*
ISOTYPE: *IgG*
CONTROL: *Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5491	Tinto Predilute	3.0 ml
BSB 5492	Tinto Predilute	7.0 ml
BSB 5493	Tinto Predilute	15.0 ml
BSB 5494	Concentrate	0.1 ml
BSB 5495	Concentrate	0.5 ml
BSB 5496	Concentrate	1.0 ml
BSB 5497	Control Slides	5

Estrogen Receptor, RMab



IHC of Estrogen Receptor on a FFPE Breast Carcinoma Tissue

Estrogen receptor alpha (ER) is a nuclear receptor for estrogens such as estradiol (the main endogenous human estrogen). The two different estrogen receptor proteins produced from the ESR1 and ESR2 genes are usually called the alpha and beta receptors.

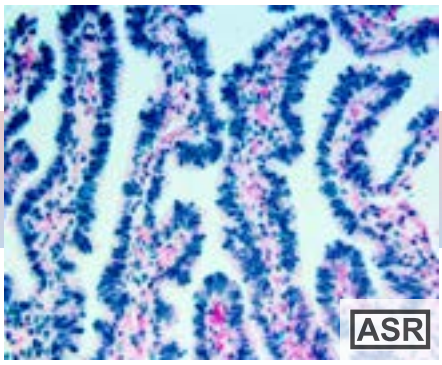
This ER antibody recognizes a protein of 67 kDa, which is identified as estrogen receptor (ER) alpha.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP1*
ISOTYPE: *IgG*
CONTROL: *Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2489	Tinto Predilute	3.0 ml
BSB 2490	Tinto Predilute	7.0 ml
BSB 2491	Tinto Predilute	15.0 ml
BSB 2492	Concentrate	0.1 ml
BSB 2493	Concentrate	0.5 ml
BSB 2494	Concentrate	1.0 ml
BSB 2495	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Estrogen Receptor, RMab



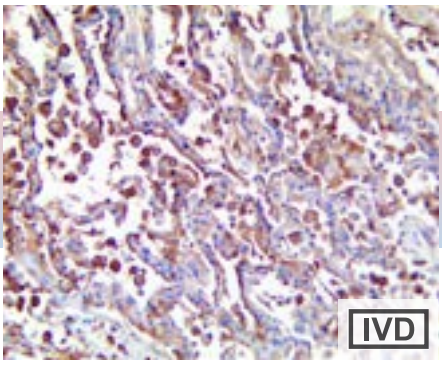
IHC of Estrogen Receptor on a FFPE Fallopian Tube Tissue

Estrogen receptor alpha (ER) is a nuclear receptor for estrogens such as estradiol (the main endogenous human estrogen). The two different estrogen receptor proteins produced from the ESR1 and ESR2 genes are usually called the alpha and beta receptors. This ER antibody recognizes a protein of 67 kDa, which is identified as estrogen receptor (ER) alpha.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM292*
ISOTYPE: *IgG*
CONTROL: *Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3765-3	Tinto Predilute	3.0 ml
BSB-3765-7	Tinto Predilute	7.0 ml
BSB-3765-15	Tinto Predilute	15.0 ml
BSB-3765-01	Concentrate	0.1 ml
BSB-3765-05	Concentrate	0.5 ml
BSB-3765-1	Concentrate	1.0 ml
BSB-3765-CS	Control Slides	5

Factor H/Complement Factor H, MMab



IHC of Factor H a FFPE SARS-CoV-2 infected Lung Tissue

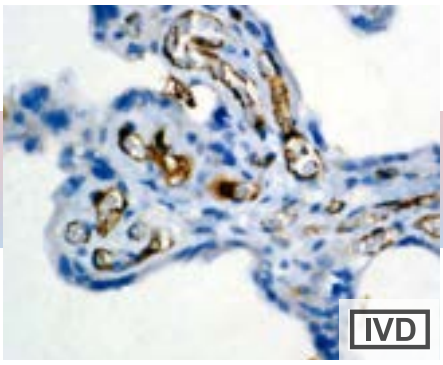
Factor H or Complement Factor H (CFH), is the major soluble inhibitor of complement, where its binding to self markers (i.e. particular glycan structures) prevents complement activation and amplification on host surfaces. Mutations and polymorphisms that affect recognition of self markers by Factor H are associated with diseases of complement dysregulation, such as age-related macular degeneration and atypical hemolytic uremic syndrome. In addition, pathogens and cancer cells can hijack Factor H to evade the immune response.

Lung, Ovarian, Glial and Colon Cancer cells show enhanced expression and surface binding of soluble regulators, including Factor H. Factor H has been shown to be expressed by human Breast Cancer cells, which correlates with the presence of immunosuppressive macrophages, Breast Cancer recurrence and severity of the disease. Lung cancer cells may develop a protective mechanism against complement attack by expressing and binding Factor H to their cell membranes. Additionally, it has been demonstrated that Factor H is upregulated by constitutive activation of STAT4, which is accounted for by SOCS silencing in Lung Cancer cells. Several studies have also suggested the importance of Factor H in the protection of tumor cells against complement activation. The importance of Factor H expression for the protection of cancer cells in vivo will help to elucidate the mechanisms used by tumor cells to avoid complement activity and assist in the design of more efficient complement-mediated immunotherapies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-164*
ISOTYPE: *IgG1*
CONTROL: *Testis, Liver, Kidney, Pancreas, Adrenal Gland*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3723-3	Tinto Predilute	3.0 ml
BSB-3723-7	Tinto Predilute	7.0 ml
BSB-3723-15	Tinto Predilute	15.0 ml
BSB-3723-01	Concentrate	0.1 ml
BSB-3723-05	Concentrate	0.5 ml
BSB-3723-1	Concentrate	1.0 ml
BSB-3723-CS	Control Slides	5

Factor VIII-Related Antigen, RPab



IHC of Factor VIII on a FFPE Placenta Tissue

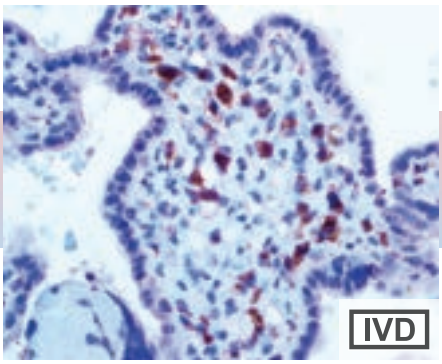
Factor VIII (F VIII) is an essential clotting factor. The lack of normal F VIII causes Hemophilia A, an inherited bleeding disorder. FVIII is a glycoprotein procofactor synthesized and released into the bloodstream by the liver. In the circulating blood, it is mainly bound to von Willebrand factor (vWF, also known as Factor VIII-related antigen) to form a stable complex. Upon activation by thrombin or Factor Xa, it dissociates from the complex to interact with Factor IXa, the coagulation cascade. It is a cofactor to Factor IXa in the activation of Factor X, which, in turn, with its cofactor Factor Va, activates more thrombin. Thrombin cleaves fibrinogen into fibrin which polymerizes and crosslinks (using Factor XIII) into a blood clot.

This antibody reacts with endothelial cells in normal, reactive, and neoplastic blood cells. F VIII antibody has helped to establish the endothelial nature of some lesions of disputed histogenesis, e.g., Kaposi`s Sarcoma and Cardiac Myxoma. Not all endothelial cells synthesize (or store) this molecule; therefore, it should not be surprising that not all tumors of endothelial differentiation (benign or malignant) react with this antigen.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *N/A*
CONTROL: *Skin, Placenta*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5498	Tinto Predilute	3.0 ml
BSB 5499	Tinto Predilute	7.0 ml
BSB 5500	Tinto Predilute	15.0 ml
BSB 5501	Concentrate	0.1 ml
BSB 5502	Concentrate	0.5 ml
BSB 5503	Concentrate	1.0 ml
BSB 5504	Control Slides	5

Factor XIIIa, RMab



IHC of Factor XIIIa on a FFPE Placenta Tissue

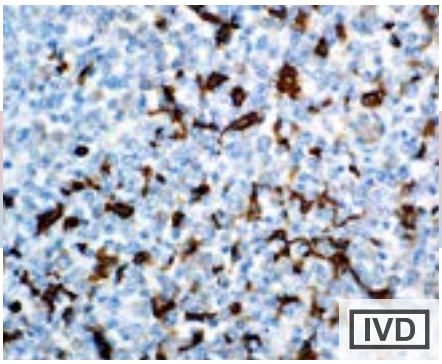
Factor XIII or fibrin stabilizing factor is an enzyme of the blood coagulation system that crosslinks fibrin. When thrombin has converted fibrinogen to fibrin, the latter forms a proteinaceous network in which every E-unit is crosslinked to only one D-unit. Factor XIII is activated by thrombin into Factor XIIIa; its activation into Factor XIIIa requires calcium as a cofactor. Factor XIIIa has been identified in platelets, megakaryocytes, and fibroblast-like mesenchymal or histiocytic cells present in the placenta, uterus, and prostate; it is also present in monocytes, macrophages and dermal dendritic cells.

Anti-Factor XIIIa has been found to be useful in differentiating between Dermatofibroma (90% (+)), Dermatofibrosarcoma Protuberans (25%(+)) and Desmoplastic Malignant Melanoma (0%(+)). Factor XIIIa positivity is also seen in Capillary Hemagioblastoma (100%(+)), Hemangioendothelioma (100%(+)), Hemangiopericytoma (100%(+)), Xanthogranuloma (100%(+)), Xanthoma (100(+)), Hepatocellular Carcinoma (93%(+)), Glomus Tumor (80%(+)), and Meningioma 80%(+)).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP292*
ISOTYPE: *IgG*
CONTROL: *Placenta,Testis, Tonsil, Skin, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5505	Tinto Predilute	3.0 ml
BSB 5506	Tinto Predilute	7.0 ml
BSB 5507	Tinto Predilute	15.0 ml
BSB 5508	Concentrate	0.1 ml
BSB 5509	Concentrate	0.5 ml
BSB 5510	Concentrate	1.0 ml
BSB 5511	Control Slides	5

Fascin, MMab



IHC of Fascin on a FFPE Hodgkin's Lymphoma Tissue

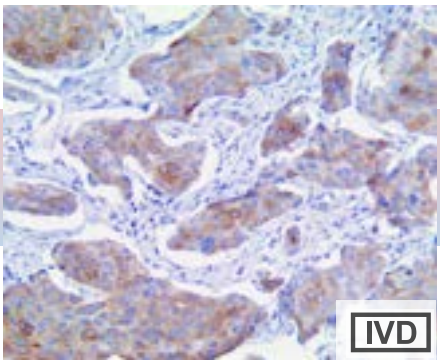
Fascin, encoded by the human homolog for sn (hsn) gene, has been localized to microspikes and stress fibers of cultured cells where it is thought to be involved in the formation of microfilament bundles. It is expressed predominantly in dendritic cells. Lymphoid cells, myeloid cells and plasma cells are negative. However, Reed Sternberg cells in Hodgkin's Lymphoma are positive for Fascin staining. Epstein-Barr virus may induce expression of Fascin in B-cells.

Fascin is a very sensitive marker for Reed-Sternberg cells and variants in nodular sclerosis, mixed cellularity, and lymphocyte depletion Hodgkin's Disease. This marker might be helpful in distinguishing between Hodgkin's Disease and Non-Hodgkin Lymphoma in difficult cases. Also, the lack of expression of Fascin in the neoplastic follicles in Follicular Lymphoma can be helpful in distinguishing these lymphomas from reactive Follicular Hyperplasia in which the number of follicular dendritic cells is normal or increased.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-36*
ISOTYPE: *IgG1a/K*
CONTROL: *Hodgkin's Lymphoma, Lymph Node, Tonsil*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5512	Tinto Predilute	3.0 ml
BSB 5513	Tinto Predilute	7.0 ml
BSB 5514	Tinto Predilute	15.0 ml
BSB 5515	Concentrate	0.1 ml
BSB 5516	Concentrate	0.5 ml
BSB 5517	Concentrate	1.0 ml
BSB 5518	Control Slides	5

FGFR-3, MMab



IHC of FGFR-3 on a FFPE Tranistional Cell Carcinoma Tissue

The FGFR3 gene encodes the protein Fibroblast Growth Factor Receptor 3 (FGFR3), part of a family of four fibroblast growth factor receptors that share similar structures and functions. These proteins play a role in several important cellular processes, including regulation of cell growth and proliferation, determination of cell type, angiogenesis, wound healing, and embryo development.

Approximately 80% of Non-Muscle Invasive Bladder Cancer (NMIBC) tumors have FGFR3 gene mutations. In addition to high prevalence in Bladder Cancer, somatic mutations in the FGFR3 gene have been associated with Multiple Myeloma and Cervical Cancer. FGFR3 gene aberrations have also been reported in Urothelial, Breast, Head/Neck, Lung, Brain, Gastric, Pancreatic, Colorectal, Kidney, Endometrial, Ovarian, and Cervical Cancers. FGFR3, which is highly expressed in Cutaneous Malignant Melanoma (CMM) tissues, is correlated with increased Breslow thickness and lymph node metastasis.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-150*
ISOTYPE: *IgG2a*
CONTROL: *Skin, Liver, Brain, Testis, Transitional Cell Carcinoma, Ductal Breast Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3724-3	Tinto Predilute	3.0 ml
BSB-3724-7	Tinto Predilute	7.0 ml
BSB-3724-15	Tinto Predilute	15.0 ml
BSB-3724-01	Concentrate	0.1 ml
BSB-3724-05	Concentrate	0.5 ml
BSB-3724-1	Concentrate	1.0 ml
BSB-3724-CS	Control Slides	5

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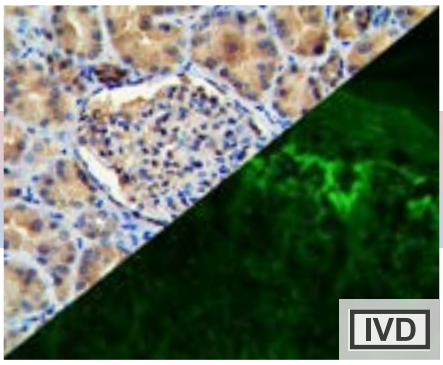
Fibrinogen, RPab



IHC and IF of Fibrinogen on a FFPE Kidney Tissue (IHC) and on a Frozen Lichen Planus Tissue (IF)

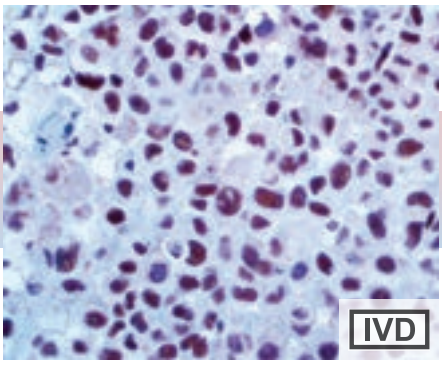
Fibrinogen (factor I) is a glycoprotein that circulates in the blood of vertebrates. During tissue and vascular injury, it is converted enzymatically by thrombin to fibrin and subsequently to a fibrin-based blood clot. Fibrinogen functions primarily to occlude blood vessels and thereby stop excessive bleeding. Fibrin also mediates blood platelet and endothelial cell spreading, tissue fibroblast proliferation, capillary tube formation, and angiogenesis and thereby functions to promote tissue revascularization, wound healing, and tissue repair.

Several disorders (Congenital afibrinogenemia, hypofibrinogenemia, Fibrinogen storage disease, Hereditary fibrinogen Aα-Chain amyloidosis, Congenital hypodysfibrinogenemia, Cryofibrinogenemia, acquired hypofibrinogenemia, Chronic Kidney Disease, etc.) in the quantity and/or quality of fibrinogen cause pathological bleeding, pathological blood clotting, and/or the deposition of fibrinogen in the liver, kidneys, and other tissues. Chronic kidney disease (CKD) patients have increased rates of bleeding as well as thrombosis. Fibrinogen and platelets combine to generate a mature clot, but in CKD platelets are dysfunctional.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Breast, Testos, Kidney, Pancreas, Salivary Gland, Skin, Fallopian Tube*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3047	Tinto Predilute	3.0 ml
BSB 3048	Tinto Predilute	7.0 ml
BSB 3049	Tinto Predilute	15.0 ml
BSB 3050	Concentrate	0.1 ml
BSB 3051	Concentrate	0.5 ml
BSB 3052	Concentrate	1.0 ml
BSB 3053	Control Slides	5

Fli-1, MMab



IHC of Fli-1 on a FFPE PNET Tissue

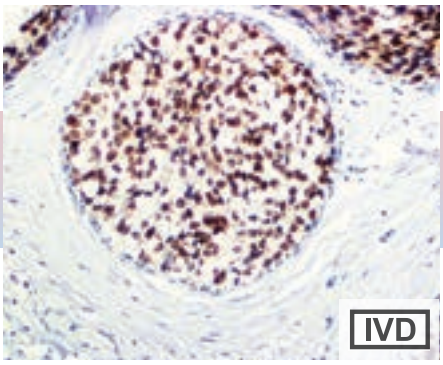
Fli-1 protein, a member of the ETS family of DNA binding transcription factors, is involved in cellular proliferation and tumorigenesis. Approximately 90% of Ewing's Sarcoma/Primitive Neuroectodermal Tumors (ES/PNET) have a specific translocation, t(11;22)(q24;q12), which results in fusion of EWS to Fli-1, and production of an EWS-Fli-1 fusion protein, which can be detected by this antibody. Among normal tissues only endothelial cells and small lymphocytes express Fli-1. Fli-1 has been found to be expressed in the great majority of vascular tumors including Angiosarcomas, Hemangioendotheliomas, Hemangiomas, and Kaposi's Sarcomas.

It has been reported that the high sensitivity and specificity of Fli-1 is equal to or exceeds that of the established vascular markers, CD31, CD34, and Factor VIII. As the first nuclear marker of endothelium (rather than cytoplasmic or membranous), Fli-1 immunostaining also generally lacks cytoplasmic staining artifacts that are the result of endogenous peroxidases or biotin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *G146-222*
ISOTYPE: *IgG2b*
CONTROL: *Adrenal Gland, Fallopian Tube, Placenta, Cervix, Hemangiomas, PNET, Angiosarcoma & Soft Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5519	Tinto Predilute	3.0 ml
BSB 5520	Tinto Predilute	7.0 ml
BSB 5521	Tinto Predilute	15.0 ml
BSB 5522	Concentrate	0.1 ml
BSB 5523	Concentrate	0.5 ml
BSB 5524	Concentrate	1.0 ml
BSB 5525	Control Slides	5

FOXA1/HNF-3A, RPab



IHC of FOXA1 on a FFPE Breast Carcinoma Tissue

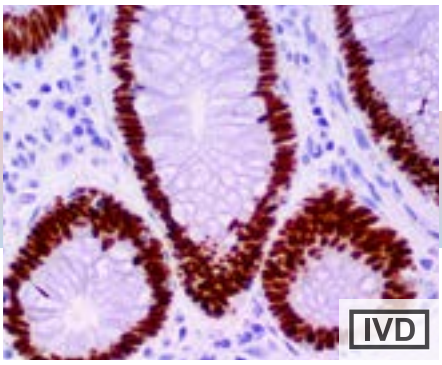
FOXA1 is a member of the forkhead class of DNA-binding proteins. These hepatocyte nuclear factors are transcriptional activators for liver-specific transcripts such as albumin and transthyretin, and they also interact with chromatin. FOXA1 is a downstream target of GATA3 in the mammary gland.

FOXA1 in breast cancer is highly correlated with ERα+, GATA3+, and PR+ protein expression as well as endocrine signaling. FOXA1 absence in ERα+ cancer might identify ERa cancers that are resistant to endocrine therapy. In ERα– breast cancer, FOXA1 is highly correlated with improved disease free survival and GATA3. Expression in ERα– cancers may identify a subset of tumors that is responsive to other endocrine therapies such as androgen receptor antagonist treatment.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Prostate, Breast, Tonsil, Breast Carcinoma, Prostate Carcinoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6744	Tinto Predilute	3.0 ml
BSB 6745	Tinto Predilute	7.0 ml
BSB 6746	Tinto Predilute	15.0 ml
BSB 6747	Concentrate	0.1 ml
BSB 6748	Concentrate	0.5 ml
BSB 6749	Concentrate	1.0 ml
BSB 6750	Control Slides	5

FOXA1, RMab



IHC of FOXA1 on a FFPE Colon Tissue

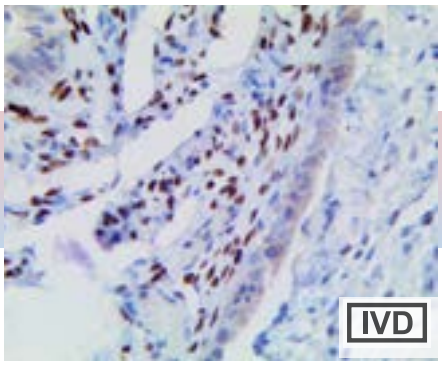
FOXA1 is a member of the forkhead class of DNA-binding proteins. These hepatocyte nuclear factors are transcriptional activators for liver-specific transcripts such as albumin and transthyretin, and they also interact with chromatin. FOXA1 is a downstream target of GATA3 in the mammary gland.

FOXA1 in breast cancer is highly correlated with ERα+, GATA3+, and PR+ protein expression as well as endocrine signaling. FOXA1 absence in ERα+ cancer might identify ERa cancers that are resistant to endocrine therapy. In ERα– breast cancer, FOXA1 is highly correlated with improved disease free survival and GATA3. Expression in ERα– cancers may identify a subset of tumors that is responsive to other endocrine therapies such as androgen receptor antagonist treatment.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP277*
ISOTYPE: *IgG*
CONTROL: *Prostate, Breast, Tonsil, Colon, Fallopian Tube, Breast Carcinoma, Prostate Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2908	Tinto Predilute	3.0 ml
BSB 2909	Tinto Predilute	7.0 ml
BSB 2910	Tinto Predilute	15.0 ml
BSB 2911	Concentrate	0.1 ml
BSB 2912	Concentrate	0.5 ml
BSB 2913	Concentrate	1.0 ml
BSB 2914	Control Slides	5

FOXL2, RPab



IHC of FOXL2 on a FFPE Fallopian Tube Tissue

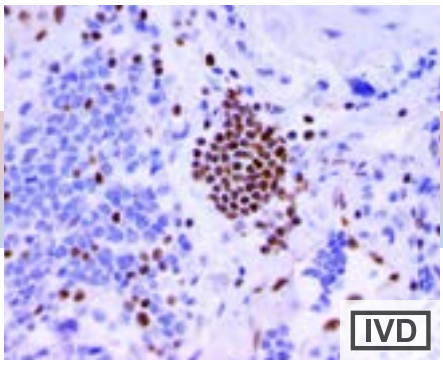
The Forkhead box L2 (FOXL2) gene encodes FOXL2, a transcription factor involved in ovarian development and function. Before birth and in adulthood, the FOXL2 protein regulates the growth and proliferation of hormone-producing ovarian granulosa cells. FOXL2 is also involved in the breakdown of fats, steroid hormones, and potentially harmful reactive oxygen species in the ovaries.

FOXL2 is a relatively sensitive and highly specific for Sex Cord-Stromal Tumors (SCST). FOXL2 expression is present in almost all SCSTs with a FOXL2 mutation or without a mutation. A specific somatic mutation in the FOXL2 gene has been found in Adult Granulosa Cell Tumor (402C->G / C134W), which is present in 70-95% of Ovarian Adult Granulosa Cell Tumors but not in Ovarian Fibromas. This mutation is also present in 2 of 5 men with Adult Granulosa Cell Tumor but absent in Ovarian Juvenile Granulosa Cell Tumors. Studies have demonstrated that FOXL2 is expressed in Cervical Squamous Cancer. FOXL2 suppresses the proliferation and promotes apoptosis of Cervical Cancer cells mainly through decreasing Ki-67 expression and increasing Fas ligand expression. FOXL2 has also been found to restrain the invasiveness of Cervical Cancer cells; hence, FOXL2 might be a novel tumor suppressor in Cervical Cancer. A study has demonstrated that FOXL2 is expressed in Breast Cancer and influences clinical outcome with improved recurrence-free survival in cases with nuclear expression.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Fallopian Tube, Cervix, Pancreas, Placenta, Extra Marginal Zone Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Pig, Bovine*

CAT. #	PRESENTATION	VOL/QTY
BSB-3725-3	Tinto Predilute	3.0 ml
BSB-3725-7	Tinto Predilute	7.0 ml
BSB-3725-15	Tinto Predilute	15.0 ml
BSB-3725-01	Concentrate	0.1 ml
BSB-3725-05	Concentrate	0.5 ml
BSB-3725-1	Concentrate	1.0 ml
BSB-3725-CS	Control Slides	5

FOX01, RMab



IHC of FOXO1 on a FFPE Lymphoblastic Lymphoma Tissue

The Forkhead transcription factor FOXO1, an important downstream target of phosphatidylinositol-3-kinase (PI3K)/AKT signaling pathway, regulates cellular homeostasis by maintaining cell proliferation, apoptosis and viability in normal cells. FOXO1 is a transcription factor that plays important roles in regulation of gluconeogenesis and glycogenolysis by insulin signaling, and is also central to the decision for a preadipocyte to commit to adipogenesis.

FOXO1 is broadly expressed in different types of cells with high level of expression in lymphoid cells and non-Hodgkin's lymphomas. In contrast, in most of classical Hodgkin lymphoma (cHL), Reed-Sternberg cells are FOXO1 negative. Androgens and the androgen receptor (AR) are essential for growth and differentiation of the normal prostate gland as well as proliferation and survival of Prostate Cancer. FOXA1, functions as a pioneer factor to facilitate AR transactivation and Prostate Cancer growth. In contrast, the O-class of FOX proteins such as FOXO1 and FOXO3, which are downstream effectors of the PTEN tumor suppressor, inhibits the transcriptional activity of either full-length AR or constitutively active splice variants of AR in a direct or indirect manner in Prostate Cancer. Translocation of FOXO1 gene with PAX3 has been associated with alveolar rhabdomyosarcoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP290*
ISOTYPE: *IgG*
CONTROL: *Testis, Thyroid, Tonsil, Lymph Node, Spleen, Lung, Lymphomas*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2915	Tinto Predilute	3.0 ml
BSB 2916	Tinto Predilute	7.0 ml
BSB 2917	Tinto Predilute	15.0 ml
BSB 2918	Concentrate	0.1 ml
BSB 2919	Concentrate	0.5 ml
BSB 2920	Concentrate	1.0 ml
BSB 2921	Control Slides	5

Bio SB
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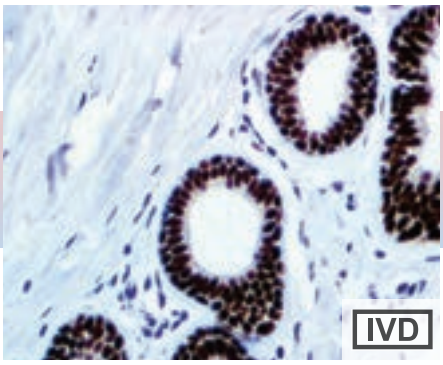
FOXP1, RMab



IHC of FOXP1 on a FFPE Breast Tissue

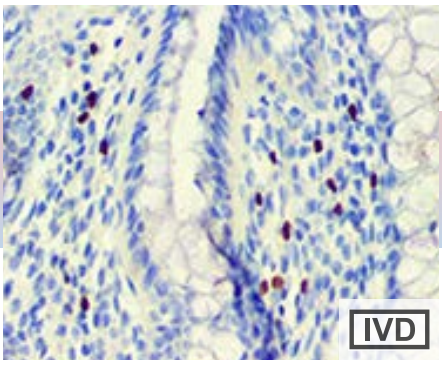
FOXP1 is part of the forkhead box (FOX) transcription factor family. Forkhead box transcription factors play important roles in regulation of tissue- and cell-type specific gene transcription during both development and adulthood. The FOXP1 protein contains both DNA-binding- and protein-protein binding-domains. FOXP1 is a transcriptional repressor and is responsible for regulating a variety of important aspects of development including tissue development of the lungs, brain, thymus and heart. It is also important in muscle development of the esophagus and esophageal epithelium and for regulating lung airway morphogenesis.

Strong expression of FOXP1 is associated with poor disease-free survival and transformation to Diffuse Large B-cell Lymphomas. Recently, studies suggested a role of FOXP1 in the regulation of ER expression. FOXP1 expression is correlated with ER expression and improved survival in breast cancer patients. Nuclear expression of FOXP1 is associated with ER expression, while cytoplasmic expression of FOXP1 is linked to myometrial invasion in endometrial cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP137*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Breast*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6751	Tinto Predilute	3.0 ml
BSB 6752	Tinto Predilute	7.0 ml
BSB 6753	Tinto Predilute	15.0 ml
BSB 6754	Concentrate	0.1 ml
BSB 6755	Concentrate	0.5 ml
BSB 6756	Concentrate	1.0 ml
BSB 6757	Control Slides	5

FOXP3, RPab



IHC of FOXP3 on a FFPE Colon Tissue

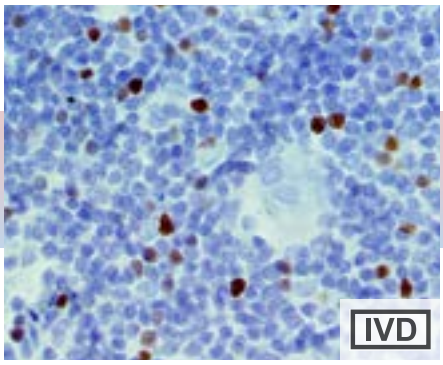
FOXP3, also known as scurfin, is a protein involved in immune system responses. A member of the forkhead box protein family, FOXP3 appears to function as a transcription factor in the development and function of regulatory T cells. In regulatory T cell model systems, the FOXP3 transcription factor occupies the promoters of many important for regulatory T-cell function, and may repress transcription of key genes following stimulation of T cell receptors.

Alterations in numbers of regulatory T-cells — in particular those that express FOXP3 — are found in a number of disease states. Patients with tumors have a local relative excess of FOXP3 positive T cells which inhibits the body's ability to suppress the formation of cancerous cells.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Colon*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6758	Tinto Predilute	3.0 ml
BSB 6759	Tinto Predilute	7.0 ml
BSB 6760	Tinto Predilute	15.0 ml
BSB 6761	Concentrate	0.1 ml
BSB 6762	Concentrate	0.5 ml
BSB 6763	Concentrate	1.0 ml
BSB 6764	Control Slides	5

FOXP3, RMab



IHC of FOXP3 on a FFPE Thymus Tissue

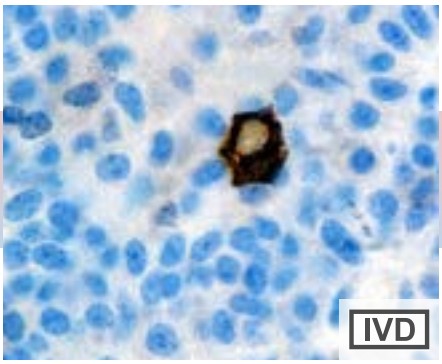
FOXP3, also known as scurfin, is a protein involved in immune system responses. A member of the forkhead box protein family, FOXP3 appears to function as a transcription factor in the development and function of regulatory T cells. In regulatory T cell model systems, the FOXP3 transcription factor occupies the promoters of many important for regulatory T-cell function, and may repress transcription of key genes following stimulation of T cell receptors.

Alterations in numbers of regulatory T-cells - in particular those that express FOXP3 - are found in a number of disease states. Patients with tumors have a local relative excess of FOXP3 positive T cells which inhibits the body's ability to suppress the formation of cancerous cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP340*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Thymus*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2922	Tinto Predilute	3.0 ml
BSB 2923	Tinto Predilute	7.0 ml
BSB 2924	Tinto Predilute	15.0 ml
BSB 2925	Concentrate	0.1 ml
BSB 2926	Concentrate	0.5 ml
BSB 2927	Concentrate	1.0 ml
BSB 2928	Control Slides	5

FSH, MMab



IHC of FSH on a FFPE Pituitary Tissue

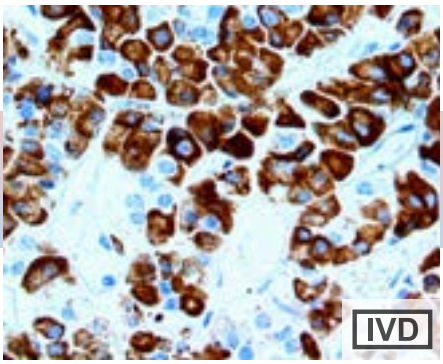
Follicle stimulating hormone (FSH) is a hormone synthesized and secreted by gonadotropes in the anterior pituitary gland. In the ovary, FSH stimulates the growth of immature Graafian follicles to maturation. As the follicle grows, it releases inhibin, which deactivates the FSH production. In men, FSH enhances the production of androgen-binding protein by the Sertoli cells of the testis and is critical for spermatogenesis. FSH and LH act synergistically in reproduction.

FSH is a useful marker in the classification of pituitary tumors and the study of pituitary disease. It reacts with FSH-producing cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-55*
ISOTYPE: *IgG1/K*
CONTROL: *Normal Pituary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5533	Tinto Predilute	3.0 ml
BSB 5534	Tinto Predilute	7.0 ml
BSB 5535	Tinto Predilute	15.0 ml
BSB 5536	Concentrate	0.1 ml
BSB 5537	Concentrate	0.5 ml
BSB 5538	Concentrate	1.0 ml
BSB 5539	Control Slides	5

FSH, RMab



IHC of FSH on a FFPE Pituitary Adenoma Tissue

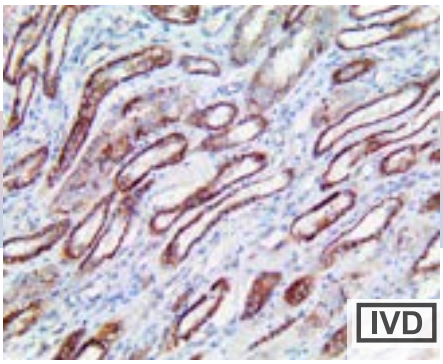
Follicle stimulating hormone (FSH) is a hormone synthesized and secreted by gonadotropes in the anterior pituitary gland. In the ovary, FSH stimulates the growth of immature Graa follicles to maturation. As the follicle grows, it releases inhibin, which deactivates the FSH production. In men, FSH enhances the production of androgen-binding protein by the Sertoli cells of the testis and is critical for spermatogenesis. FSH and LH act synergistically in reproduction.

FSH is a useful marker in the classification of pituitary tumors and the study of pituitary disease. It reacts with FSH-producing cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP257*
ISOTYPE: *IgG*
CONTROL: *Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3539	Tinto Predilute	3.0 ml
BSB 3540	Tinto Predilute	7.0 ml
BSB 3541	Tinto Predilute	15.0 ml
BSB 3542	Concentrate	0.1 ml
BSB 3543	Concentrate	0.5 ml
BSB 3544	Concentrate	1.0 ml
BSB 3545	Control Slides	5

Fumarate Hydratase/Fumarase, MMab



IHC of Fumarate Hydratase on a FFPE Kidney Tissue

Fumarate hydratase (FH), or fumarase, is encoded by the FH gene, which is an enzymatic component of the tricarboxylic acid (TCA) cycle, or Krebs cycle, where it catalyzes the formation of L-malate from fumarate. Mutations in the FH gene can cause FH deficiency and lead to progressive encephalopathy. It was discovered that succinate dehydrogenase and FH are tumour suppressors and they are associated with metabolic dysfunction and tumorigenesis, providing biochemical evidence to explain enhanced glycolysis in tumours.

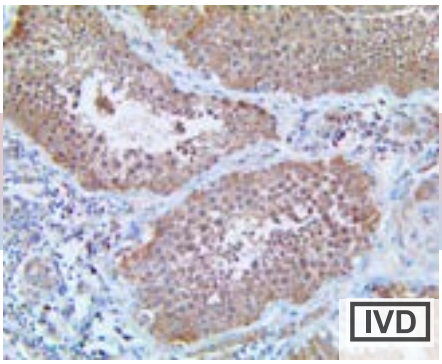
Hereditary Leiomyomatosis and Renal Cell Cancer (HLRCC) is an autosomal dominant heritable syndrome with predisposition to development of Renal Cell Carcinoma and Smooth Muscle Tumors of the skin and uterus. Cells of individuals with HLRCC had lower FH enzyme activity than cells from normal controls, making FH enzyme activity testing a useful method for diagnosis and screening. Loss-of-function mutations of FH predisposes individuals to the autosomal dominant syndrome of Multiple Cutaneous and Uterine Leiomyomatosis (MCUL). Biallelic inactivation/mutations of FH are seen in 85% of Hereditary Leiomyomatosis and Renal Cell Carcinoma cases, 100% of Renal Cell Carcinoma with germline FH mutations, 19% of Papillary Renal Cell Carcinoma (Type II) have FH deficiency and 90% of FH deficiency RCC have FH mutations, 1% of unselected Leiomyomas, 2.6% of Leiomyomas in patients < 40 years old and 37- 52% of Leiomyoma with bizarre nuclei.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-151*
ISOTYPE: *IgG1*
CONTROL: *Placenta, Breast, Fallopian Tube, Colon, Kidney, Testis, Colon Adenocarcinoma, HER2 Negative Breast Cancer*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3726-3	Tinto Predilute	3.0 ml
BSB-3726-7	Tinto Predilute	7.0 ml
BSB-3726-15	Tinto Predilute	15.0 ml
BSB-3726-01	Concentrate	0.1 ml
BSB-3726-05	Concentrate	0.5 ml
BSB-3726-1	Concentrate	1.0 ml
BSB-3726-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

GAB1/GRB2-Associated-Binding Protein 1, MMab



IHC of GAB1/GRB2 - Associated-Binding Protein 1 on a FFPE Testis Tissue

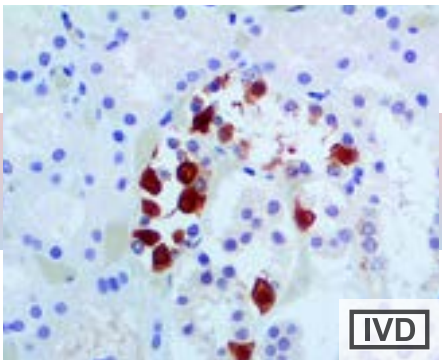
GRB2-associated-binding protein 1 (GAB1) is encoded by the GAB1 gene. GAB1 is a member of the IRS1-like multisubstrate docking protein family that transduces signals from various tyrosine kinases, such as Met, FGFR1, and EGFR. GAB1 plays a central role in cellular growth response, transformation, and apoptosis, as well as inflammatory responses. GAB1 is involved in the amplification of IL-6- induced MAPK pathway and promotes inflammation.

Somatic mutations of the GAB1 gene have been detected in Breast and Colorectal Cancers and studies have shown that elevated expressions of GAB1 have been associated with Breast Cancer metastasis by dissociating the polarity-associated partitioning defective (PAR) complex and promoting epithelial-to-mesenchymal transition. Upregulation of GAB1 is an indication of unfavorable prognosis for Hepatocellular Carcinoma and Epithelial Ovarian Cancer. GAB1 overexpression has also been seen in Adult Acute Lymphoblastic Leukemia and Medulloblastomas. GAB1 can be used with a panel of immunohistochemical markers in the classification of Medulloblastomas into SHH (sonic hedgehog), WNT (wingless-type murine mammary tumor), or non-SHH/WNT subgroups.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-155*
ISOTYPE: *IgG2a*
CONTROL: *Breast, Prostate, Testis, Tonsil, Stomach, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3727-3	Tinto Predilute	3.0 ml
BSB-3727-7	Tinto Predilute	7.0 ml
BSB-3727-15	Tinto Predilute	15.0 ml
BSB-3727-01	Concentrate	0.1 ml
BSB-3727-05	Concentrate	0.5 ml
BSB-3727-1	Concentrate	1.0 ml
BSB-3727-CS	Control Slides	5

Galectin-3, MMab



IHC of Galectin-3 on a FFPE Kidney Tissue

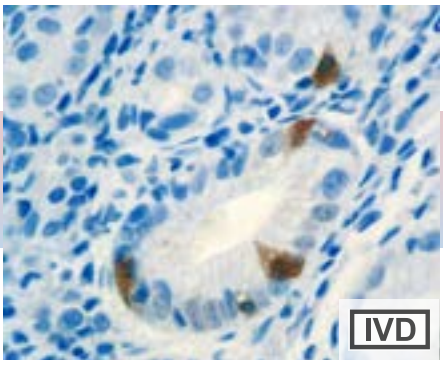
Galectin-3 is a 31 kDa beta-galactosidase binding lectin. It has been associated with binding to the basement membrane glycoprotein laminin. Galectin-3 is normally distributed in epithelia of many organs and various inflammatory cells, including macrophages, as well as dendritic cells and Kupffer cells. The expression of this lectin is up-regulated during inflammation, cell proliferation, cell differentiation and through trans-activation by viral proteins.

Anti-Galectin-3 has been demonstrated to be valuable in differentiating between benign and malignant thyroid neoplasms in both histologic sections and Fine Needle Aspiration Biopsy material. Anti-Galectin-3 antibody has also been useful in identifying Anaplastic Large Cell Lymphoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *9C4*
ISOTYPE: *IgG1*
CONTROL: *Kidney, Testis, Salivary Gland, Breast, Tonsil, Colon, Papillary & Follicular Carcinoma of Thyroid*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5540	Tinto Predilute	3.0 ml
BSB 5541	Tinto Predilute	7.0 ml
BSB 5542	Tinto Predilute	15.0 ml
BSB 5543	Concentrate	0.1 ml
BSB 5544	Concentrate	0.5 ml
BSB 5545	Concentrate	1.0 ml
BSB 5546	Control Slides	5

Gastrin, RPab



IHC of Gastrin on a FFPE Stomach Tissue

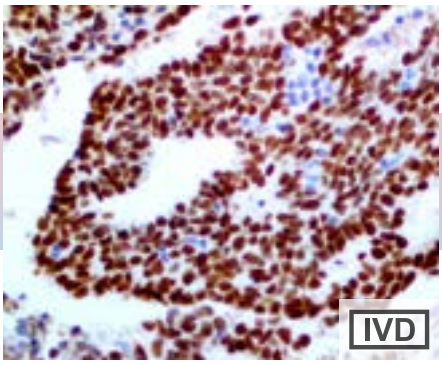
Gastrin is a linear peptide hormone produced by G-cells of the duodenum and in the pyloric antrum of the stomach. It is secreted into the bloodstream.

Gastrin antibody gives positive staining of G-cells of human antral/pyloric mucosa and cells producing gastrin or a structural gastrin analogue as is seen in the stomach. No staining of other cells or tissue types has been observed. This antibody may react with sulfated and non-sulfated forms of gastrin. The antibody cross-reacts with more than 50% of the present choleocystokinin octapeptide.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Stomach*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5547	Tinto Predilute	3.0 ml
BSB 5548	Tinto Predilute	7.0 ml
BSB 5549	Tinto Predilute	15.0 ml
BSB 5550	Concentrate	0.1 ml
BSB 5551	Concentrate	0.5 ml
BSB 5552	Concentrate	1.0 ml
BSB 5553	Control Slides	5

GATA3, MMab



IHC of GATA-3 on a FFPE Breast Carcinoma Tissue

Trans-acting T-cell-specific transcription factor, GATA-3 is, a protein that in humans is encoded by the GATA3 gene. GATA-3 b regulates luminal epithelial cell differentiation in the mammary gland, is an important regulator of T cell development and plays an important role in endothelial cell biology.

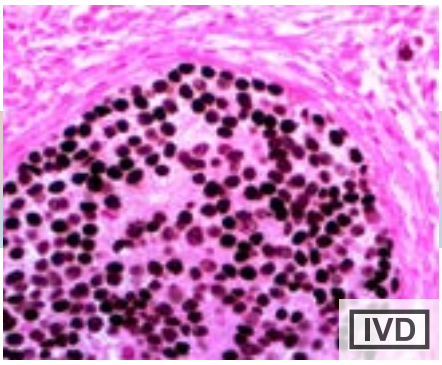
GATA-3 is one of the three genes mutated in >10% of breast cancers. Nuclear expression of GATA-3 in breast cancer is considered a marker of luminal cancer in ER+ cancer and luminal androgen responsive cancer in ER-/AR+ tumors. It is highly coexpressed with FOXA1 and serves as negative predictor of basal subtype and HER-2 and is also considered a strong predictor of taxane and platin salts insensitivity.

GATA3 expression is found in urothelial carcinoma, especially in invasive and high grade tumors. Therefore, anti-GATA3 can be used in a panel of antibodies for diagnosis of unknown primary carcinoma, when carcinomas of the breast or bladder are a possibility. Studies have also shown the utility of GATA-3 in differntiating urothelial carcinoma from prostate adenocarcinoma and squamous cell carcinomas of the uterine, cervix, anus and lung.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *L50-823*
ISOTYPE: *IgG1/K*
CONTROL: *Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2670	Tinto Predilute	3.0 ml
BSB 2671	Tinto Predilute	7.0 ml
BSB 2672	Tinto Predilute	15.0 ml
BSB 2673	Concentrate	0.1 ml
BSB 2674	Concentrate	0.5 ml
BSB 2675	Concentrate	1.0 ml
BSB 2676	Control Slides	5

GATA3, RMab



IHC of GATA-3 on a FFPE Breast Carcinoma Tissue

Trans-acting T-cell-specific transcription factor, GATA-3 is, a protein that in humans is encoded by the GATA3 gene. GATA-3 b regulates luminal epithelial cell differentiation in the mammary gland, is an important regulator of T cell development and plays an important role in endothelial cell biology.

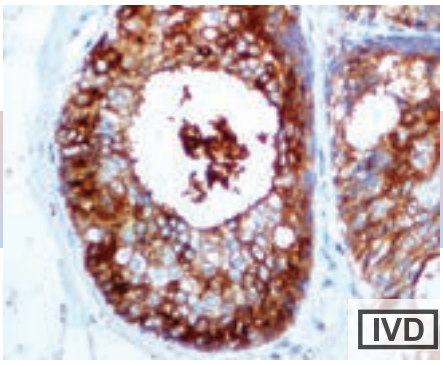
GATA-3 is one of the three genes mutated in >10% of breast cancers. Nuclear expression of GATA-3 in breast cancer is considered a marker of luminal cancer in ER+ cancer and luminal androgen responsive cancer in ER-/AR+ tumors. It is highly coexpressed with FOXA1 and serves as negative predictor of basal subtype and HER-2 and is also considered a strong predictor of taxane and platin salts insensitivity.

GATA3 expression is found in urothelial carcinoma, especially in invasive and high grade tumors. Therefore, anti-GATA3 can be used in a panel of antibodies for diagnosis of unknown primary carcinoma, when carcinomas of the breast or bladder are a possibility. Studies have also shown the utility of GATA-3 in differntiating urothelial carcinoma from prostate adenocarcinoma and squamous cell carcinomas of the uterine, cervix, anus and lung.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP368*
ISOTYPE: *IgG*
CONTROL: *Breast, Skin, Cervix, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3328	Tinto Predilute	3.0 ml
BSB 3329	Tinto Predilute	7.0 ml
BSB 3330	Tinto Predilute	15.0 ml
BSB 3331	Concentrate	0.1 ml
BSB 3332	Concentrate	0.5 ml
BSB 3333	Concentrate	1.0 ml
BSB 3334	Control Slides	5

GCDFP-15, MMab



IHC of GCDFP-15 on a FFPE Breast Carcinoma Tissue

Gross Cystic Disease is a common premenopausal disorder in which gross cysts are the predominant pathologic lesion. It is characterized by production of a fluid secretion which accumulates in the breast cysts. Gross Cystic Disease fluid is a pathologic secretion from breast composed of several glycoproteins, including a unique 15 kDa monomer protein, GCDFP-15. The cells within the body that produce GCDFP-15 appear to be restricted primarily to those with apocrine function such as breast cysts and in apocrine glands in the axilla, vulva, eyelid, and ear canal.

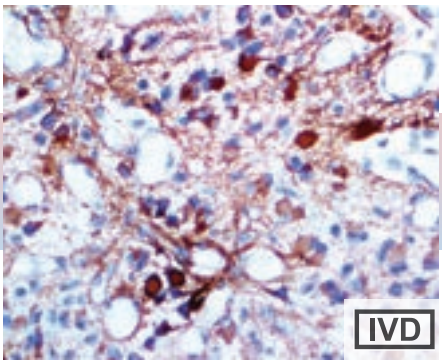
Studies have found GCDFP-15 to be a highly specific and sensitive marker for breast cancer. Approximately 70% of breast carcinomas stain positive with antibody to GCDFP-15. In contrast, Colorectal Carcinomas, as well as Mesotheliomas, do not stain with this antibody. Lung Adenocarcinomas rarely stain with this antibody.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *23A3*
ISOTYPE: *IgG2a*
CONTROL: *Breast, Salivary Gland, Sweat Glands in Skin, Breast Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5554	Tinto Predilute	3.0 ml
BSB 5555	Tinto Predilute	7.0 ml
BSB 5556	Tinto Predilute	15.0 ml
BSB 5557	Concentrate	0.1 ml
BSB 5558	Concentrate	0.5 ml
BSB 5559	Concentrate	1.0 ml
BSB 5560	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

GFAP, MMab



IHC of GFAP on an FFPE on a Brain Tissue

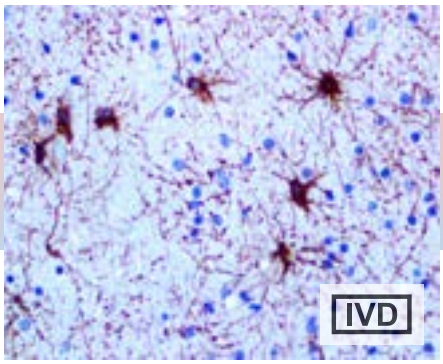
Glial fibrillary acidic protein or GFAP is a Type III protein of the intermediate filaments principally found in astrocytes in the central nervous system, but can also be found in neurons, hepatic stellate cells, kidney mesangial cells, pancreatic stellate cells, and Leydig cells. It has a role in the cytoskeleton of the astrocyte and possibly many other stellate-shaped cells.

Antibodies to GFAP are very useful as markers of astrocytic cells. In addition, many types of brain tumors, presumably derived from astrocytic cells, heavily express GFAP. This marker is mainly used to distinguish neoplasms of astrocytic origin from other neoplasms in the central nervous system.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *G-A-5*
ISOTYPE: *IgG1*
CONTROL: *Brain*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Rat, Mouse, Rabbit*

CAT. #	PRESENTATION	VOL/QTY
BSB 5561	Tinto Predilute	3.0 ml
BSB 5562	Tinto Predilute	7.0 ml
BSB 5563	Tinto Predilute	15.0 ml
BSB 5564	Concentrate	0.1 ml
BSB 5565	Concentrate	0.5 ml
BSB 5566	Concentrate	1.0 ml
BSB 5567	Control Slides	5

GFAP, RMab



IHC of GFAP on FPPE Brain Tissue

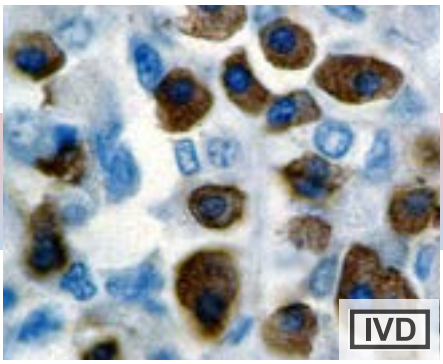
Glial fibrillary acidic protein or GFAP is a Type III protein of the intermediate filaments principally found in astrocytes in the central nervous system, but can also be found in neurons, hepatic stellate cells, kidney mesangial cells, pancreatic stellate cells, and Leydig cells. It has a role in the cytoskeleton of the astrocyte and possibly many other stellate-shaped cells.

Antibodies to GFAP are very useful as markers of astrocytic cells. In addition, many types of brain tumors, presumably derived from astrocytic cells, heavily express GFAP. This marker is mainly used to distinguish neoplasms of astrocytic origin from other neoplasms in the central nervous system.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM246*
ISOTYPE: *IgG*
CONTROL: *Brain*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Predicted: Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3766-3	Tinto Predilute	3.0 ml
BSB-3766-7	Tinto Predilute	7.0 ml
BSB-3766-15	Tinto Predilute	15.0 ml
BSB-3766-01	Concentrate	0.1 ml
BSB-3766-05	Concentrate	0.5 ml
BSB-3766-1	Concentrate	1.0 ml
BSB-3766-CS	Control Slides	5

GH, RPab



IHC of GH on an FFPE on a Pituitary Tissue

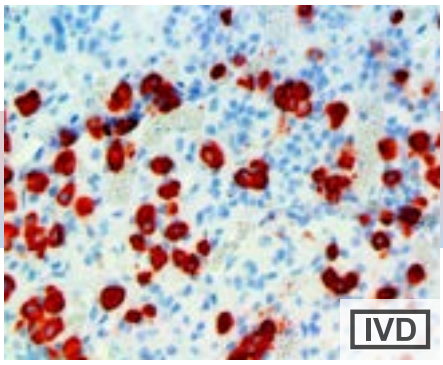
Growth hormone (GH or somatotropin) is a 191 amino acid, single-chain polypeptide hormone which is synthesized, stored and secreted by the somatotroph cells within the lateral wings of the anterior pituitary gland, which stimulates growth and cell reproduction in humans and other animals.

GH is a useful marker in classification of pituitary tumors and the study of pituitary disease (acromegaly). It reacts with GH-producing cells.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Normal Pituary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5568	Tinto Predilute	3.0 ml
BSB 5569	Tinto Predilute	7.0 ml
BSB 5570	Tinto Predilute	15.0 ml
BSB 5571	Concentrate	0.1 ml
BSB 5572	Concentrate	0.5 ml
BSB 5573	Concentrate	1.0 ml
BSB 5574	Control Slides	5

GH, MMab



IHC of Growth Hormone on an FFPE on a Pituitary Tissue

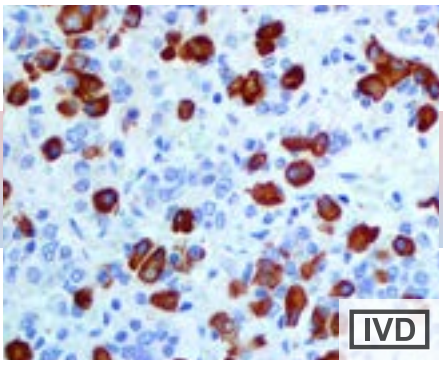
Growth hormone (GH or somatotropin) is a 191 amino acid, single-chain polypeptide hormone which is synthesized, stored and secreted by the somatotroph cells within the lateral wings of the anterior pituitary gland, which stimulates growth and cell reproduction in humans and other animals.

GH is a useful marker in classification of pituitary tumors and the study of pituitary disease (acromegaly). It reacts with GH-producing cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-99*
ISOTYPE: *IgG1/K*
CONTROL: *Normal Pituiary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3335	Tinto Predilute	3.0 ml
BSB 3336	Tinto Predilute	7.0 ml
BSB 3337	Tinto Predilute	15.0 ml
BSB 3338	Concentrate	0.1 ml
BSB 3339	Concentrate	0.5 ml
BSB 3340	Concentrate	1.0 ml
BSB 3341	Control Slides	5

GH, RMab



IHC of Growth Hormone on a FFPE on a Pituitary Tissue

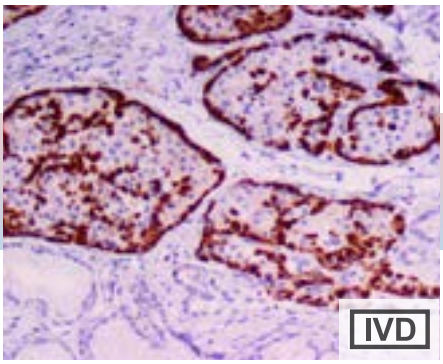
Growth hormone (also known as GH or somatotropin) is a 191 amino acid, single-chain polypeptide hormone which is synthesized, stored and secreted by the somatotroph cells within the lateral wings of the anterior pituitary gland, which stimulates growth and cell reproduction in humans and other animals.

GH is a useful marker in classification of pituitary tumors and the study of pituitary disease (acromegaly). It reacts with GH-producing cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP267*
ISOTYPE: *IgG*
CONTROL: *Normal Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2496	Tinto Predilute	3.0 ml
BSB 2497	Tinto Predilute	7.0 ml
BSB 2498	Tinto Predilute	15.0 ml
BSB 2499	Concentrate	0.1 ml
BSB 2500	Concentrate	0.5 ml
BSB 2501	Concentrate	1.0 ml
BSB 2502	Control Slides	5

Glucagon, MMab



IHC of Glucagon on a FFPE Pancreas Tissue

Glucagon is a 29-amino acid polypeptide acting as an important hormone in carbohydrate metabolism. The hormone is synthesized and secreted from alpha cells of the islets of Langerhans, which are located in the endocrine portion of the pancreas. Abnormally-elevated levels of glucagon may be caused by pancreatic tumors such as glucagonoma, symptoms of which include necrolytic migratory
erythema (NME), elevated amino acids and hyperglycemia. It may occur alone or in the context of Multiple Endocrine Neoplasia Type 1.

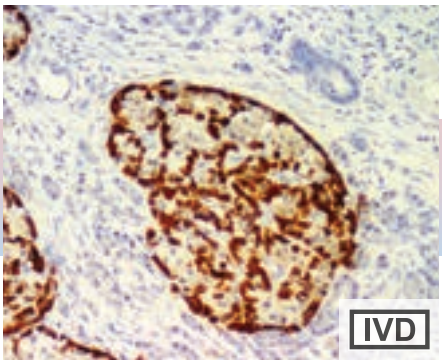
Glucagon antibody detects glucagon-secreting cells and tumors such as glucagonomas. Studies show that approximately 80% of glucagonomas are malignant and these patients have a syndrome most often initially recognized by dermatologists. Symptoms include necrolytic migratory erythema as well as diabetes, anemia, stomatitis, weight loss, frequent venous thromboses, and in some instances, diarrhea and psychiatric disturbances. The diagnosis may be readily confirmed by the demonstration of elevated plasma glucagon concentration.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-111*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3342	Tinto Predilute	3.0 ml
BSB 3343	Tinto Predilute	7.0 ml
BSB 3344	Tinto Predilute	15.0 ml
BSB 3345	Concentrate	0.1 ml
BSB 3346	Concentrate	0.5 ml
BSB 3347	Concentrate	1.0 ml
BSB 3348	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Glucagon, RMab



IHC of Glucagon on a FFPE Pancreas Tissue

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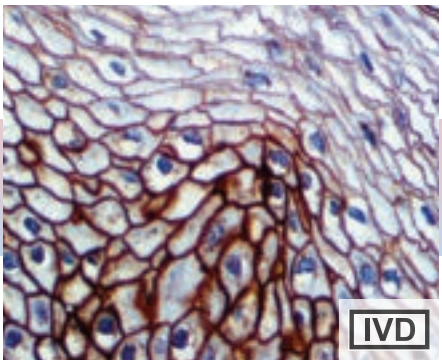
Glucagon antibody detects glucagon-secreting cells and tumors such as glucagonomas. Studies show that approximately 80% of glucagonomas are malignant and these patients have a syndrome most often initially recognized by dermatologists. Symptoms include necrolytic migratory erythema as well as diabetes, anemia, stomatitis, weight loss, frequent venous thrombosis, and in some instances, diarrhea and psychiatric disturbances. The diagnosis may be readily confirmed by the demonstration of elevated plasma glucagon concentration.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP74*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2328	Tinto Predilute	3.0 ml
BSB 2329	Tinto Predilute	7.0 ml
BSB 2330	Tinto Predilute	15.0 ml
BSB 2331	Concentrate	0.1 ml
BSB 2332	Concentrate	0.5 ml
BSB 2333	Concentrate	1.0 ml
BSB 2334	Control Slides	5

GLUT1, RMab



IHC of GLUT1 on a FFPE Cervix Tissue

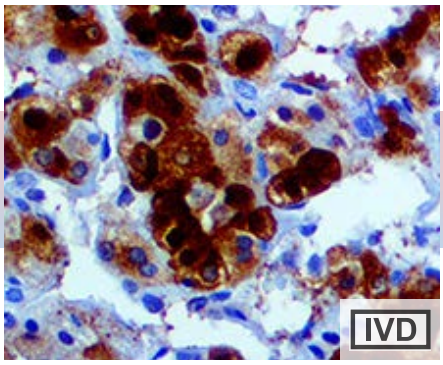
GLUT1 facilitates the transport of glucose across the plasma membranes of mammalian cells. Energy-yielding metabolism in erythrocytes depends on a constant supply of glucose from blood plasma. Glucose enters the erythrocyte by facilitated diffusion via a specific glucose transporter, at a rate about 50,000 times greater than uncatalyzed transmembrane diffusion. GLUT1 is a type III integral protein with 12 hydrophobic segments, each of which is believed to form a membrane-spanning helix. It is responsible for the low-level of basal glucose uptake required to sustain respiration in all cells. GLUT1 is also a major receptor for the uptake of Vitamin C as well as glucose.

GLUT1 is expressed at variable levels in many human tissues. Overexpression of GLUT1 has been linked to tumor progression or poor survival of patients with carcinomas of the colon, breast, cervix, lung, bladder and mesothelioma. It can be used to distinguish between malignant mesothelioma (positve) from reactive mesothelium (negative).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP141*
ISOTYPE: *IgG*
CONTROL: *Placenta, Colon, Prostate, Skin, Kidney, Brain, Tonsil, Breast, Mesothelioma, Colon Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6779	Tinto Predilute	3.0 ml
BSB 6780	Tinto Predilute	7.0 ml
BSB 6781	Tinto Predilute	15.0 ml
BSB 6782	Concentrate	0.1 ml
BSB 6783	Concentrate	0.5 ml
BSB 6784	Concentrate	1.0 ml
BSB 6785	Control Slides	5

Glutamine Synthetase, MMab



IHC of GS on a FFPE Hepatocellular Carcinoma Tissue

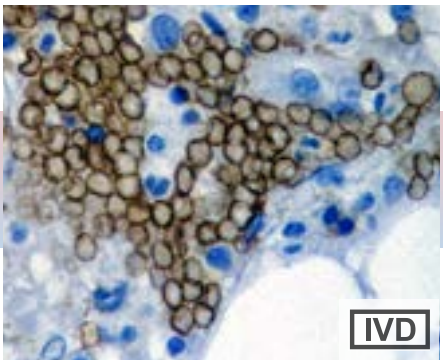
Glutamine synthetase (GS) is an enzyme that plays an essential role in the metabolism of nitrogen by catalyzing the condensation of glutamate and ammonia to form glutamine. GS is present predominantly in the brain, kidneys, and liver. GS in the brain participates in the metabolic regulation of glutamate, the detoxification of brain ammonia, the assimilation of ammonia, recyclization of neurotransmitters, and termination of neurotransmitter signals. In normal liver, GS expression is seen in pericentral hepatocytes, but not in mid-zonal or periportal hepatocytes.

GS positive tumor cells are believed to be derived from GS positive hepatocytes. GS immunoreactivity has been seen in a majority of hepatocellular carcinoma (HCC), including cases of early HCC (70%) and for low grade HCC (59%). A panel composed of antibodies against HSP70, GPC3, and GS has been proposed to be very useful in distinguishing between dysplastic and early malignant hepatocellular nodules arising in cirrhosis. Staining of hepatocellular lesions with anti-GS antibody have been useful in the differential diagnosis of focal nodular hyperplasia (FNH), hepatic adenoma (HCA), and dysplastic nodules, and low grade hepatocellular carcinoma. In the case of FNH, GS stains in a characteristic "map-like" pattern, thus differentiating it from HCA, in which GS staining is usually absent, but may occasionally be present at the border of the lesion or around the veins inside the tumor.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *GS-6*
ISOTYPE: *IgG2a*
CONTROL: *Liver, Tonsil, Testis, Prostate, Hepatocellular Carcinoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse ,Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2929	Tinto Predilute	3.0 ml
BSB 2930	Tinto Predilute	7.0 ml
BSB 2931	Tinto Predilute	15.0 ml
BSB 2932	Concentrate	0.1 ml
BSB 2933	Concentrate	0.5 ml
BSB 2934	Concentrate	1.0 ml
BSB 2935	Control Slides	5

Glycophorin A, MMab



IHC of Glycophorin A on a FFPE Bone Marrow Tissue

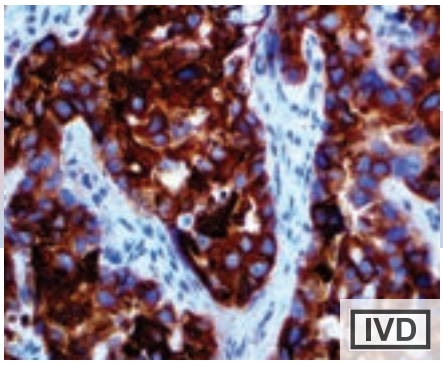
Glycophorins A (GPA) and B (GPB) are single pass membrane sialoglycoproteins. GPA is the carrier of blood group M and N specificities, while GPB accounts for S and U specificities. GPA and GPB provide the cells with a large mucin-like surface and it has been suggested this provides a barrier to cell fusion, thus minimizing aggregation between red blood cells in the circulation.

Anti-Glycophorin A has been used to characterize erythroid cell development and in the diagnosis of Erythroid Leukemias.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *GA-R2*
ISOTYPE: *IgG2b/K*
CONTROL: *TBone Marrow, Placenta, Tonsil, Liver, Prostate, Adrenal, Spleen, Colon, Pancreas, Fallopian Tube*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5582	Tinto Predilute	3.0 ml
BSB 5583	Tinto Predilute	7.0 ml
BSB 5584	Tinto Predilute	15.0 ml
BSB 5585	Concentrate	0.1 ml
BSB 5586	Concentrate	0.5 ml
BSB 5587	Concentrate	1.0 ml
BSB 5588	Control Slides	5

Glypican-3, MMab



IHC of Glypican-3 on a FFPE Ovarian Carcinoma Tissue

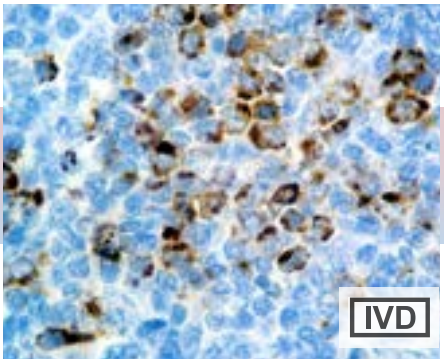
Glypican 3, also known as GPC3, is a human gene. The protein encoded by this gene is a member of the glypican family. Cell surface heparan sulfate proteoglycans are composed of a membrane-associated protein core substituted with a variable number of heparan sulfate chains. Members of the glypican-related integral membrane proteoglycan family (GRIPS) contain a core protein anchored to the cytoplasmic membrane via a glycosyl-phosphatidylinositol linkage. These proteins may play a role in the control of cell division and growth regulation.

GPC3 has been identified to be a useful tumor marker for the diagnosis of Hepatocellular Carcinoma (HCC), Hepatoblastoma, Melanoma, Testicular Germ Cell Tumors, and Wilms Tumor. In patients with HCC, GPC3 was overexpressed in neoplastic liver tissue and elevated in serum but was undetectable in normal liver, benign liver, and the serum of healthy donors. GPC3 expression was also found to be higher in HCC liver tissue than in cirrhotic liver or liver with focal lesions such as dysplastic nodules and areas of hepatic adenoma (HA) with malignant transformation. In the context of Testicular Germ Cell Tumors, GPC3 expression is up-regulated in certain histologic subtypes, specifically Yolk Sac Tumors and Choriocarcinoma. A high level of GPC3 expression has also been found in some types of embryonal tumors, such as Wilms Tumor and Hepatoblastoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *1G12*
ISOTYPE: *IgG1*
CONTROL: *Bone Marrow, Placenta, Tonsil, Liver, Prostate, Adrenal, Spleen, Colon, Pancreas, Fallopian*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 6240	Tinto Predilute	3.0 ml
BSB 6241	Tinto Predilute	7.0 ml
BSB 6242	Tinto Predilute	15.0 ml
BSB 6243	Concentrate	0.1 ml
BSB 6244	Concentrate	0.5 ml
BSB 6245	Concentrate	1.0 ml
BSB 6246	Control Slides	5

Granzyme B, RPab



IHC of Granzyme B on a FFPE Tonsil Tissue

Granzymes are exogenous serine proteases that are released by cytoplasmic granules within cytotoxic T-cells and natural killer cells. Their purpose is to induce apoptosis within virus-infected cells, thus destroying them.

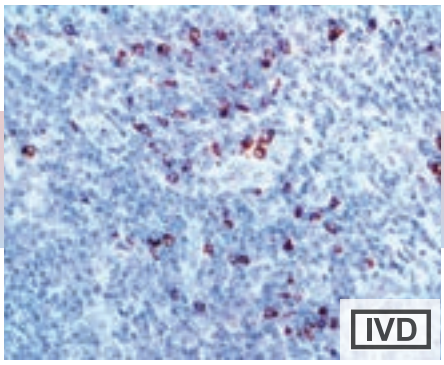
Anti-Granzyme B antibodies have been useful in diagnosing Natural Killer/T-cell Lymphoma, as well as Anaplastic Large Cell Lymphoma. High percentages of cytotoxic T-cells have been shown to be an unfavorable prognostic indicator in Hodgkin's Disease.

ANTIBODY TYPE: *Rabbit Polyclnal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Liver, Testis, Cervix, Tonsil, Lymph Node, Spleen*
LOCALIZATION: *Cytoplasmic (Granular)*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5589	Tinto Predilute	3.0 ml
BSB 5590	Tinto Predilute	7.0 ml
BSB 5591	Tinto Predilute	15.0 ml
BSB 5592	Concentrate	0.1 ml
BSB 5593	Concentrate	0.5 ml
BSB 5594	Concentrate	1.0 ml
BSB 5595	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Granzyme B, RMab



IHC of Granzyme B on a FFPE Spleen Tissue

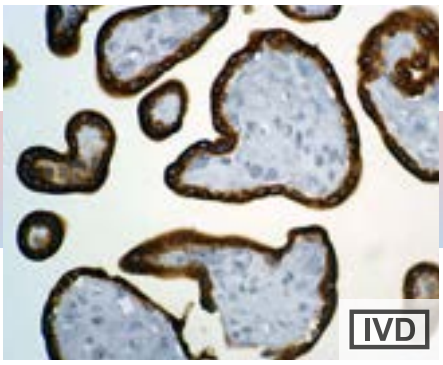
Granzymes are exogenous serine proteases that are released by cytoplasmic granules within cytotoxic T-cells and natural killer cells. Their purpose is to induce apoptosis within virus-infected cells, thus destroying them.

Anti-Granzyme B antibodies have been useful in diagnosing Natural Killer/T-cell Lymphoma, as well as Anaplastic Large Cell Lymphoma. High percentages of cytotoxic T-cells have been shown to be an unfavorable prognostic indicator in Hodgkin's Disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP230*
ISOTYPE: *IgG*
CONTROL: *Liver, Testis, Cervix, Tonsil, Lymph Node, Spleen*
LOCALIZATION: *Cytoplasmic (Granular)*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2405	Tinto Predilute	3.0 ml
BSB 2406	Tinto Predilute	7.0 ml
BSB 2407	Tinto Predilute	15.0 ml
BSB 2408	Concentrate	0.1 ml
BSB 2409	Concentrate	0.5 ml
BSB 2410	Concentrate	1.0 ml
BSB 2411	Control Slides	5

hCG, MMab



IHC of hCG on a FFPE Placenta Tissue

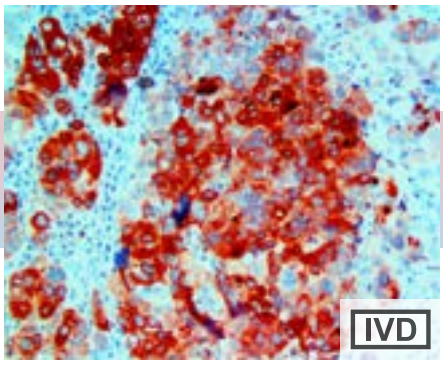
Human chorionic gonadotropin (hCG) is a peptide hormone produced in pregnancy, made by the embryo soon after conception and later by the syncytiotrophoblast. Its role is to prevent the disintegration of the corpus luteum of the ovary and thereby maintain progesterone production that is critical for a pregnancy in humans. hCG may have additional functions; for instance, it is thought to affect the immune tolerance of the pregnancy. Early pregnancy testing generally is based on the detection or measurement of hCG.

hCG antibody detects cells and tumors of trophoblastic origin such as Choriocarcinomas. Large Cell Carcinoma and Adenocarcinoma of the Lung demonstrate hCG positivity in 90% and 60% of cases respectively. 20% of Squamous Cell Lung Carcinomas are positive for hCG. hCG expression by non-trophoblastic tumors may indicate aggressive behavior since it has been observed that hCG may play a role in the host response to a given tumor.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-38*
ISOTYPE: *IgG1/K*
CONTROL: *Normal Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5596	Tinto Predilute	3.0 ml
BSB 5597	Tinto Predilute	7.0 ml
BSB 5598	Tinto Predilute	15.0 ml
BSB 5599	Concentrate	0.1 ml
BSB 5600	Concentrate	0.5 ml
BSB 5601	Concentrate	1.0 ml
BSB 5602	Control Slides	5

HE4, RMab



IHC of HE4 on a FFPE Ovarian Cancer Tissue

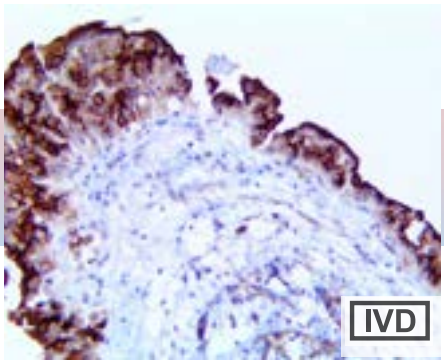
Human epididymis protein 4 (HE4), is a protein that in humans is encoded by the WFDC2 gene. This gene encodes a protein that is a member of the WFDC domain family. The WFDC domain, or WAP Signature motif, functions as a protease inhibitor in many family members. The encoded protein is a small secretory protein, which may be involved in sperm maturation. HE4 gene expression has been found the highest in normal human trachea and salivary gland, and to a lesser extent, lung, prostate, pituitary gland, thyroid, and kidney. HE4 immunoreactivity has also been found in normal glandular epithelium of the female genital tract and breast, the epididymis and vas deferens, respiratory epithelium, distal renal tubules, colonic mucosa, and salivary glands which is consistent with the HE4 gene expression.

HE4 is a recognized biomarker in ovarian and endometrial cancer and over-expressed in pancreatic adenocarcinoma. In a series of 175 human adult tumors, gene expression was found to be the highest in ovarian serous carcinomas. However, adenocarcinomas of the lung, and occasional breast, transitional cell and pancreatic carcinomas had moderate or high levels of HE4 expression. IHC studies have shown that HE4 is significantly higher expressed in human pancreatic carcinoma tissues than in both normal and adjacent non-tumoral pancreatic tissues, and the staining intensity is inversely correlated with the clinical stage. HE4 is also highly expressed in early stage pancreatic adenocarcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP370*
ISOTYPE: *IgG*
CONTROL: *Thyroid, Salivary Gland, Breast, Ovarian Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3349	Tinto Predilute	3.0 ml
BSB 3350	Tinto Predilute	7.0 ml
BSB 3351	Tinto Predilute	15.0 ml
BSB 3352	Concentrate	0.1 ml
BSB 3353	Concentrate	0.5 ml
BSB 3354	Concentrate	1.0 ml
BSB 3355	Control Slides	5

HEG1,MMab



IHC of HEG1 on a FFPE Methotelioma Tissue

Sialylated protein HEG homolog 1 or Heart development protein with EGF like domains 1 (HEG1) is a novel calcium binding receptor protein involved in the Cerebral Cavernous Malformations (CCM) pathway and plays a regulatory role in heart and vessel formation by stabilizing endothelial cell junctions. HEG1 is a heavily glycosylated protein that participates in endothelial cell associations that develop the vascular system, and therefore plays a role in angiogenesis and the microenvironment of cellular adhesion.

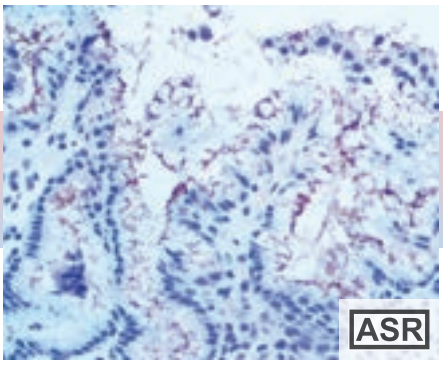
The exact role of HEG1 in hepatocellular carcinoma is unclear, however, studies have shown HEG1 indicates poor prognosis and plays important roles in hepatocellular carcinoma invasion, metastasis, and epithelial mesenchymal transition by activating Wnt/β-catenin signaling. HEG1 is potentially a useful prognostic biomarker and therapeutic target for malignant mesothelioma and hepatocellular, thyroid, and ovarian carcinomas.

HEG1 has been found to be a highly specific and sensitive marker of epithelioid Malignant Mesothelioma and offers sensitivity comparable to conventional markers for Epithelioid Mesotheliomas, but provides considerably better specificity, such that the diagnosis of epithelioid mesothelioma versus NSCLC and potentially could be confirmed with a combination of HEG1 and a suitable broad spectrum carcinoma marker such as Claudin-4.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *SKM9-2*
ISOTYPE: *IgG*
CONTROL: *Breast, Fallopian Tube, Colon Prostate, Testis, Transitional Cell Carcinoma, Papillary Thyroid Caricnoma, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3728-3	Tinto Predilute	3.0 ml
BSB-3728-7	Tinto Predilute	7.0 ml
BSB-3728-15	Tinto Predilute	15.0 ml
BSB-3728-01	Concentrate	0.1 ml
BSB-3728-05	Concentrate	0.5 ml
BSB-3728-1	Concentrate	1.0 ml
BSB-3728-CS	Control Slides	5

Helicobacter pylori, RPab



IHC of Helicobacter pylori on a FFPE Infected Stomach Tissue

Helicobacter pylori is a Gram-negative, microaerophilic bacterium found in the stomach, and may be present in other parts of the body, such as the eye. H. pylori is a helix-shaped Gram-negative bacterium about 3 µm long with a diameter of about 0.5 µm. It is microaerophilic; that is, it requires oxygen, but at lower concentration than is found in the atmosphere.

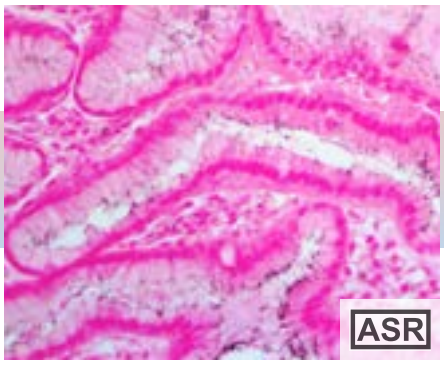
H. pylori could be present in patients with chronic gastritis and gastric ulcers and is also linked to the development of duodenal ulcers and stomach cancer. However, over 80% of individuals infected with the bacterium are asymptomatic and it may play an important role in the natural stomach ecology. The strain of H. pylori to which a person is exposed may influence the risk of developing gastric cancer. Strains of H. pylori that produce high levels of two proteins, vacuolating toxin A (VacA) and the cytotoxin-associated gene A (CagA), appear to cause greater tissue damage than those that produce lower levels or that lack those genes completely.These proteins are directly toxic to cells lining the stomach and signal strongly to the immune system that an invasion is underway.

This antibody reacts with Heliobacter pylori on the surface of epithelial cells of infected specimens.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *H.Pylori Infected Stomach Mucosa*
LOCALIZATION: *Cell Wall*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5603	Tinto Predilute	3.0 ml
BSB 5604	Tinto Predilute	7.0 ml
BSB 5605	Tinto Predilute	15.0 ml
BSB 5606	Concentrate	0.1 ml
BSB 5607	Concentrate	0.5 ml
BSB 5608	Concentrate	1.0 ml
BSB 5609	Control Slides	5

Helicobacter pylori, MMab



IHC of Helicobacter pylori on Infected Stomach Tissue

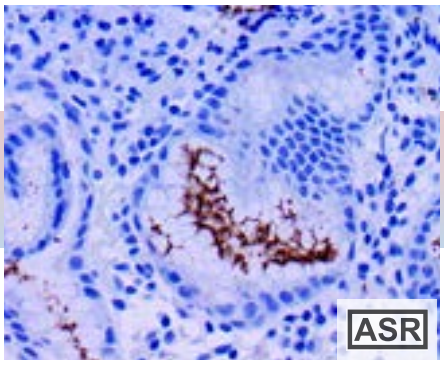
Helicobacter pylori is a helix-shaped Gram-negative bacterium about 3 µm long with a diameter of about 0.5 µm. It is microaerophilic; that is, it requires oxygen, but at lower concentration than is found in the atmosphere. It contains a hydrogenase which can be used to obtain energy by oxidizing molecular hydrogen (H2) produced by intestinal bacteria. It producesoxidase, catalase, and urease. H. pylori has four to six lophotrichous flagella; all gastric and enterohepatic Helicobacter species are highly motile owing to flagella. H. pylori's helical shape (from which the genus name is derived) is thought to have evolved to penetrate the mucoid lining of the stomach. Strains of H. pylori that produce high levels of two proteins, vacuolating toxin A (VacA) and the cytotoxin-associated gene A (CagA), appear to cause greater tissue damage than those that produce lower levels or that lack those genes completely.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-37*
ISOTYPE: *IgG1/K*
CONTROL: *H.Pylori Infected Stomach Mucosa*
LOCALIZATION: *Cell Wall*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2677	Tinto Predilute	3.0 ml
BSB 2678	Tinto Predilute	7.0 ml
BSB 2679	Tinto Predilute	15.0 ml
BSB 2680	Concentrate	0.1 ml
BSB 2681	Concentrate	0.5 ml
BSB 2682	Concentrate	1.0 ml
BSB 2683	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Helicobacter pylori, RMab



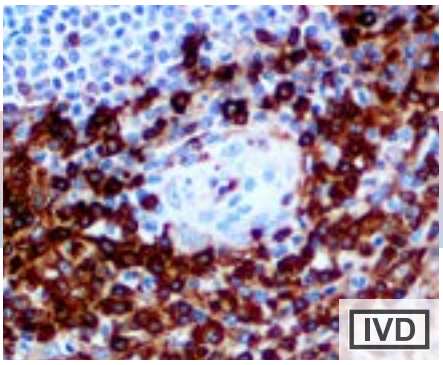
IHC of Helicobacter pylori on Infected Stomach Tissue

Helicobacter pylori is a helix-shaped Gram-negative bacterium about 3 µm long with a diameter of about 0.5 µm. It is microaerophilic; that is, it requires oxygen, but at lower concentration than is found in the atmosphere. It contains a hydrogenase which can be used to obtain energy by oxidizing molecular hydrogen (H2) produced by intestinal bacteria. It produces oxidase, catalase, and urease. H. pylori has four to six lophotrichous flagella; all gastric and enterohepatic Helicobacter species are highly motile owing to flagella. H. pylori's helical shape (from which the genus name is derived) is thought to have evolved to penetrate the mucoid lining of the stomach. Strains of H. pylori that produce high levels of two proteins, vacuolating toxin A (VacA) and the cytotoxin-associated gene A (CagA), appear to cause greater tissue damage than those that produce lower levels or that lack those genes completely.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP279*
ISOTYPE: *IgG*
CONTROL: *H.Pylori Infected Stomach Mucosa*
LOCALIZATION: *Cell Wall*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3279	Tinto Predilute	3.0 ml
BSB 3280	Tinto Predilute	7.0 ml
BSB 3281	Tinto Predilute	15.0 ml
BSB 3282	Concentrate	0.1 ml
BSB 3283	Concentrate	0.5 ml
BSB 3284	Concentrate	1.0 ml
BSB 3285	Control Slides	5

Hemoglobin A, RMab



IHC of Hemoglobin A on a FFPE Spleen Tissue

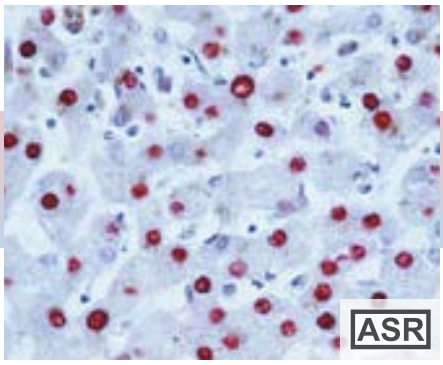
Hemoglobin alpha chain belongs to the globin family and is involved in oxygen transport from the lung to various peripheral tissues. It is a heterotetramer of two alpha chains and two beta chains in adult hemoglobin A (HbA); two alpha chains and two delta chains in adult hemoglobin A2 (HbA2). Hemoglobin alpha chain is expressed in red blood cells, and defects in HBA1/HBA2 can lead to alpha thalassemia, the most common of monogenic diseases.

Hemoglobin alpha chain is a useful marker for erythroid cells. An antibody to Hemoglobin alpha has been used for the identification of erythroid cells in myeloproliferative disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP124*
ISOTYPE: *IgG*
CONTROL: *Bone Marrow, Placenta, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6786	Tinto Predilute	3.0 ml
BSB 6787	Tinto Predilute	7.0 ml
BSB 6788	Tinto Predilute	15.0 ml
BSB 6789	Concentrate	0.1 ml
BSB 6790	Concentrate	0.5 ml
BSB 6791	Concentrate	1.0 ml
BSB 6792	Control Slides	5

Hepatitis B Virus Core Antigen, RPab



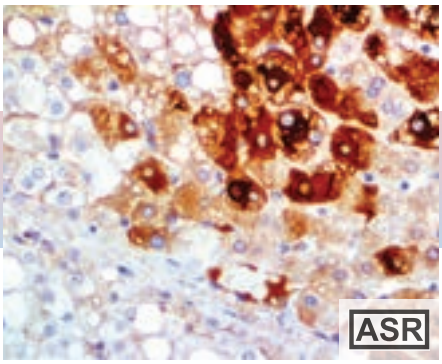
IHC of HBcAg on a FFPE Infected Liver Tissue

Hepatitis B virus is spherical in shape with a diameter of 42 nm. It contains a 27 nm partially double-stranded DNA core enclosed within a lipoprotein coat. The antigenic activity of the nucleocapsid core is designated as Hepatitis B core antigen.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Hepatitis B Infected Liver*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5610	Tinto Predilute	3.0 ml
BSB 5611	Tinto Predilute	7.0 ml
BSB 5612	Tinto Predilute	15.0 ml
BSB 5613	Concentrate	0.1 ml
BSB 5614	Concentrate	0.5 ml
BSB 5615	Concentrate	1.0 ml
BSB 5616	Control Slides	5

Hepatitis B Virus Surface Antigen, MMab



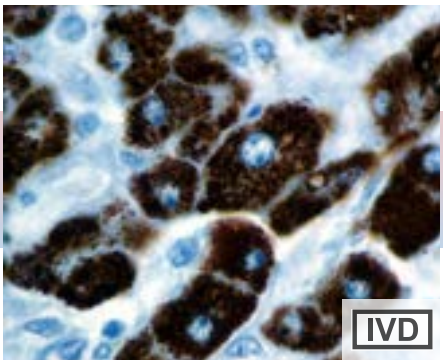
IIHC of HBsAg on a FFPE Infected Liver Tissue

Hepatitis B virus is spherical in shape with a diameter of 42 nm. It contains a 27 nm partially double-stranded DNA core enclosed within a lipoprotein coat.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *A10F1*
ISOTYPE: *IgG2b/K*
CONTROL: *Hepatitis B Infected Liver*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5617	Tinto Predilute	3.0 ml
BSB 5618	Tinto Predilute	7.0 ml
BSB 5619	Tinto Predilute	15.0 ml
BSB 5620	Concentrate	0.1 ml
BSB 5621	Concentrate	0.5 ml
BSB 5622	Concentrate	1.0 ml
BSB 5623	Control Slides	5

Hepatocyte Specific Antigen/ Hep-Par1, MMab



IHC of Hepatocyte Specific Antigen on a FFPE Liver Tissue

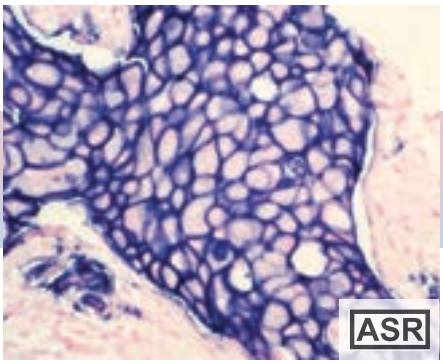
Hepatocyte Specific Antigen (HSA or Hep Par 1) has been demonstrated consistently in the vast majority of Hepatocellular Carcinomas. Studies have shown the utility of HSA in the differential diagnosis of Hepatocellular Carcinoma, Cholangiocarcinoma and Hepatoblastomas.

HSA recognizes both benign and malignant liver derived tissues including such tumors as Hepatoblastoma, Hepatocellular Carcinoma, and Hepatic Adenoma. It recognizes both normal adult and fetal liver tissue. The typical pattern is a granular cytoplasmic staining. This antibody is useful in differentiating Hepatocellular Carcinomas with adenoid features from Adenocarcinomas, either primary in the liver or metastatic lesions to the liver. In recognizing Hepatoblastoma, it is useful in differentiating this entity from other small round cell tumors.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE:*OCH1E5*
ISOTYPE: *IgG1/K*
CONTROL: *Liver, Liver Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5624	Tinto Predilute	3.0 ml
BSB 5625	Tinto Predilute	7.0 ml
BSB 5626	Tinto Predilute	15.0 ml
BSB 5627	Concentrate	0.1 ml
BSB 5628	Concentrate	0.5 ml
BSB 5629	Concentrate	1.0 ml
BSB 5630	Control Slides	5

HER-2 neu, MMab



IHC of HER-2 neu on a FFPE Breast Carcinoma Tissue

HER-2 neu (also known as c-erbB-2) is a member of the epidermal growth factor receptor (EGFR) family. It is a cell membrane surface-bound tyrosine kinase and is normally involved in the signal transduction pathways leading to cell growth and differentiation.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-3*
ISOTYPE: *IgG1*
CONTROL: *Breast Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5631	Tinto Predilute	3.0 ml
BSB 5632	Tinto Predilute	7.0 ml
BSB 5633	Tinto Predilute	15.0 ml
BSB 5634	Concentrate	0.1 ml
BSB 5635	Concentrate	0.5 ml
BSB 5636	Concentrate	1.0 ml
BSB 5637	Control Slides	5

Bio SB
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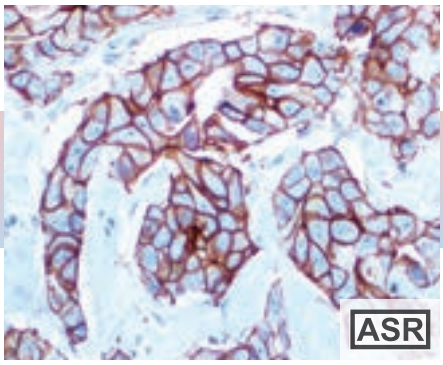
HER-2 neu, RMab



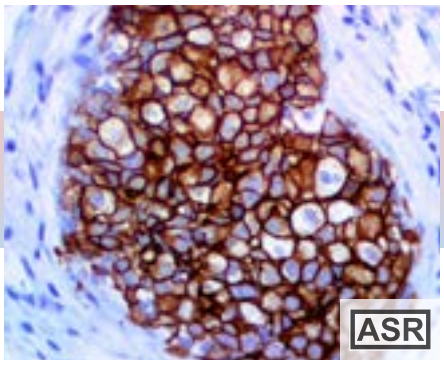
IHC of HER-2 neu on a FFPE Breast Carcinoma Tissue

HER-2 neu (also known as c-erbB-2) is a member of the epidermal growth factor receptor (EGFR) family and is notable for its role in the pathogenesis of breast cancer and as a target of treatment. It is a cell membrane surface-bound tyrosine kinase and is normally involved in the signal transduction pathways leading to cell growth and differentiation. HER-2 neu is a proto-oncogene located at the long arm of human chromosome 17(17q11.2-q12).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-HER2*
ISOTYPE: *IgG*
CONTROL: *Breast Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2035	Tinto Predilute	3.0 ml
BSB 2036	Tinto Predilute	7.0 ml
BSB 2037	Tinto Predilute	15.0 ml
BSB 2038	Concentrate	0.1 ml
BSB 2039	Concentrate	0.5 ml
BSB 2040	Concentrate	1.0 ml
BSB 2041	Control Slides	5

HER2, RMab



IHC of HER-2 on a FFPE Breast Carcinoma Tissue

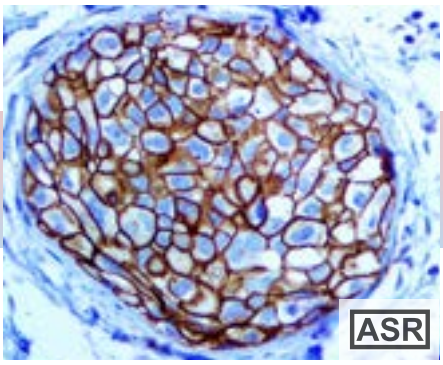
HER2 /ErbB2 is one of four members of the ErbB receptor family of transmembrane receptor-like tyrosine kinases .The kinase activity of ErbB2 can be activated without a ligand if it is overexpressed, and by association with other ErbB proteins.

HER2 is overexpressed in 25–30% of all breast cancers, including primary as well as metastatic breast tumors. HER2 has been widely investigated as a prognostic indicator.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP3*
ISOTYPE: *IgG*
CONTROL: *Breast Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2510	Tinto Predilute	3.0 ml
BSB 2511	Tinto Predilute	7.0 ml
BSB 2512	Tinto Predilute	15.0 ml
BSB 2513	Concentrate	0.1 ml
BSB 2514	Concentrate	0.5 ml
BSB 2515	Concentrate	1.0 ml
BSB 2516	Control Slides	5

HER2 neu Phospho, RMab



IHC of HER-2 neu Phospho on a FFPE Breast Carcinoma Tissue

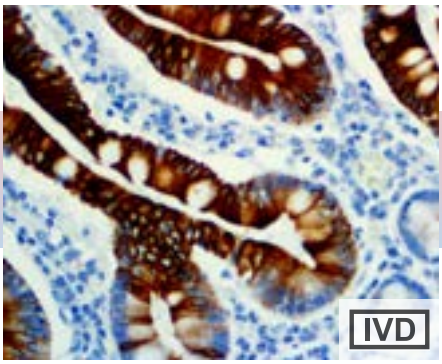
HER2 / ErbB2 is one of four members of the ErbB receptor family of transmembrane receptor-like tyrosine kinases .The kinase activity of ErbB2 can be activated without a ligand if it is overexpressed, and by association with other ErbB proteins. Autophosphorylation did not modulate receptor turnover. A Tyr--Phe substitution of ErbB2 Tyr-877 homologous to pp60c-src Tyr-416 did not alter ErbB2 biological and biochemical properties, thus excluding the possibility that phosphorylation of this residue, located in the kinase domain, modulates ErbB2 gp185 catalytic function.

HER2 is overexpressed in 25–30% of all breast cancers, including primary as well as metastatic breast tumors. HER2 has been widely investigated as a prognostic indicator. Detection of phosphorylated HER2 may aid in predicting breast cancer progression.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP123*
ISOTYPE: *IgG*
CONTROL: *Breast Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2503	Tinto Predilute	3.0 ml
BSB 2504	Tinto Predilute	7.0 ml
BSB 2505	Tinto Predilute	15.0 ml
BSB 2506	Concentrate	0.1 ml
BSB 2507	Concentrate	0.5 ml
BSB 2508	Concentrate	1.0 ml
BSB 2509	Control Slides	5

HER-3/c-erbB-3, RMab



IHC of HER-3 on a FFPE Colon Tissue

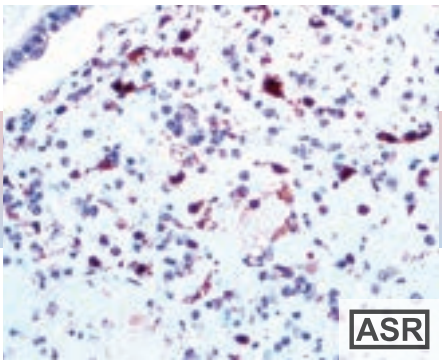
Receptor tyrosine-protein kinase erbB-3, also known as HER-3 (Human Epidermal Growth Factor Receptor 3), is a membrane bound protein that in humans is encoded by the ERBB3 gene. HER-3 has been shown to bind the ligands heregulin and NRG-2. Ligand binding causes a change in conformation that allows for dimerization, phosphorylation, and activation of signal transduction. HER-3 can heterodimerize with any of the other three ErbB family members.

During human development, HER-3 is expressed in skin, bone, muscle, nervous system, heart, lungs, and intestinal epithelium and is expressed in normal adult human gastrointestinal tract, reproductive system, skin, nervous system, urinary tract, and endocrine system. HER-3 is overexpressed in a variety of tumors including breast, stomach, pancreas, and colon. While no evidence has been found that HER-3 overexpression, constitutive activation, or mutation alone is oncogenic, the protein as a heterodimerization partner, most critically with HER-2, is implicated in growth, proliferation, resistance, and the promotion of invasion and metastasis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-HER3*
ISOTYPE: *IgG*
CONTROL: *Colon, Cervix, Bladder TCC*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2629	Tinto Predilute	3.0 ml
BSB 2630	Tinto Predilute	7.0 ml
BSB 2631	Tinto Predilute	15.0 ml
BSB 2632	Concentrate	0.1 ml
BSB 2633	Concentrate	0.5 ml
BSB 2634	Concentrate	1.0 ml
BSB 2635	Control Slides	5

Herpes Simplex Virus I, RPab



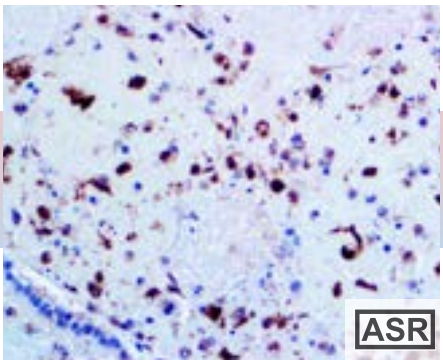
IHC of HSV I on a FFPE Infected Tissue

Herpes Simplex Virus I usually infects the non-genital mucosal surfaces, and may also affect skin or internal organs such as brain, lung, liver, adrenal gland, or GI tract of immunocompromised individuals.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *HSV I Infected Tissues*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2426	Tinto Predilute	3.0 ml
BSB 2427	Tinto Predilute	7.0 ml
BSB 2428	Tinto Predilute	15.0 ml
BSB 2429	Concentrate	0.1 ml
BSB 2430	Concentrate	0.5 ml
BSB 2431	Concentrate	1.0 ml
BSB 2432	Control Slides	5

Herpes Simplex Virus I, MMab



IHC of HSV I on a FFPE Infected Tissue

Herpes simplex virus I (HSV-I) is a strain of the Herpes virus family, Herpesviridae, which cause infections in humans. The double stranded DNA genome is contained within an icosahedral capsid embedded in a proteinaceous layer (tegument) and surrounded by a lipid envelope, derived from the nuclear membrane of the last host, which is decorated with virus-specific glycoproteins spikes.

HSV I causes a contagious disease, also known as cold sore, night fever, or fever blister. After an initial, or primary, infection, HSV establishes latency, during which the virus is present in the cell bodies of nerves which innervate the area of original outbreak. Herpes symptoms may periodically recur in the form of outbreaks of herpetic sores near the site of original infection. HSV I usually infects the non-genital mucosal surfaces, and Type II typically involves the genitalia. Either type may affect the skin or internal organs (typically brain, lung, liver, adrenal gland, or GI tract) of immunocompromised individuals.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *10A3*
ISOTYPE: *IgG1*
CONTROL: *HSV I Infected Tissues*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2684	Tinto Predilute	3.0 ml
BSB 2685	Tinto Predilute	7.0 ml
BSB 2686	Tinto Predilute	15.0 ml
BSB 2687	Concentrate	0.1 ml
BSB 2688	Concentrate	0.5 ml
BSB 2689	Concentrate	1.0 ml
BSB 2690	Control Slides	5

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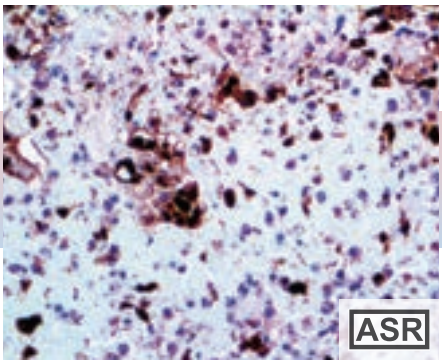
Herpes Simplex Virus II, RPab



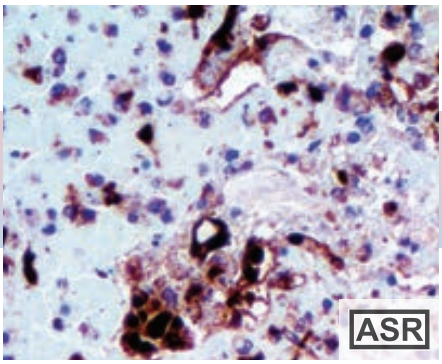
IHC of HSV II on a FFPE Infected Tissue

Herpes Simplex Virus II typically involves the genitalia, and may also affect skin or internal organs such as brain, lung, liver, adrenal gland, or GI tract of immunocompromised individuals.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *HSV II Infected Tissues*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2335	Tinto Predilute	3.0 ml
BSB 2336	Tinto Predilute	7.0 ml
BSB 2337	Tinto Predilute	15.0 ml
BSB 2338	Concentrate	0.1 ml
BSB 2339	Concentrate	0.5 ml
BSB 2340	Concentrate	1.0 ml
BSB 2341	Control Slides	5

Herpes Simplex Virus II, MMab



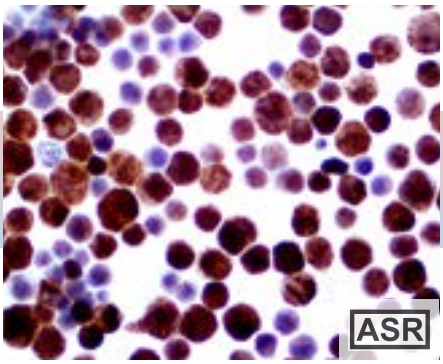
IHC of HSV II on a FFPE Infected Tissue

Herpes Simplex Virus II typically involves the genitalia, and may also affect skin or internal organs such as brain, lung, liver, adrenal gland, or GI tract of immunocompromised individuals

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-116*
ISOTYPE: *IgG2A*
CONTROL: *HSV II Infected Tissue*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3462	Tinto Predilute	3.0 ml
BSB 3463	Tinto Predilute	7.0 ml
BSB 3464	Tinto Predilute	15.0 ml
BSB 3465	Concentrate	0.1 ml
BSB 3466	Concentrate	0.5 ml
BSB 3467	Concentrate	1.0 ml
BSB 3468	Control Slides	5

Herpes Simplex Virus I & II, RPab



IHC of HSV I & II on a FFPE Infected Cell Line

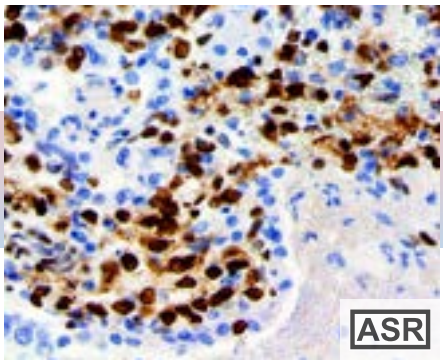
The antibody used reacts with antigens common to HSV types 1 and 2. The antibody reacts with all the major glycoproteins present in the viral envelope and at least one core protein as determined by crossed immunoelectrophoresis.

Contaminating antibodies to human and bovine serum have been removed by solid-phase absorption. The antibody shows no reaction with human and bovine plasma when tested by ELISA. The antibody shows no cross-reactivity to cytomegalovirus and Epstein-Barr virus.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *HSV I & II Infected Tissues*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5638	Tinto Predilute	3.0 ml
BSB 5639	Tinto Predilute	7.0 ml
BSB 5640	Tinto Predilute	15.0 ml
BSB 5641	Concentrate	0.1 ml
BSB 5642	Concentrate	0.5 ml
BSB 5643	Concentrate	1.0 ml
BSB 5644	Control Slides	5

Herpes Simplex Virus I & II, MMab



IHC of HSV I & II on a FFPE Infected Tissue

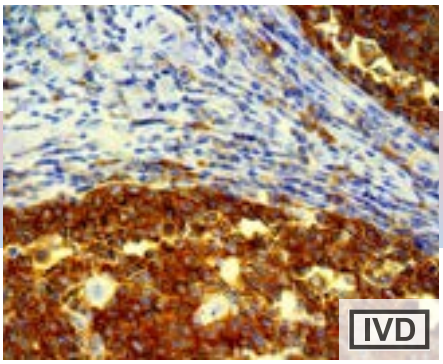
The antibody reacts with antigens common to HSV types 1 and 2. The antibody reacts with all major glycoproteins present in the viral envelope and at least one core protein as determined by crossed immunoelectrophoresis.

Contaminating antibodies to human and bovine serum have been removed by solid-phase absorption. The antibody shows no reaction with human and bovine plasma when tested by ELISA. The antibody shows no cross-reactivity to cytomegalovirus and Epstein-Barr virus.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *10A3/BSB-116*
ISOTYPE: *IgG2a*
CONTROL: *HSV I & II Infected Tissue*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3469	Tinto Predilute	3.0 ml
BSB 3470	Tinto Predilute	7.0 ml
BSB 3471	Tinto Predilute	15.0 ml
BSB 3572	Concentrate	0.1 ml
BSB 3573	Concentrate	0.5 ml
BSB 3574	Concentrate	1.0 ml
BSB 3575	Control Slides	5

hGAL/GCET2, RMab



IHC of HGAL on a FFPE Tonsil Tissue

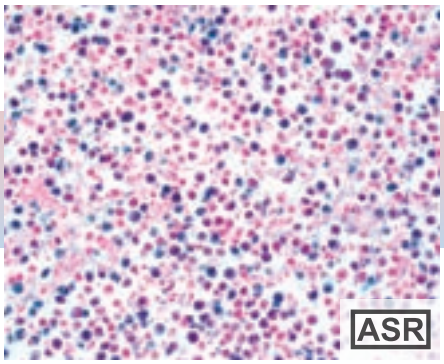
GAL, also known as Germinal Center-associated Lymphoma Protein or GCET, is an important prognostic marker for staging Lymphomas derived from germinal centers. Analysis of the GCET2 protein sequence indicated that it may be involved in signal transduction in the cytoplasm. TTwo newly characterized germinal center B-cell-associated genes, GCET1 and GCET2, have differential expression in normal and neoplastic B cells. Expression of the HGAL gene is specifically induced in B cells by interleukin-4 (IL-4).

The HGAL protein has been shown to be expressed in the cytoplasm of germinal center B lymphocytes and in B cell lymphomas of germinal center derivation. HGAL is absent in Mantle and Marginal zone B-cells and in the Interfollicular and Paracortical regions in normal Tonsils and Lymph Nodes. HGAL is an ideal marker for the detection of Germinal Center-derived B-cell Lymphomas and has the highest overall sensitivity of detecting Follicular Lymphoma. HGAL has been identified in gene-expression profiling studies of Diffuse Large B-Cell Lymphoma (DLBCL). Among 727 Lymphomas tested by immunohistochemistry on tissue microarrays, HGAL staining was found in Follicular Lymphomas (103 of 107), Burkitt Lymphomas (40 of 40), Mediastinal Large B Lymphomas (7 of 8), and in DLBCLs (103 of 151). Expression of HGAL protein identifies a subset of classic Hodgkin Lymphoma of Germinal Center derivation with improved survival.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP316*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Thymus, Fallopian Tube, Germinal Center B-cell Type Diffuse Large B-cell Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2936	Tinto Predilute	3.0 ml
BSB 2937	Tinto Predilute	7.0 ml
BSB 2938	Tinto Predilute	15.0 ml
BSB 2939	Concentrate	0.1 ml
BSB 2940	Concentrate	0.5 ml
BSB 2941	Concentrate	1.0 ml
BSB 2942	Control Slides	5

HHV-8, MMab



IHC of HHV-8 on a FFPE Pleura Tissue

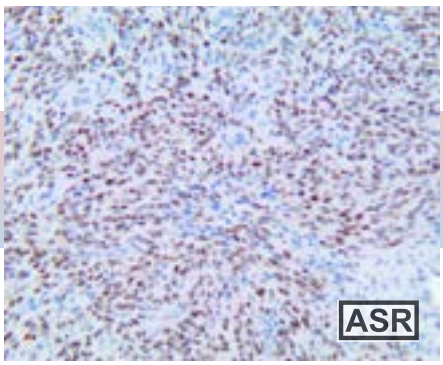
Kaposi's Sarcoma-associated herpes virus is the eighth human herpes virus; its formal name according to the International Committee on Taxonomy of Viruses is HHV-8. Anti-HHV-8 labels the latent nuclear antigen protein via immunohistochemistry.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *13B10*
ISOTYPE: *IgG1*
CONTROL: *Kaposi's Sarcoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5645	Tinto Predilute	3.0 ml
BSB 5646	Tinto Predilute	7.0 ml
BSB 5647	Tinto Predilute	15.0 ml
BSB 5648	Concentrate	0.1 ml
BSB 5649	Concentrate	0.5 ml
BSB 5650	Concentrate	1.0 ml
BSB 5651	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

HHV-8, RMab



IHC of HHV-8 on a FFPE Kaposi's Sarcoma Tissue

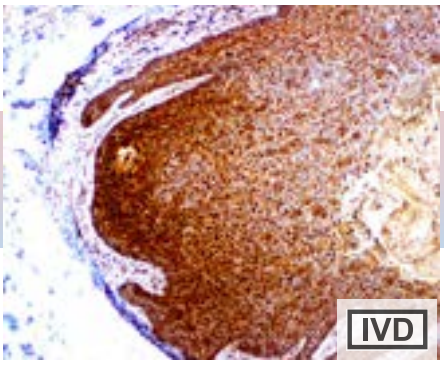
Kaposi's sarcoma-associated herpesvirus is the eighth human herpes virus; its formal name according to the International Committee on Taxonomy of Viruses is HHV-8. It causes development of cutaneous lesions such as macules, plaques, and nodules, and may invade tissues such as lymph nodes.

It is associated with Kaposi's sarcoma (KS), primary effusion lymphoma, and multicentric Castleman's disease. HHV-8 detects the latent nuclear antigen (LNA) protein in all stages and pathological presentations of KS, which can differentiate KS from HIV-induced tumors or other neoplasia of similar morphology. Immunohistochemical detection of HHV-8 LNA is particularly useful in early detection, where inflammation but not significant tumor formation has occurred.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-HHV8*
ISOTYPE: *IgG*
CONTROL: *Kaposi's Sarcoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3778-3	Tinto Predilute	3.0 ml
BSB-3778-7	Tinto Predilute	7.0 ml
BSB-3778-15	Tinto Predilute	15.0 ml
BSB-3778-01	Concentrate	0.1 ml
BSB-3778-05	Concentrate	0.5 ml
BSB-3778-1	Concentrate	1.0 ml
BSB-3778-CS	Control Slides	5

HIF-1alpha, RMab



IHC of HIF-1 alpha on a FFPE Anal Carcinoma Tissue

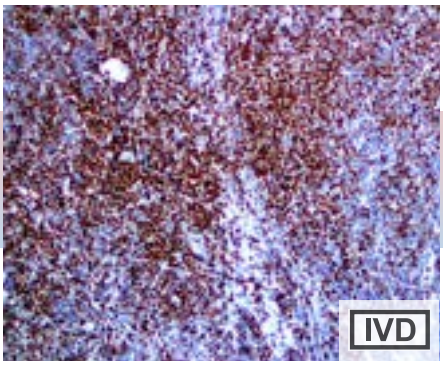
Hypoxia-inducible factor 1-alpha, also known as HIF-1-alpha, is a protein that in humans is encoded by the HIF1A gene. Two alternative transcripts encoding different isoforms have been identified, the alpha and beta subunits. HIF-1 plays an essential role in cellular and systemic responses to hypoxia.

HIF-1 is a critical mediator of the hypoxic response that upregulates expression of proteins that promote angiogenesis, anaerobic metabolism, and many other survival pathways. HIF-1alpha is expressed in many types of tumors. The expression of HIF-1alpha is correlated with tumor angiogenesis, cancer progression and clinical outcome in various solid tumors including breast cancer, type 1 endometrial carcinoma, sarcoma, head and neck tumor and brain tumor. Importantly, hypoxia has been clinically demonstrated to predict an adverse treatment outcome in the radiotherapeutic management of cancer of the head and neck, uterine cervix and soft tissue sarcomas. HIF-1 alpha may be of value in analyzing the cancer cell response to therapy.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP118*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Cervix, Liver, Testis, Kidney, Breast, Thymus, Spleen, Colon, Cervical Cancer*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2517	Tinto Predilute	3.0 ml
BSB 2518	Tinto Predilute	7.0 ml
BSB 2519	Tinto Predilute	15.0 ml
BSB 2520	Concentrate	0.1 ml
BSB 2521	Concentrate	0.5 ml
BSB 2522	Concentrate	1.0 ml
BSB 2523	Control Slides	5

Histone H3 Phospho, RMab



IHC of Histone H3 Phospho on a FFPE NH Lymphoma Tissue

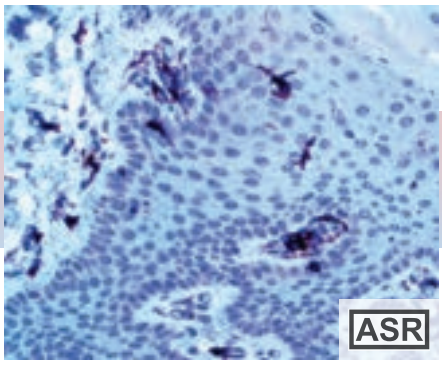
Phosphohistone-H3 is one of the five main histone proteins involved in the structure of chromatin in eukaryotic cells. Featuring a main globular domain and a long N-terminal tail, H3 is involved with the structure of the nucelosomes of the "beads on a string" structure. In mammalian cells, phosphohistone H3 is negligible during interphase but reaches a maximum for chromatin condensation during mitosis.

Phosphohistone-H3 can serve as a mitotic marker to separate mitotic figures from apoptotic bodies and karyorrhectic debris, which may be a very useful tool in diagnosis of tumor grades, especially in CNS, skin, Gyn., soft tissue, and GIST.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP233*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2524	Tinto Predilute	3.0 ml
BSB 2525	Tinto Predilute	7.0 ml
BSB 2526	Tinto Predilute	15.0 ml
BSB 2527	Concentrate	0.1 ml
BSB 2528	Concentrate	0.5 ml
BSB 2529	Concentrate	1.0 ml
BSB 2530	Control Slides	5

HLA-DR alpha chain, RMab



IHC of HLA-DR alpha-chain on a FFPE Skin Tissue

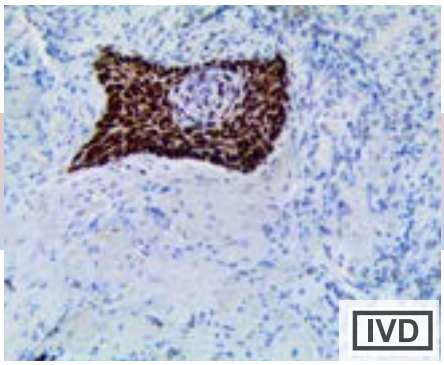
HLA class II histocompatibility antigen, DR alpha chain (HLA-DR alpha chain) is a polymorphic cell surface glycoprotein that is crucial for the cellular interaction in the immune system. Class II molecules have limited tissue distribution and are predominantly expressed on B lymphocytes and macrophage; these class II molecules present peptides derived from extracellular porteins to T cells.

HLA-DR alpha chain antibody labels B cells, dendritic cells, monocytes and macrophages. It is also reported to react with tumor cells in many types of cancers including breast, liver, lung and ovary cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP96*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Liver, Kidney, Adrenal, Colon, Lymph Node, Thymus, Lymphobalstic Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6793	Tinto Predilute	3.0 ml
BSB 6794	Tinto Predilute	7.0 ml
BSB 6795	Tinto Predilute	15.0 ml
BSB 6796	Concentrate	0.1 ml
BSB 6797	Concentrate	0.5 ml
BSB 6798	Concentrate	1.0 ml
BSB 6799	Control Slides	5

HMGA2, RMab



IHC of HMG2 on a FFPE Lung Squamous Cell Carcinoma Tissue

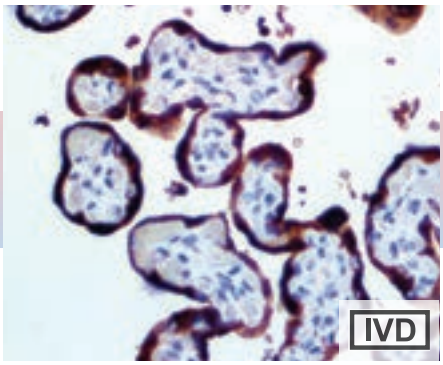
High-mobility group AT-hook 2 (HMGA2) belongs to the architectural transcription factor HMGA family and is encoded by the HMGA2 gene. HMGA2 plays a role in chromosomal organization and transcriptional regulation. HMGA2 has three basic DNA-binding domains (AT-hooks) that bind to AT rich regions of nuclear DNA and alter the structure of DNA to promote the assembly of protein complexes that regulate transcription. With few exceptions, HMGA2 is expressed in humans only during early development, and is reduced to undetectable levels of transcription in adult tissues.

Elevated expression of HMGA2 is found in a variety of human cancers, correlates with metastasis and poor prognosis for patients. High HMGA2 expression have been reported in Pituitary Adenoma, Thyroid Carcinoma, Triple-Negative Breast Carcinoma, Breast Carcinoma, Lung Adenocarcinoma, Colorectal Carcinoma, Hepatoblastoma, Pancreatic Adenocarcinoma, Conventional and Intramuscular Lipoma, Liposarcoma, Gastric, and Ovarian Tumors and other conditions.. HMGA2 is expressed in most conventional and intramuscular lipomas and can aid in differentiating between Lipomas from dedifferentiated Liposarcomas and distinguishing areas of tumor from normal adipose tissue. In Mesenchymal tumors, HMGA2 is expressed in benign Fibrous Histiocytoma, Nodular Fasciitis, and Vulvovaginal Angiomyxoma.. In Thyroid Carcinomas, upregulation of HMGA2 can distinguish between benign and malignant Follicular neoplasias.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP398*
ISOTYPE: *IgG*
CONTROL: *K Cervix, Lung Squamous Cell Carcinoma, Papillary Thyroid Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3729-3	Tinto Predilute	3.0 ml
BSB-3729-7	Tinto Predilute	7.0 ml
BSB-3729-15	Tinto Predilute	15.0 ml
BSB-3729-01	Concentrate	0.1 ml
BSB-3729-05	Concentrate	0.5 ml
BSB-3729-1	Concentrate	1.0 ml
BSB-3729-CS	Control Slides	5

hPL, RPab



IHC of hPL on a FFPE Placenta Tissue

Human placenta lactogen (hPL), also known as human chorionic somatomammotropin (HCS), is a polypeptide placental hormone. Its structure and function are similar to that of human growth hormone. It modifies the metabolic state of the mother during pregnancy to facilitate the energy supply of the fetus. It is first detectable in the maternal serum in the fifth week of gestation and reaches a plateau by the thirty-fourth week.

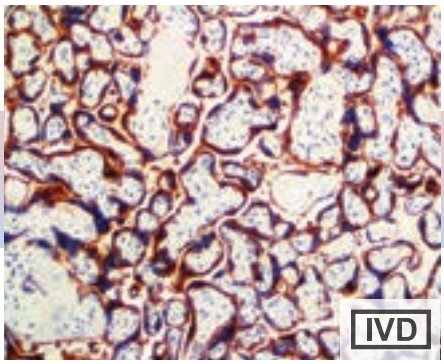
hPL is expressed in the syncytiotrophoblastic cells of choriocarcinoma. A rare variant of trophoblastic tumor has been reported in the testis with resemblance to uterine placental site trophoblastic tumor. It consisted purely of intermediate trophoblasts, which was diffusely positive for hPL and focally for B-hCG.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Placenta*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6800	Tinto Predilute	3.0 ml
BSB 6801	Tinto Predilute	7.0 ml
BSB 6802	Tinto Predilute	15.0 ml
BSB 6803	Concentrate	0.1 ml
BSB 6804	Concentrate	0.5 ml
BSB 6805	Concentrate	1.0 ml
BSB 6806	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

hPL, RMab



IHC of hPL on a FFPE Placenta Tissue

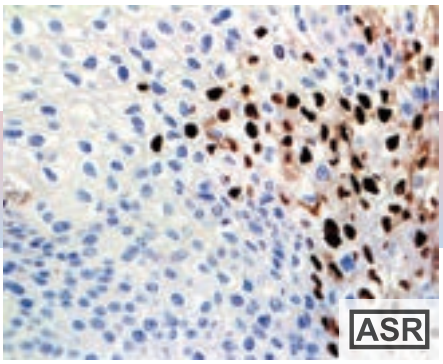
Human placenta lactogen (hPL), also known as human chorionic somatomammotropin (HCS), is a polypeptide placental hormone. Its structure and function are similar to that of human growth hormone. It modifies the metabolic state of the mother during pregnancy to facilitate the energy supply of the fetus. It is first detectable in the maternal serum in the fifth week of gestation and reaches a plateau by the thirty-fourth week.

hPL is expressed in the syncytiotrophoblastic cells of choriocarcinoma. A rare variant of trophoblastic tumor has been reported in the testis with resemblance to uterine placental site trophoblastic tumor. It consisted purely of intermediate trophoblasts, which was diffusely positive for hPL and focally for B-hCG.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP241*
ISOTYPE: *IgG*
CONTROL: *Placenta*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2412	Tinto Predilute	3.0 ml
BSB 2413	Tinto Predilute	7.0 ml
BSB 2414	Tinto Predilute	15.0 ml
BSB 2415	Concentrate	0.1 ml
BSB 2416	Concentrate	0.5 ml
BSB 2417	Concentrate	1.0 ml
BSB 2418	Control Slides	5

HPV, MMab



IHC of HPV on a FFPE LSIL of the Cervix Tissue

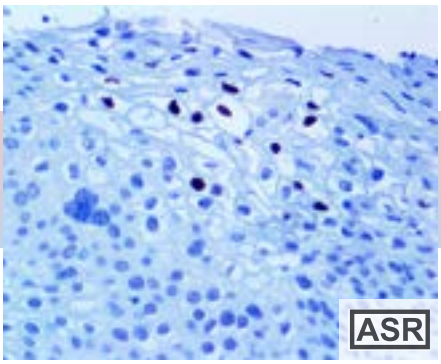
Papillomaviruses are a diverse group of DNA-based viruses. More than 100 different human papillomavirus (HPV) types have been characterized. Some HPV types cause benign skin warts, or papillomas, for which the virus family is named.

Anti-human papillomavirus, clone BSB-66 (SB24) reacts with an epitope of a major capsid protein of HPV, which is broadly expressed among different HPV subtypes

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-66*
ISOTYPE: *IgG1/K*
CONTROL: *HPV Infected Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5652	Tinto Predilute	3.0 ml
BSB 5653	Tinto Predilute	7.0 ml
BSB 5654	Tinto Predilute	15.0 ml
BSB 5655	Concentrate	0.1 ml
BSB 5656	Concentrate	0.5 ml
BSB 5657	Concentrate	1.0 ml
BSB 5658	Control Slides	5

HPV16, MMab



IHC of HPV16 on a FFPE Infected Cervix Tissue

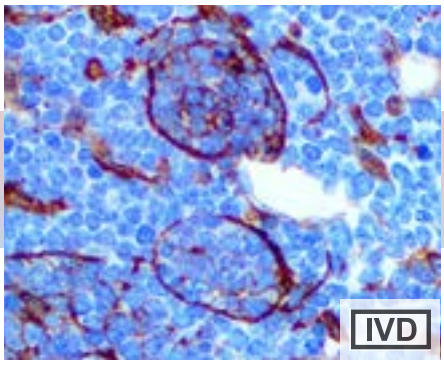
Papillomaviridae belongs to a taxonomic family of non-enveloped DNA virus, collectively known as papillomavirus. Several hundred types of papillomavirus, have been identified infecting mammals and also other amniotes such as birds, snakes and turtles. Infection by most papillomavirus types, depending on the type, is either asymptomatic (e.g. most Beta-PVs) or causes small benign tumors, known as papillomas or warts (e.g. HPV1, HPV6 or HPV11). Papillomas caused by some types, however, such as HPV16 and HPV18, carry a risk of becoming cancerous.

Papillomaviruses are usually considered as highly host- and tissue-tropic, and are thought to rarely be transmitted between species. Papillomaviruses replicate exclusively in the basal layer of the body surface tissues. All known papillomavirus types infect a particular body surface, typically the skin or mucosal epithelium of the genitals, anus, mouth, or airways. Some papillomavirus types can cause cancer in the epithelial tissues they inhabit, cancer is not a typical outcome of infection. The development of papillomavirus-induced cancers typically occurs over the course of many years. Papillomaviruses have been associated with the development of cervical cancer, penile cancer and oral cancers. An association with vulvar cancer and urothelial carcinoma with squamous differentiation in patients with neurogenic bladder has also been reported.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CAMVIR-1*
ISOTYPE: *IgG2a*
CONTROL: *HPV16 Infected Tissues*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2943	Tinto Predilute	3.0 ml
BSB 2944	Tinto Predilute	7.0 ml
BSB 2945	Tinto Predilute	15.0 ml
BSB 2946	Concentrate	0.1 ml
BSB 2947	Concentrate	0.5 ml
BSB 2948	Concentrate	1.0 ml
BSB 2949	Control Slides	5

HSP-27, MMab



IHC of HSP-27 on a FFPE Lymphoblastic Lymphoma Tissue

Heat shock protein 27 (HSP27) also known as heat shock protein beta-1 (HSPB1) is a protein that in humans is encoded by the HSPB1 gene. The common functions of sHsps are chaperone activity, thermotolerance, inhibition of apoptosis, regulation of cell development, and cell differentiation. HSP27 appears in many cell types, especially all types of muscle cells. It is overexpressed during different stages of cell differentiation and development. This suggests an essential role for HSP27 in the differentiation of tissues.

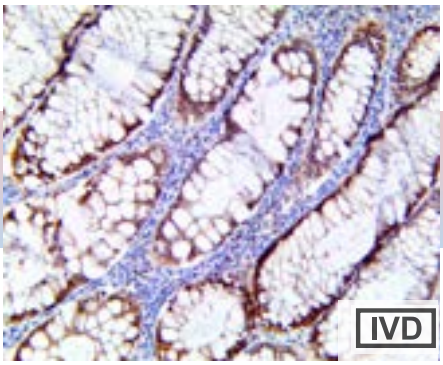
An affinity of high expression levels of different phosphorylated HSP27 species and muscle/neurodegenerative diseases and various cancers has been observed. High levels of HSP27 were also found in sera of breast cancer patients; therefore HSP27 could be a potential diagnostic marker. Phosphorylated Hsp27 has been shown to increase in human prostate cancer (PCa) cell invasion, enhancing cell proliferation, and suppression of Fas-induced apoptosis in human PCa cells.

HSP27 immunohistochemistry is a useful tool for the identification of CIN and cervical squamous cell carcinoma, and is a good complement to p16. HSP27 has been demonstrated to be overexpressed in cervical intraepithelial neoplasia (CIN) and squamous cell carcinoma of the cervix using immunohistochemistry. HSP27 expression has been demonstrated in 47% of CIN1, 75% of CIN2, 92% of CIN3, and 100% of cervical squamous cell carcinomas (SCC).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *G3.1*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Cervix, Prostate, Breast Carcinoma, Cervical Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Dog, Mouse, Primate*

CAT. #	PRESENTATION	VOL/QTY
BSB 2950	Tinto Predilute	3.0 ml
BSB 2951	Tinto Predilute	7.0 ml
BSB 2952	Tinto Predilute	15.0 ml
BSB 2953	Concentrate	0.1 ml
BSB 2954	Concentrate	0.5 ml
BSB 2955	Concentrate	1.0 ml
BSB 2956	Control Slides	5

HSP70, RMab



IHC of HSP70 on a FFPE Colon Adenocarcinoma Tissue

70 kDa heat shock proteins (HSP70) are found ubiquitously in virtually all living organisms, facilitating protein folding and protecting cells from heat stress and toxic chemicals. HSP70 proteins have 3 functional domains: N-terminal ATPase domain, substrate binding domain, and a C-terminal domain that serves as a "lid" for the substrate binding domain. HSP70 binds tightly to partially synthesized peptides and prevents them from aggregating and rendering nonfunctional.

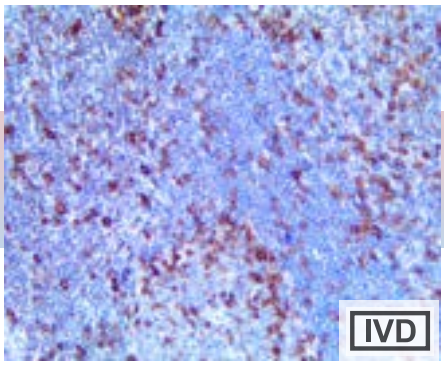
HSP70 is shown to be overexpressed in malignant Melanoma and underexpressed in Renal Cell Carcinoma. A variety of tumor cells can express HSP70 with seemingly contradictory functions. Intracellular HSP70 has a cytoprotective function via suppression of apoptosis and lysosomal cell death (LCD) and extracellular HSP70 can promote tumorigenesis and angiogenesis. Other evidence showed intracellular HSP70 can promote apoptosis and membrane-associated/extracellular HSP70 can elicit antitumor innate and adaptive immune responses.

One study evaluated the expression of HSP70, Estrogen Receptor (ER) and Ki-67 and assessed the relationship between them in Cervical Squamous Cell Neoplasia. It found that HSP70 may play an important role in tumor cell proliferation and is more related with invasive Squamous Cell Carcinoma than Cervical Intraepithelial Neoplasia, but ER may be not related with tumor cell proliferation and differentiation. Therefore, HSP70 may be a useful prognostic factor in Cervical Dysplasia and Cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM432*
ISOTYPE: *IgG*
CONTROL: *Breast, Fallopian Tube, Skin, Prostate, Testis, Transitional Cell Carcinoma*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3730-3	Tinto Predilute	3.0 ml
BSB-3730-7	Tinto Predilute	7.0 ml
BSB-3730-15	Tinto Predilute	15.0 ml
BSB-3730-01	Concentrate	0.1 ml
BSB-3730-05	Concentrate	0.5 ml
BSB-3730-1	Concentrate	1.0 ml
BSB-3730-CS	Control Slides	5

ICOS/CD278, RMab



IHC of ICOS/CD278 on a FFPE Tonsil Tissue

CD278 is also known as inducible T-cell costimulatory molecule (ICOS). CD278 is homologous to the CD28/CTLA-4 proteins and is expressed on activated T cells and unstimulated thymocytes. CD278 plays a major role in regulation of cell-cell signaling, adaptive immune response, and cell proliferation. Interaction of CD278 and its ligand ICOS-L results in increased production of interleukins, which promote differentiation of Tfh and Tregs and development of Th1, Th2, and Th17 cells.

CD278/ICOS-L interaction has been shown to

promote either antitumor T cell response or pro-tumor responses when triggered in Tregs (such as in Multiple Myeloma, Acute Myeloid Leukemia, and some invasive Breast Carcinomas). Therefore, both agonistic and antagonistic monoclonal antibodies targeting this pathway can be potential cancer immunotherapy.

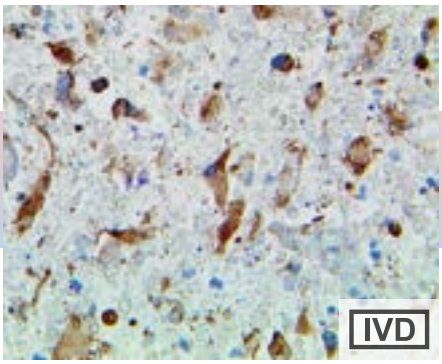
ICOS is primarily expressed on activated CD4+ and CD8+ T cells where it regulates immune responses and plays a role in the regulation of T Follicular helper cells. ICOS is a sensitive marker for identifying T cell Lymphomas of Follicular Helper T cell origin, especially certain patterns of Angioimmunoblastic T-cell lymphoma (AITL) and Peripheral T-cell lymphomas with T-follicular Helper Phenotype (PTCL-TFH). Immunohistochemical analysis revealed that ICOS is widely expressed by malignant cells in skin biopsy specimens from patients with Mycosis Fungoides and Sézary syndrome (SS), as well as involved in node biopsy specimens from patients with SS.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM417*
ISOTYPE: *IgG*
CONTROL: *Colon, Tonsil, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3731-3	Tinto Predilute	3.0 ml
BSB-3731-7	Tinto Predilute	7.0 ml
BSB-3731-15	Tinto Predilute	15.0 ml
BSB-3731-01	Concentrate	0.1 ml
BSB-3731-05	Concentrate	0.5 ml
BSB-3731-1	Concentrate	1.0 ml
BSB-3731-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

IDH1 R132H, MMab



IHC of IDH1 R132H on a FFPE Glioma Tissue

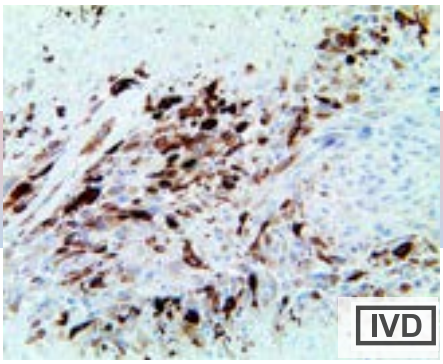
The IDH1 gene on chromosome 2q33.3 encodes for isocitrate dehydrogenase 1 (IDH1), located in the cytoplasm and the peroxisomes. This enzyme catalyzes NADPH production via oxidative decarboxylation of isocitrate to alpha-ketoglutarate in the Krebs citric acid cycle. Studies have shown that IDH1 mutation is an early step in gliomagenesis and has been reported to occur in grades II and III astrocytomas, oligodendrogliomas (OG), oligoastrocytomas (OA), and secondary GBM.

Mutations involving IDH1 occur in a high proportion of diffuse gliomas, with implications on diagnosis. About 90% involve exon 4 at codon 132, replacing amino acid arginine with histidine (R132H). Preliminary studies comparing Immunohistochemistry (IHC) with IDH1-R132H mutation-specific antibodies have shown concordance with DNA sequencing and no cross-reactivity with wild-type IDH1 or other mutant proteins.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *IHC132*
ISOTYPE: *IgG1*
CONTROL: *Glioma, Glioblastoma, Astrocytoma with IDH1 R132H Mutation*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3546	Tinto Predilute	3.0 ml
BSB 3547	Tinto Predilute	7.0 ml
BSB 3548	Tinto Predilute	15.0 ml
BSB 3549	Concentrate	0.1 ml
BSB 3550	Concentrate	0.5 ml
BSB 3551	Concentrate	1.0 ml
BSB 3552	Control Slides	5

IDH1 R132H, RMab



IHC of IDH1 R132H on a FFPE Glioblastoma Tissue

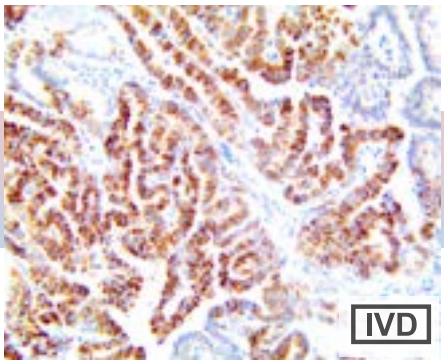
IDH1 R132H is an isocitrate dehydrogenase isozyme and encoded by the gene IDH1. IDH1 is involved in the citric acid cycle during glucose metabolism and catalyzes the oxidation of isocitrate to alpha-ketoglutarate and reduction of NADP+ to NADPH. Both alpha-ketoglutarate and NADPH play a role in protecting cells from oxidative stress and mitigating oxidative damage. Mutation in residue 132 of IDH1 results in loss of enzymatic function, buildup of 2-hydroxyglutarate, and changes in histone and DNA methylation.

Mutation of IDH1 R132H is implicated in metaphyseal chondromatosis with aciduria as well as diffused gliomas and a number of neoplasms such as acute myeloid leukemia, acute lymphocytic leukemia, myelofibrosis, intrahepatic cholangiocarcinoma, melanoma, chondroid tumors, and certain rare forms of colonic and prostate carcinomas. However studies have shown that IDH1 mutation is not a direct trigger of oncogenesis, but strongly associated with other tumor-promoting mutations. Screening for IDH1 R132H mutation can provide valuable information on diagnosis and prognosis of glioma. Glioma with IDH1 R132H mutation tend to be less aggressive than glioma without IDH1 R132H mutation.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-IDH1*
ISOTYPE: *IgG*
CONTROL: *Colon, Tonsil, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3732-3	Tinto Predilute	3.0 ml
BSB-3732-7	Tinto Predilute	7.0 ml
BSB-3732-15	Tinto Predilute	15.0 ml
BSB-3732-01	Concentrate	0.1 ml
BSB-3732-05	Concentrate	0.5 ml
BSB-3732-1	Concentrate	1.0 ml
BSB-3732-CS	Control Slides	5

IFN-Alpha, MMab



IHC of IFN - Alpha on a FFPE Papillary Thyroid Carcinoma Tissue

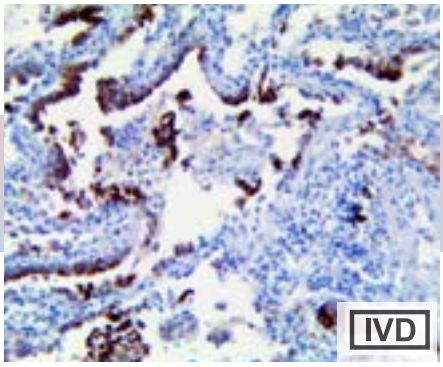
Type I interferons are a large subgroup of interferon proteins that help regulate the immune system by binding to IFN- alpha receptors. IFN- alpha is produced mainly by plasmacytoid dendritic cells and involved in innate immunity against viral infections. Binding of IFN-alpha to its receptor leads to downstream signalling and expression of numerous different IFN-stimulated genes. These genes encode antiviral proteins that directly inhibit viral replication as well as modulate immune function.

Studies have shown IFN-α strongly modulates innate and adaptive immune responses in the host by enhancing the proliferation, cytotoxicity and IFN-γ secretion of NK cells, as well as acting as a pyrogenic factor by altering the activity of thermosensitive neurons in the hypothalamus which causes fever. It does this by binding to opioid receptors and eliciting the release of prostaglandin-E2. IFN-α can also interact with the μ-opioid receptor to act as an analgesic. Additionally, recent studies have shown that Type 1 IFNs stimulate secretion of IP-10 (CXCL10) which is a critical chemokine to recruit effector T cells to the tumor microenvironment and IP-10 knockout mice exhibit a phenotype with compromised effector T cell generation and trafficking. Type 1 IFNs also induce MHC class 1 upregulation on tumor cells which can enhance antitumor CD8 T cell effector response in the tumor microenvironment.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-158*
ISOTYPE: *IgG2b*
CONTROL: *Placenta, Fallopian Tube, Stomach, Prostate, Testis, Transitional Cell Carcinoma, Papillary Thyroid Carcinoma*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3733-3	Tinto Predilute	3.0 ml
BSB-3733-7	Tinto Predilute	7.0 ml
BSB-3733-15	Tinto Predilute	15.0 ml
BSB-3733-01	Concentrate	0.1 ml
BSB-3733-05	Concentrate	0.5 ml
BSB-3733-1	Concentrate	1.0 ml
BSB-3733-CS	Control Slides	5

IFN-Gamma, MMab



IHC of IFN-Gamma on a FFPE SARS-CoV2 Infected Lung Tissue

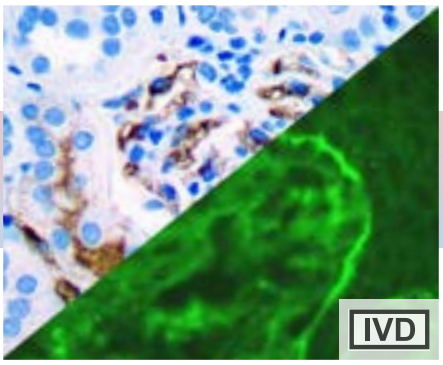
IFN-y is a dimerized soluble cytokine and the only member of the type II interferon. In humans, IFN-y is encoded by the IFNG gene and is critical for innate and adaptive immunity against viral, some bacterial and protozoal infections. IFN-y is produced predominantly by natural killer and natural killer T cells as part of the innate immune response, and by CD4 Th1 and CD8 cytotoxic T lymphocytes effector T cells once antigen-specific immunity develops as part of the adaptive immune response. IFN-y is also produced by non-cytotoxic innate lymphoid cells.

IFN-y interacts with its receptors interferon gamma receptor 1 and interferon gamma receptor 2 and activates them. IFN-y binding to the receptors activates the JAK-STAT pathway. IFN-y also binds to the glycosaminoglycan heparan sulfate and inhibits its biological activity. IFN-y is used to treat Chronic Granulomatous Disease and Osteopetrosis, also has potential as cancer immunotherapy to improve survival in Bladder Carcinoma, Melanoma, and Ovarian Carcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-161*
ISOTYPE: *IgG2a*
CONTROL: *Stomach, Fallopian Tube, Colon, Lung Adenocarcinoma, Ductal Breast Carcinoma, Pancreatic Adenocarcinoma*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3734-3	Tinto Predilute	3.0 ml
BSB-3734-7	Tinto Predilute	7.0 ml
BSB-3734-15	Tinto Predilute	15.0 ml
BSB-3734-01	Concentrate	0.1 ml
BSB-3734-05	Concentrate	0.5 ml
BSB-3734-1	Concentrate	1.0 ml
BSB-3734-CS	Control Slides	5

IgA, RPab



IHC and IF of IgA on a FFPE Kidney Tissue (IHC) and on a Frozen Bullous Dermatosis Tissue (IF)

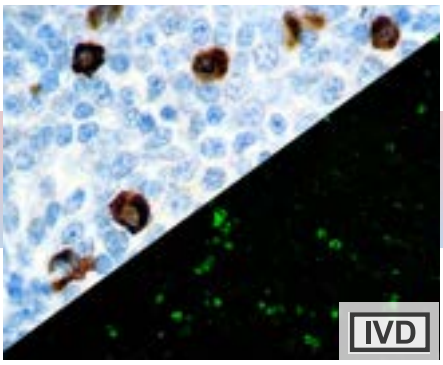
Immunoglobulin A (IgA) is the main immunoglobulin in mucous secretions, including tears, saliva, and colostrum, as well as respiratory, intestinal, prostatic, and vaginal secretions. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA provides protection against microbes proliferating in body secretions, especially those of the digestive and respiratory tracts.

IgA antibody reacts with surface immunoglobulin IgA alpha chains. It is extremely useful when identifying Acute Leukemias, IgA Myelomas, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. However, due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Lymph Node, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3054	Tinto Predilute	3.0 ml
BSB 3055	Tinto Predilute	7.0 ml
BSB 3056	Tinto Predilute	15.0 ml
BSB 3057	Concentrate	0.1 ml
BSB 3058	Concentrate	0.5 ml
BSB 3059	Concentrate	1.0 ml
BSB 3685	Control Slides	5

IgA, MMab



IHC and IF of IgA on a FFPE Tonsil Tissue

Immunoglobulin A (IgA) is the main immunoglobulin in mucous secretions, including tears, saliva, and colostrum, as well as respiratory, intestinal, prostatic, and vaginal secretions. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA provides protection against microbes proliferating in body secretions, especially those of the digestive and respiratory tracts.

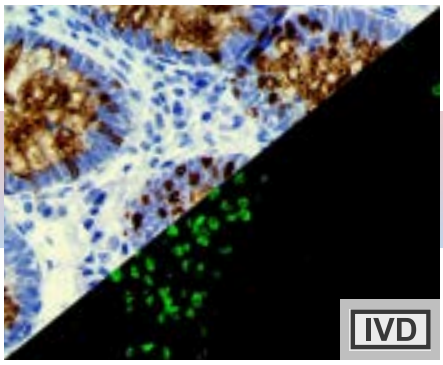
IgA antibody reacts with surface immunoglobulin IgA alpha chains. It is extremely useful when identifying Acute Leukemias, IgA Myelomas, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. However, due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-39*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Spleen, Lymph Node, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5659	Tinto Predilute	3.0 ml
BSB 5660	Tinto Predilute	7.0 ml
BSB 5661	Tinto Predilute	15.0 ml
BSB 5662	Concentrate	0.1 ml
BSB 5663	Concentrate	0.5 ml
BSB 5664	Concentrate	1.0 ml
BSB 5665	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

IgD, RPab



Inset: IHC and IF of IgD on a FFPE Colon Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

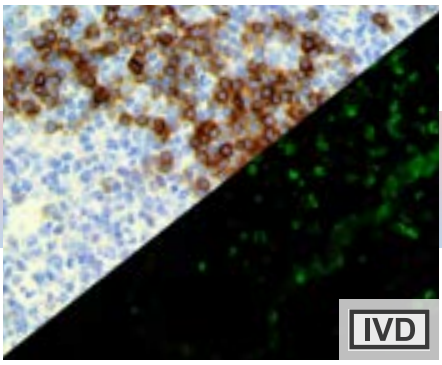
IgD makes up about 1% of proteins in the plasma membranes of immature B-lymphocytes (coexpressed with IgM) and is also found in serum in very small amounts. It is monomeric and incorporates the alpha-heavy chain in its structure. IgD's function is currently unknown, as mice lacking IgD seem to retain normal immune responses (implying redundancy if not lack of function), and IgD ceases to be expressed in activated B-lymphocytes. It may function as a regulatory antigen receptor. IgD is the major antigen receptor isotype co-expressed with IgM on the surface of most peripheral B cells in mice and humans.

The IgD antibody reacts with surface immunoglobulin IgD delta chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived from Lymphomas, specifically Marginal Zone Lymphoma. Renal involvement in systemic lupus erythematosus (SLE) is associated with production of antibodies to double stranded DNA, deposition of immune complexes and organ damage. Lupus nephritis patients were characterized by increased percentage of immature/early-transitional B-cells (CD27-IgD+CD21-), higher frequency of activated switched memory (SM, CD27+IgD-CD21-) and exhausted memory B-cells (CD27-IgD-), and decrease in non-switched memory (NSM, CD27+IgD+) B-cells

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5666	Tinto Predilute	3.0 ml
BSB 5667	Tinto Predilute	7.0 ml
BSB 5668	Tinto Predilute	15.0 ml
BSB 5669	Concentrate	0.1 ml
BSB 5670	Concentrate	0.5 ml
BSB 5671	Concentrate	1.0 ml
BSB 5672	Control Slides	5

IgD, RMab



Inset: IHC and IF of IgD on a FFPE Tonsil Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

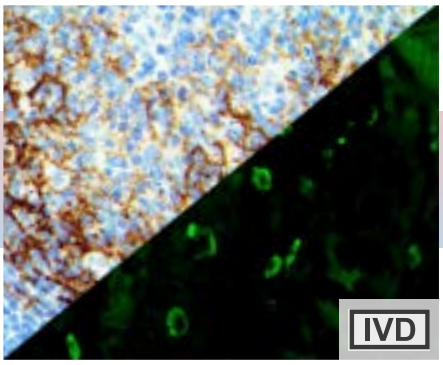
IgD makes up about 1% of proteins in the plasma membranes of immature B-lymphocytes (coexpressed with IgM) and is also found in serum in very small amounts. It is monomeric and incorporates the alpha-heavy chain in its structure. IgD's function is currently unknown, as mice lacking IgD seem to retain normal
immune responses (implying redundancy if not lack of function), and IgD ceases to be expressed in activated B-lymphocytes. It may function as a regulatory antigen receptor.

IgD antibody reacts with surface immunoglobulin IgD delta chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived from Lymphomas, specifically Marginal Zone Lymphoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP173*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2957	Tinto Predilute	3.0 ml
BSB 2958	Tinto Predilute	7.0 ml
BSB 2959	Tinto Predilute	15.0 ml
BSB 2960	Concentrate	0.1 ml
BSB 2961	Concentrate	0.5 ml
BSB 2962	Concentrate	1.0 ml
BSB 2963	Control Slides	5

IgE, RPab



Inset: IHC and IF of IgE on a FFPE Tonsil Tissue (IHC) and on a Frozen Colon Tissue (IF)

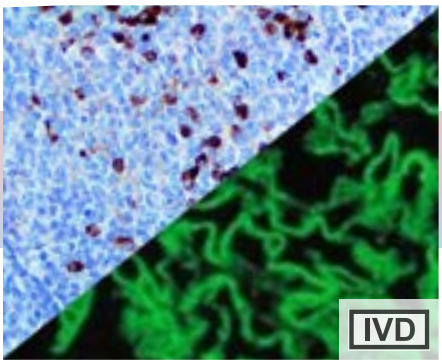
IgE, Immunoglobulin E, is an isotype of antibody only found in mammals. IgE is synthesized by plasma cells. Monomers of IgE consist of two heavy chains (ε chain) and two light chains, with the ε chain containing 4 Ig-like constant domains (Cε1-Cε4). IgE's main function is immunity to parasites such as helminths like Schistosoma mansoni, Trichinella spiralis, and Fasciola hepatica. IgE is utilized during immune defense against certain protozoan parasites such as Plasmodium falciparum.

IgE also has an essential role in type I hypersensitivity, which manifests in various allergic diseases, such as allergic asthma, most types of sinusitis, allergic rhinitis, food allergies, and specific types of chronic urticaria and atopic dermatitis. IgE also plays a pivotal role in responses to allergens, such as: anaphylactic drugs, bee stings, and antigen preparations used in desensitization immunotherapy. IgE is known to be elevated in various autoimmune disorders such as Lupus(SLE), Rheumatoid Arthritis(RA) & psoriasis, and is theorized to be of pathogenetic importance in RA and SLE by eliciting a hypersensitivity reaction.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Thymus, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3067	Tinto Predilute	3.0 ml
BSB 3068	Tinto Predilute	7.0 ml
BSB 3069	Tinto Predilute	15.0 ml
BSB 3070	Concentrate	0.1 ml
BSB 3071	Concentrate	0.5 ml
BSB 3072	Concentrate	1.0 ml
BSB 3073	Control Slides	5

IgG, RPab



IHC and IF of IgG on a FFPE Tonsil Tissue (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

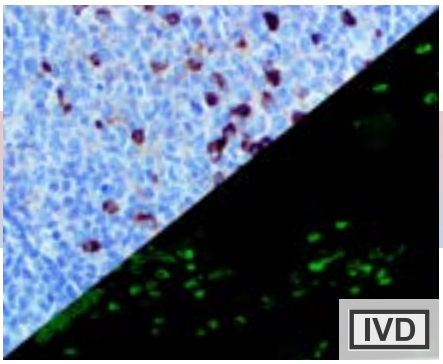
IgG is a monomeric immunoglobulin, comprised of two heavy chains and two light chains. This is the most abundant immunoglobulin and is approximately equally distributed in blood and tissue liquids, constituting 75% of serum immunoglobulins in humans. This is the only isotype that can pass through the placenta and bind to many kinds of pathogens. IgG protects the body against them by complement activation (classic pathway), opsonization for phagocytosis and neutralization of their toxins. There are 4 subclasses: IgG1 (66%), IgG2 (23%), IgG3 (7%) and IgG4 (4%).

IgG antibody reacts with surface immunoglobulin IgG gamma chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q. Clinically, hematuria and proteinuria are present, with or without nephrotic syndromes. Mesangial IgG glomerulonephritis has been recently recognized as a distinct type of glomerulonephritis. The morphologic criteria detected in these patients included mesangial dense deposits by ultrastructural studies, which were predominantly positive for IgG by immunofluorescence.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Kidney, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3074	Tinto Predilute	3.0 ml
BSB 3075	Tinto Predilute	7.0 ml
BSB 3076	Tinto Predilute	15.0 ml
BSB 3077	Concentrate	0.1 ml
BSB 3078	Concentrate	0.5 ml
BSB 3079	Concentrate	1.0 ml
BSB 5679	Control Slides	5

IgG, MMab



IHC and IF of IgG on a FFPE Tonsil Tissue (IHC) and on a Frozen Tonsil (IF)

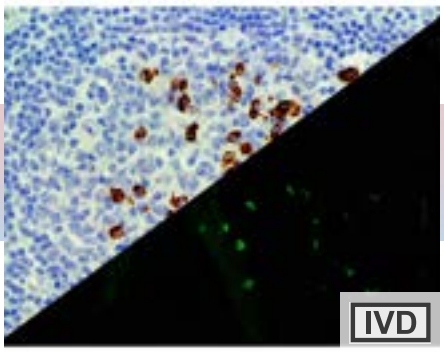
IgG is a monomeric immunoglobulin,composed of two heavychains and two light chains. This is the most abundant immunoglobulin and is approximately equally distributed in blood and tissue liquids,constituting 75% of serum immunoglobulins in humans. This is the onlyisotype that can pass through the placenta and bind to manykinds of pathogens. IgG protects the body against them bycomplement activation (classic pathway), opsonization for phagocytosis and neutralization of their toxins. There are 4 subclasses: IgG1 (66%), IgG2 (23%), IgG3 (7%) and IgG4 (4%).

IgG antibody reacts with surface immunoglobulin IgG gamma chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-40*
ISOTYPE: *IgG2a/K*
CONTROL: *Tonsil, Lymph Node, Kidney, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5673	Tinto Predilute	3.0 ml
BSB 5674	Tinto Predilute	7.0 ml
BSB 5675	Tinto Predilute	15.0 ml
BSB 5676	Concentrate	0.1 ml
BSB 5677	Concentrate	0.5 ml
BSB 5678	Concentrate	1.0 ml
BSB 5679	Control Slides	5

IgG4, MMab



IHC and IF of IgG4 on a FFPE Tonsil Tissue (IHC) and on a Frozen Tonsil (IF)

IgG4-related sclerosing disease has been recognized as a systemic disease entity characterized by an elevated serum IgG4 level, sclerosing fibrosis and diffuse lymphoplasmacytic infiltration with the presence of many IgG4-positive plasma cells. As these patients tend to respond favorably to steroid treatment, it is important to recognize this entity and differentiate it from such mimics as lymphoma.

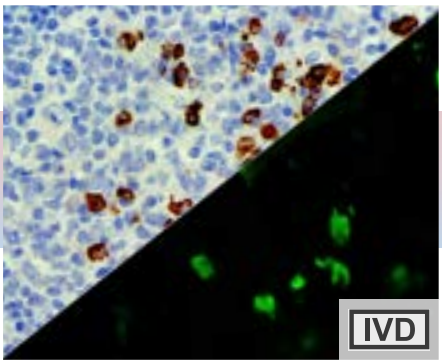
Clinical manifestations are apparent in the pancreas, bile duct, gallbladder, lacrimal gland, salivary gland, retroperitoneum, kidney, lung, breast, thyroid, and prostate. Immunohistochemical analyses in the case of IgG4-related sclerosing disease not only exhibits significantly more IgG4-positive plasma cells in affected tissues but also significantly higher IgG4/ IgG ratios (typically > 30%).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-96*
ISOTYPE: *IgG2a/K*
CONTROL: *Tonsil, Spleen, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6807	Tinto Predilute	3.0 ml
BSB 6808	Tinto Predilute	7.0 ml
BSB 6809	Tinto Predilute	15.0 ml
BSB 6810	Concentrate	0.1 ml
BSB 6811	Concentrate	0.5 ml
BSB 6812	Concentrate	1.0 ml
BSB 6813	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

IgG4, RMab



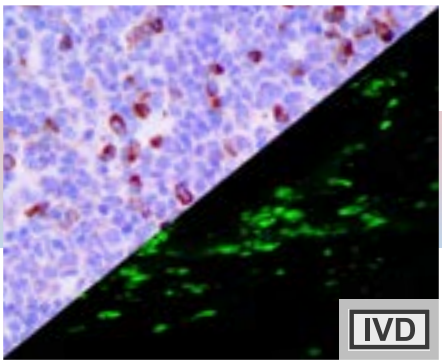
IHC and IF of IgG4 on a FFPE Tonsil Tissue

IgG4-related sclerosing disease has been recognized as a systemic disease entity characterized by an elevated serum IgG4 level, sclerosing fibrosis and diffuse lymphoplasmacytic infiltration with the presence of many IgG4-positive plasma cells. As these patients tend to respond favorably to steroid treatment, it is important to recognize this entity and differentiate it from such mimics as lymphoma.
Clinical manifestations are apparent in the pancreas, bile duct, gallbladder, lacrimal gland, salivary gland, retroperitoneum, kidney, lung, breast, thyroid, and prostate. Immunohistochemical analyses in the case of IgG4-related sclerosing disease not only exhibits significantly more IgG4- positive plasma cells in affected tissues but also significantly higher IgG4/ IgG ratios (typically 30%).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP138*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6814	Tinto Predilute	3.0 ml
BSB 6815	Tinto Predilute	7.0 ml
BSB 6816	Tinto Predilute	15.0 ml
BSB 6817	Concentrate	0.1 ml
BSB 6818	Concentrate	0.5 ml
BSB 6819	Concentrate	1.0 ml
BSB 6820	Control Slides	5

IgM, RPab



IHC and IF of IgM on a FFPE Kidney Tissue (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

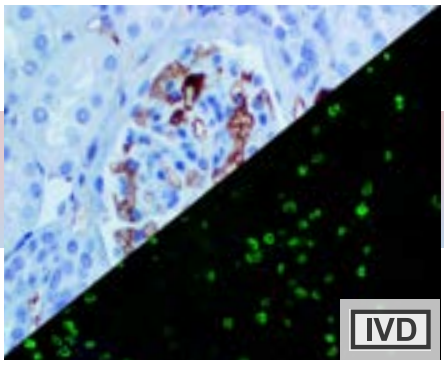
IgM forms polymers where multiple immunoglobulins are covalently linked together with disulfide bonds, normally as a pentamer or occasionally as a hexamer. It has a large molecular mass of approximately 900 kDa (in its pentamer form). In germline cells, the gene segment encoding the constant region of the heavy chain is positioned first among other constant region gene segments. For this reason, IgM is the first immunoglobulin expressed by mature B-cells.

IgM antibody reacts with surface immunoglobulin IgM mu chains. IgM is one of the predominant surface immunoglobulins on B-lymphocytes, and is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q. Clinically, hematuria and proteinuria are present, with or without nephrotic syndromes. Immunoglobulin M (IgM) nephropathy is an uncommon glomerular disease characterized by IgM deposits in the mesangium.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3080	Tinto Predilute	3.0 ml
BSB 3081	Tinto Predilute	7.0 ml
BSB 3082	Tinto Predilute	15.0 ml
BSB 3083	Concentrate	0.1 ml
BSB 3084	Concentrate	0.5 ml
BSB 3085	Concentrate	1.0 ml
BSB 5686	Control Slides	5

IgM, MMab



IHC and IF of IgM on a FFPE Kidney Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

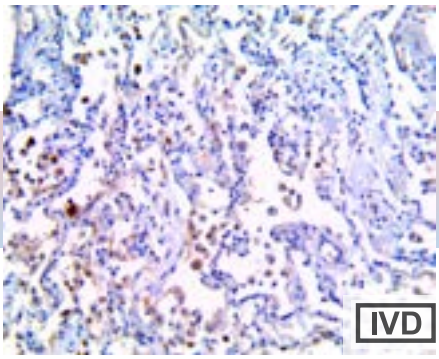
IgM forms polymers where multiple immunoglobulins are covalently linked together with disulfide bonds, normally as a pentamer or occasionally as a hexamer. It has a large molecular mass of approximately 900 kDa (in its pentamer form). In germline cells, the gene segment encoding the constant region of the heavy chain is positioned first among other constant region gene segments. For this reason, IgM is the first immunoglobulin expressed by mature B-cells.

IgM antibody reacts with surface immunoglobulin IgM mu chains. IgM is one of the predominant surface immunoglobulins on B-lymphocytes, and is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-41*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5680	Tinto Predilute	3.0 ml
BSB 5681	Tinto Predilute	7.0 ml
BSB 5682	Tinto Predilute	15.0 ml
BSB 5683	Concentrate	0.1 ml
BSB 5684	Concentrate	0.5 ml
BSB 5685	Concentrate	1.0 ml
BSB 5686	Control Slides	5

IL-1a, MMab



IHC of IL-1a on a FFPE SARS-CoV2 Infected Lung Tissue

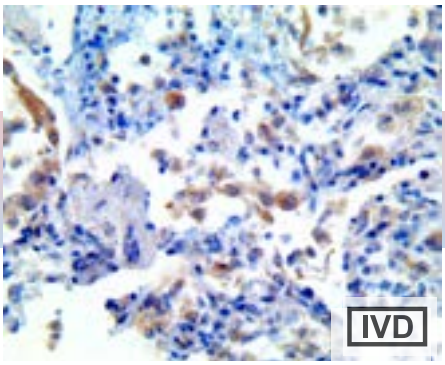
IL-1a is a dual-function cytokine, acting as a transcription factor and a cell-signaling molecule. The 31 kDa precursor form is biologically active in the cytosol and as a membrane protein. IL-1a can be cleaved by calpain into the biologically active 17 kDa mature form that regulates the expression of NFKB, and IFN-y and its effectors. Cancer stem cells use IL-1a to maintain an inflammatory tumor microenvironment, however IL-1a is also used in recruiting and proliferating immune cells as a necrosis alarmin in damaged epithelia. IL-1a induces NFKB and STAT3 signaling that supports cancer stem cell growth. IL-1a is a major cytokine in innate inflammation signaling pathways, and is thus involved in many inflammatory diseases and reactions to oxidative stress.

IL-1a is involved in cancer cell cross-talk and metastasis, and the secretion of cell growth, angiogenesis, and inflammation factors as a Damage-Associated Molecular Pattern. Higher expression of IL-1a has been found in gastric cancer and squamous carcinomas of the head and neck that exhibit distant metastasis. IL-1a has also been associated with tumor de-differentiation and metastasis in breast cancer, and with tumor proliferation and angiogenesis in pancreatic cancer.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-138*
ISOTYPE: *IgG2b*
CONTROL: *Kidney, Colon, Adrenal gland, Testis, Lung*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3705-3	Tinto Predilute	3.0 ml
BSB-3705-7	Tinto Predilute	7.0 ml
BSB-3705-15	Tinto Predilute	15.0 ml
BSB-3705-01	Concentrate	0.1 ml
BSB-3705-05	Concentrate	0.5 ml
BSB-3705-1	Concentrate	1.0 ml
BSB-3705-CS	Control Slides	5

IL-1b, MMab



IHC of IL-1b on a FFPE SARS-CoV2 Infected Lung Tissue

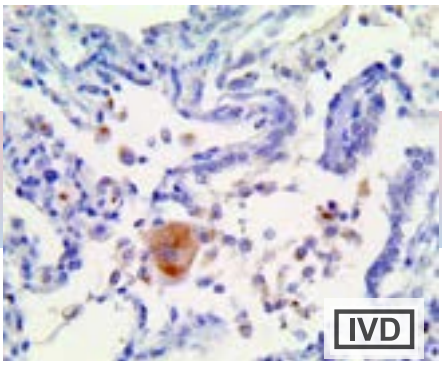
IL-1b has multiple functions as a major pro-inflammatory cytokine regulated by NFKB. The 31 kDa precursor is biologically inactive in the cytosol, and is processed to its active 17 kDa mature form by Caspase 1 in special lysosomes. The beta-barrel cytokine is secreted to participate in pathways of angiogenesis, antigen presentation, adhesion molecule expression, inflammatory cell activity, and expression of matrix degrading enzymes.

IL-1b is produced by tumor-infiltrating myeloid cells, which then produce VEGF and other angiogenesis-related factors, promoting growth in multiple tumor types. IL-1b has a role in tumor metastasis and helps maintain an inflammatory tumor environment, but has also demonstrated an anti-tumorigenic function in recruiting immune cells and driving activation of the Th1 response against B cell myeloma and lymphoma. Pathogen-Associated Molecular Patterns can also initiate expression of IL-1b, helping to accumulate neutrophils and promote inflammation and fibrosis at the infection site.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-139*
ISOTYPE: *IgG2b*
CONTROL: *Colon, Pancreas, Liver, Stomach, Brain, Testis, Lung, Transitional Cell Carcinoma, Tonsil*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3706-3	Tinto Predilute	3.0 ml
BSB-3706-7	Tinto Predilute	7.0 ml
BSB-3706-15	Tinto Predilute	15.0 ml
BSB-3706-01	Concentrate	0.1 ml
BSB-3706-05	Concentrate	0.5 ml
BSB-3706-1	Concentrate	1.0 ml
BSB-3706-CS	Control Slides	5

IL-6, MMab



IHC of IL-6 on a FFPE SARS-CoV2 Infected Lung Tissue

Interleukin-6 is a cytokine that regulates inflammation pathways of the classic and trans-signaling cascades, often involved in metabolic, autoimmune and inflammatory conditions such as IgA nephropathy, lupus nephritis, and chronic kidney disease. The ligation of IL-6/IL-6R activates the JAK/STAT3 (cell survival and proliferation) and MAPK (cell growth and protein production) signaling pathways.

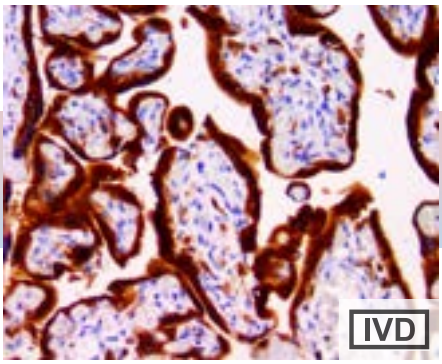
IL-6 participates in autoimmune and inflammatory conditions such as arthritis, where it triggers the differentiation of CD4+ T cells into Th17 helper cells, suppresses differentiation into T regulatory cells, and prevents T helper apoptosis along with IL-2. IL-6 also induces differentiation of monocytes into macrophages and uses follicular T helper cells to induce B cell activation, upregulating IgG production. IL-6 is often found in immune tissues, podocytes, mesangial cells, endothelial and epithelial cells. Il-6 is important in cancer cell growth and suppression of the immune system in the tumor microenvironment, metastasis and renewal of cancer stem cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-140*
ISOTYPE: *IgG2b*
CONTROL: *Testis, Lung, Stomach, Kidney, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3707-3	Tinto Predilute	3.0 ml
BSB-3707-7	Tinto Predilute	7.0 ml
BSB-3707-15	Tinto Predilute	15.0 ml
BSB-3707-01	Concentrate	0.1 ml
BSB-3707-05	Concentrate	0.5 ml
BSB-3707-1	Concentrate	1.0 ml
BSB-3707-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

IMP-3/1GF2BP3, RMab



IHC of IMP-3 on a FFPE Placenta Tissue

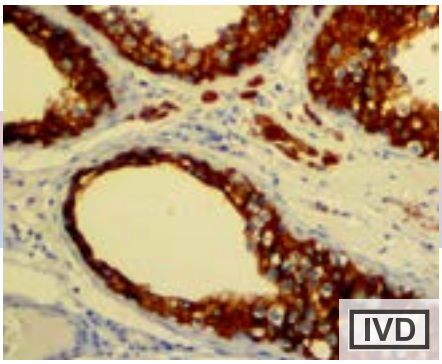
Insulin-like growth factor 2 mRNA-binding protein 3 is a protein that in humans is encoded by the IGF2BP3 gene. IMP3 is normally expressed in early embryonic tissues. The IHC of IMP3 may help in the classification of Non-small Cell Lung Carcinomas and Pancreatic Adenocarcinomas as well as subtypes of carcinomas from other organs such Renal Cell Carcinoma, Adenocarcinoma of the Uterine Cervix, Endometrial Carcinoma, Adenocarcinoma of the Esophagus, Malignant Melanoma, Merkel Cell Carcinoma, Urothelial Carcinoma, Neuroendocrine Carcinoma of the Lung, and triple negative breast cancer.

IMP3 expression for the prognostic evaluation of non-small cell lung carcinomas has been found to exhibit mainly cytoplasmic staining pattern in the NSCLC tissues with a positive rate of IMP3 protein expression of 74.7% in the NSCLC tissues, a significantly higher than the rate of 19.9% in the adjacent non-tumor tissues. IMP3 may be a useful diagnostic marker in the assessment of endometrial cancers and their precursor lesions, particularly when the amount of available tissue material is limited and a concern of type II cancer arises. High frequency of IMP3 expression is present in decidualized endometrial stroma of gestational endometrium and chorionic villi in early pregnancy

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP286*
ISOTYPE: *IgG*
CONTROL: *Placenta, Tonsil, Ovarian Carcinoma, TCC*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2964	Tinto Predilute	3.0 ml
BSB 2965	Tinto Predilute	7.0 ml
BSB 2966	Tinto Predilute	15.0 ml
BSB 2967	Concentrate	0.1 ml
BSB 2968	Concentrate	0.5 ml
BSB 2969	Concentrate	1.0 ml
BSB 2970	Control Slides	5

Inhibin alpha, MMab



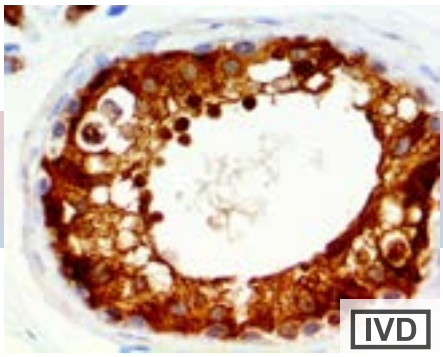
IHC of Inhibin alpha on a FFPE Testis Tissue

Inhibins are peptide hormones produced by the granulosa cells in female follicles and by Sertoli cells in the male seminiferous tubules. They are selectively expressed by cells of sex-cord stromal derivation, and inhibit the secretion of follitropin by the pituitary gland. Inhibin contains an alpha and beta subunit linked by disulfide bonds. Two forms of inhibin differ in their beta subunits (A or B), while their alpha subunits are identical. Inhibin belongs to the transforming growth factor-beta (TGF-beta) family. Anti-Inhibin Alpha has demonstrated utility in differentiation between Adrenal Cortical Tumors and Renal Cell Carcinoma. Sex-Cord Stromal Tumors of the Ovary as well as Trophoblastic Tumors also demonstrate cytoplasmic positivity with this antibody

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *R1*
ISOTYPE: *IgG2a*
CONTROL: *Adrenal Cortex, Placenta, Testis, Corpus Luteum*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5687	Tinto Predilute	3.0 ml
BSB 5688	Tinto Predilute	7.0 ml
BSB 5689	Tinto Predilute	15.0 ml
BSB 5690	Concentrate	0.1 ml
BSB 5691	Concentrate	0.5 ml
BSB 5692	Concentrate	1.0 ml
BSB 5693	Control Slides	5

Inhibin alpha, RMab



IHC of Inhibin alpha on a FFPE Testis Tissue

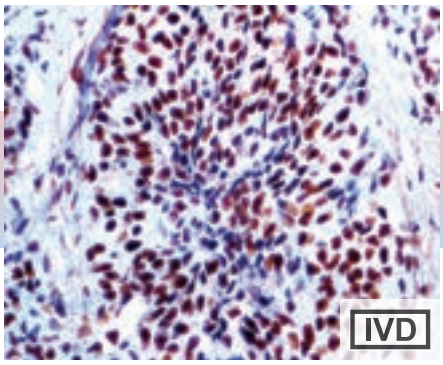
Inhibins are peptide hormones produced by the granulosa cells in female follicles and by Sertoli cells in the male seminiferous tubules. They are selectively expressed by cells of sex-cord stromal derivation, and inhibit the secretion of follitropin by the pituitary gland. Inhibin contains an alpha and beta subunit linked by disulfide bonds. Two forms of inhibin differ in their beta subunits (A or B), while their alpha subunits are identical. Inhibin belongs to the transforming growth factor-beta (TGF-beta) family.

Anti-Inhibin Alpha has demonstrated utility in differentiation between Adrenal Cortical Tumors and Renal Cell Carcinoma. Sex-Cord Stromal Tumors of the Ovary as well as Trophoblastic Tumors also demonstrate cytoplasmic positivity with this antibody

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP378*
ISOTYPE: *IgG*
CONTROL: *Testis, Seminoma, Testicular Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3356	Tinto Predilute	3.0 ml
BSB 3357	Tinto Predilute	7.0 ml
BSB 3358	Tinto Predilute	15.0 ml
BSB 3559	Concentrate	0.1 ml
BSB 3560	Concentrate	0.5 ml
BSB 3561	Concentrate	1.0 ml
BSB 3562	Control Slides	5

INI-1, RMab



IHC of INI-1 on a FFPE Ewing's Sarcoma Tissue

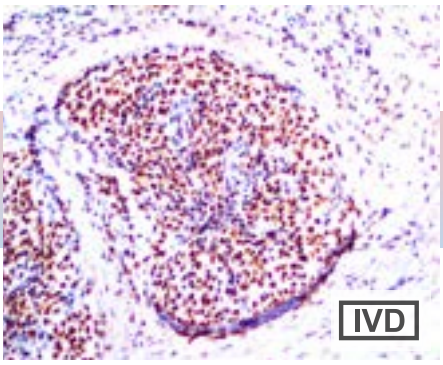
The INI-1 gene, which encodes a functionally uncharacterized protein component of the hSWI/SNF chromatin remodeling complex, is often mutated or deleted in malignant rhabdoid tumor (MRT). Two isoforms of INI-1, that differ by the variable inclusion of amino acids, potentially are produced by differential RNA splicing.

The morphology of MRTs can present challenges in differential diagnosis. The overall survival of MRTs relative to its potential mimics (medulloblastoma, supratenorial primitive neuroectodermal tumors (sPNETs)) is quite low, and thus differentiation from these other tumors is desirable. Lack of nuclear labeling by anti-INI-1 is characteristic of MRT. The majority of medulloblastomas and sPNETs are labeled by anti-INI-1. MRTs also originate from the kidney and soft tissues.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *25*
ISOTYPE: *IgG2a*
CONTROL: *Testis, Brain, Breast, Colon, Kidney, Pituitary Adrenal, Prostate, Thyroid, Lung, Pancreas, Cervix, Salivary Gland, Astrocytoma, Lymphoblastic Lymphoma, Transitional Cell Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6828	Tinto Predilute	3.0 ml
BSB 6829	Tinto Predilute	7.0 ml
BSB 6830	Tinto Predilute	15.0 ml
BSB 6831	Concentrate	0.1 ml
BSB 6832	Concentrate	0.5 ml
BSB 6833	Concentrate	1.0 ml
BSB 6834	Control Slides	5

INI-1, RMab



IHC of INI-1 on a FFPE Ewing's Sarcoma Tissue

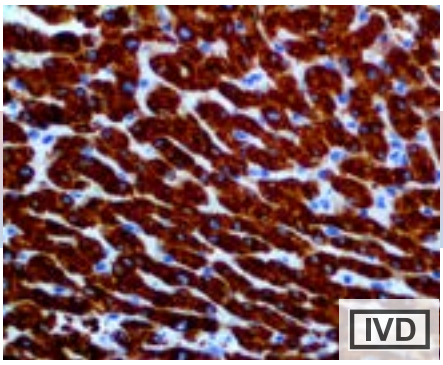
The INI-1 gene, which encodes a functionally uncharacterized protein component of the hSWI/SNF chromatin remodeling complex, is involved in chromatin remodeling and transcriptional regulation and also known as hSNF5, SMARCB1 and BAF47.

INI-1 is often mutated or deleted in malignant rhabdoid tumor (MRT). Two isoforms of INI-1, that differ by the variable inclusion of amino acids, potentially are produced by differential RNA splicing. The morphology of MRTs can present challenges in differential diagnosis. The overall survival of MRTs relative to its potential mimics such as medulloblastoma and supratentorial primitive neuroectodermal tumors (sPNETs) is quite low, and thus differentiation from these other tumors is desirable. Lack of nuclear labeling by INI-1 is characteristic of MRT. The majority of medulloblastomas and sPNETs are labeled by INI-1. MRTs also originate from the kidney and soft tissues. Germline INI-1 mutations are associated with sporadic schwannomatosis and rhabdoid tumors.
INI-1 has been used to distinguish atypical teratoid / rhabdoid tumor (loss of INI1) from choroid plexus carcinoma (positive for INI-1) and to differentiate epithelioid sarcoma (loss of INI1) from epithelioid hemangioendothelioma (positive for INI-1).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-INI1*
ISOTYPE: *IgG*
CONTROL: *Testis, Brain, Breast, Colon*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3779-3	Tinto Predilute	3.0 ml
BSB-3779-7	Tinto Predilute	7.0 ml
BSB-3779-15	Tinto Predilute	15.0 ml
BSB-3779-01	Concentrate	0.1 ml
BSB-3779-05	Concentrate	0.5 ml
BSB-3779-1	Concentrate	1.0 ml
BSB-3779-CS	Control Slides	5

iNOS, RMab



IHC of iNOS on a FFPE Liver Tissue

Nitric oxide synthases (NOSs) are a family of enzymes catalyzing the production of nitric oxide (NO) from L-arginine. NO is an important cellular signaling molecule. It helps modulate vascular tone, insulin secretion, airway tone, and peristalsis, and is involved in angiogenesis and neural development. The inducible isoform, iNOS, is involved in immune response, binds calmodulin at physiologically relevant concentrations, and produces NO as an immune defense mechanism, as NO is a free radical with an unpaired electron. It is the proximate cause of septic shock and may function in autoimmune disease.

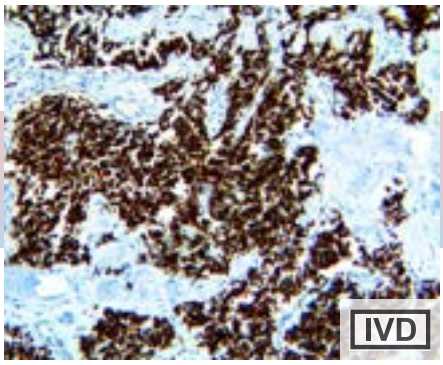
The inducible isoform iNOS produces large amounts of NO as a defense mechanism. It is synthesized by many cell types in response to cytokines and is an important factor in the response of the body to attack by parasites, bacterial infection, and tumor growth. It is also the cause of septic shock and may play a role in many diseases with an autoimmune etiology. Induction of the high-output iNOS usually occurs in an oxidative environment, and thus high levels of NO have the opportunity to react with superoxide leading to peroxynitrite formation and cell toxicity. These properties may define the roles of iNOS in host immunity, enabling its participation in anti-microbial and anti-tumor activities as part of the oxidative burst of macrophages.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-iNOS*
ISOTYPE: *IgG*
CONTROL: *Testis, Adrenal, Lung, Prostate, Liver, Placenta, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2656	Tinto Predilute	3.0 ml
BSB 2657	Tinto Predilute	7.0 ml
BSB 2658	Tinto Predilute	15.0 ml
BSB 2659	Concentrate	0.1 ml
BSB 2660	Concentrate	0.5 ml
BSB 2661	Concentrate	1.0 ml
BSB 2662	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

INSM1, MMab



IHC of INSM1 on a FFPE Lung Neuroendocrine Carcinoma Tissue

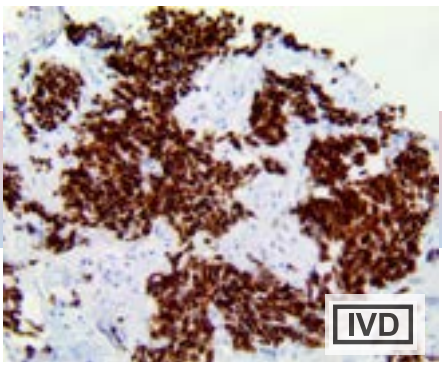
Insulinoma-associated 1 (INSM1) gene encodes a protein containing both a zinc finger DNA-binding domain and a putative prohormone domain, originally isolated from a human insulinoma-glucagonoma subtraction library. INSM1 mRNA is abundantly expressed in fetal NE developmental tissues and expressed in normal adult neuroendocrine tissues (adrenal medulla, pineal gland, pituitary gland, gastrointestinal enterochromaffin cells, pancreatic islet cells, thyroid C cells) and developing neurons, however there is also a high occurrence of INSM1 found in NE tumors, such as Small Cell Lung Cancer (SCLC), Pituitary tumors, Medullary Thyroid Carcinoma, Merkel Cell Carcinoma, Olfactory Neuroblastoma and Pheochromocytoma.

It has been reported that INSM1 expresses exclusively in SCLC specimens using immunohistochemistry, and first elucidated that INSM1 regulates the NE differentiation pathway in lung cancer. In addition, it has demonstrated an increased sensitivity and specificity compared to other NE biomarkers (Chromogranin A, Synaptophysin and CD56) in lung cancer specimens. In addition, it's been shown to be involved in NE differentiation in medullary thyroid carcinoma, pheochromocytoma, intestinal NE carcinoma, islet cell tumor, pituitary tumor, and SCLC cell lines.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-123*
ISOTYPE: *IgG1/k*
CONTROL: *Pancreas, Colon, Tonsil, Neuroendocrine Lung Cancer, Endometrial & Colon Carcinomas*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3553	Tinto Predilute	3.0 ml
BSB 3554	Tinto Predilute	7.0 ml
BSB 3555	Tinto Predilute	15.0 ml
BSB 3556	Concentrate	0.1 ml
BSB 3557	Concentrate	0.5 ml
BSB 3558	Concentrate	1.0 ml
BSB 3559	Control Slides	5

INSM1, RMab



IHC of INSM1 on a FFPE Lung Neuroendocrine Carcinoma Tissue

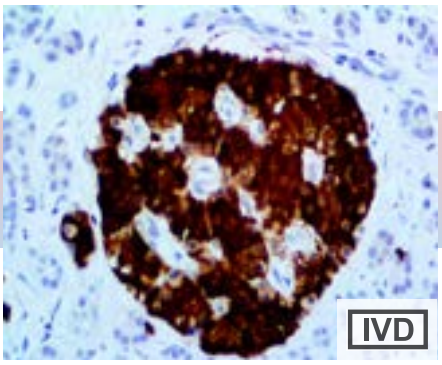
Insulinoma-associated 1 (INSM1) gene encodes a protein containing both a zinc finger DNA-binding domain and a putative prohormone domain, originally isolated from a human insulinoma-glucagonoma subtraction library.

INSM1 is abundantly expressed in fetal neuroendocrine developmental tissues and expressed in normal adult neuroendocrine (NE) tissues (adrenal medulla, pineal gland, pituitary gland, gastrointestinal enterochromaffin cells, pancreatic islet cells, thyroid C cells) and developing neurons. However there is also a high occurrence of INSM1 found in NE tumors, such as small cell lung cancer (SCLC), pituitary tumors, medullary thyroid carcinoma, Merkel cell carcinoma, olfactory neuroblastoma and pheochromocytoma. It has been reported that INSM1 expresses exclusively in SCLC specimens using immunohistochemistry, and first elucidated that INSM1 regulates the NE differentiation pathway in lung cancer. In addition, it has demonstrated an increased sensitivity and specificity compared to other NE biomarkers (Chromogranin A, Synaptophysin and CD56) in lung cancer specimens. In addition, it's been shown to be involved in NE differentiation in medullary thyroid carcinoma, pheochromocytoma, intestinal NE carcinoma, islet cell tumor, pituitary tumor, and SCLC cell lines.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-INSM1*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Colon, Tonsil, Neuroendocrine Lung Cancer, Endometrial & Colon Carcinomas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3780-3	Tinto Predilute	3.0 ml
BSB-3780-7	Tinto Predilute	7.0 ml
BSB-3780-15	Tinto Predilute	15.0 ml
BSB-3780-01	Concentrate	0.1 ml
BSB-3780-05	Concentrate	0.5 ml
BSB-3780-1	Concentrate	1.0 ml
BSB-3780-CS	Control Slides	5

Insulin, MMab



IHC of Insulin on a FFPE Pancreas Tissue

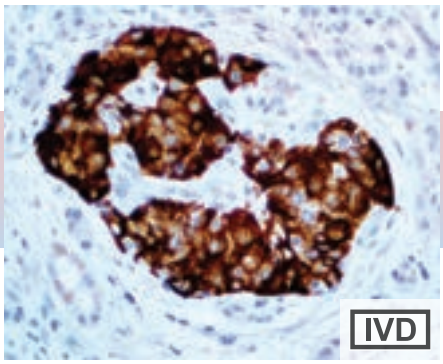
Insulin is produced in the beta cells of the Islets of Langerhans in the pancreas. It is a polypeptide hormone that regulates carbohydrate metabolism. Apart from being the primary agent in carbohydrate homeostasis, insulin has effects on fat metabolism and changes the liver's ability in storing or releasing glucose and processing blood lipids, and in other tissues such as fat and muscle. The amount of insulin in circulation has extremely widespread effects throughout the body.

The presence of insulin in the cytoplasm of Islet Tumors is the most reliable indication of functional Insulinomas. Defective insulin storage occurs in Insulinomas; therefore, many sections of the tumor should be stained with both insulin and C-peptide.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-42*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5694	Tinto Predilute	3.0 ml
BSB 5695	Tinto Predilute	7.0 ml
BSB 5696	Tinto Predilute	15.0 ml
BSB 5697	Concentrate	0.1 ml
BSB 5698	Concentrate	0.5 ml
BSB 5699	Concentrate	1.0 ml
BSB 5700	Control Slides	5

Insulin, RMab



IHC of Insulin on a FFPE Pancreas Tissue

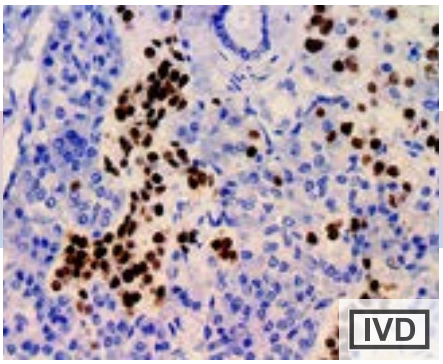
Insulin is produced in the beta cells of the Islets of Langerhans in the pancreas. It is a polypeptide hormone that regulates carbohydrate metabolism. Apart from being the primary agent in carbohydrate homeostasis, insulin has effects on fat metabolism and changes the liver's ability in storing or releasing glucose and processing blood lipids, and in other tissues such as fat and muscle. The amount of insulin in circulation has extremely widespread effects throughout the body.

The presence of insulin in the cytoplasm of Islet Tumors is the most reliable indication of functional Insulinomas. Defective insulin storage occurs in Insulinomas; therefore, many sections of the tumor should be stained with both insulin and C-peptide.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP125*
ISOTYPE: *IgG*
CONTROL: *Pancreas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6835	Tinto Predilute	3.0 ml
BSB 6836	Tinto Predilute	7.0 ml
BSB 6837	Tinto Predilute	15.0 ml
BSB 6838	Concentrate	0.1 ml
BSB 6839	Concentrate	0.5 ml
BSB 6840	Concentrate	1.0 ml
BSB 6841	Control Slides	5

Islet 1/ISL1, RMab



IHC of Islet 1 on a FFPE Pancreas Tissue

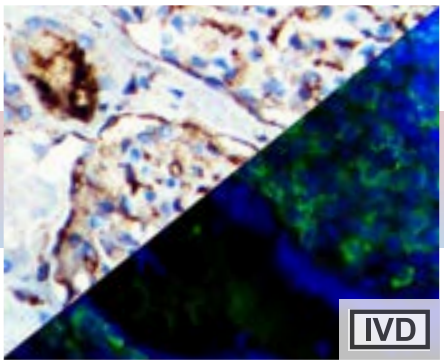
Islet-1, Insulin gene enhancer protein ISL-1, is a protein that in humans is encoded by the ISL1 gene. This gene encodes a transcription factor containing two N-terminal LIM domains and one C-terminal homeo domain. The encoded protein plays an important role in the embryogenesis of pancreatic islets of Langerhans. ISL1 has been shown to interact with Estrogen Receptor alpha.

Islet-1 produces a strong nuclear staining in the islets of normal pancreas and tumor cells of the pancreatic neuroendocrine tumors. Islet-1 has been found to be a reliable marker of pancreatic endocrine tumors and metastasis. It shows a comparable sensitivity and specificity as CDX2 as a marker of ileal and appendiceal neuroendocrine tumors and their metastasis. TTF1 is very rarely expressed in well-differentiated gastroenteropancreatic endocrine tumors. Therefore, the panel of Islet-1 CDX2, and TTF1 and they may be useful for examining metastasis of well-differentiated endocrine carcinomas of unknown origin.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP283*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Testis, Thyroid, Cervix, Skin, Pancreatic Neuroendocrine Cancer*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2971	Tinto Predilute	3.0 ml
BSB 2972	Tinto Predilute	7.0 ml
BSB 2973	Tinto Predilute	15.0 ml
BSB 2974	Concentrate	0.1 ml
BSB 2975	Concentrate	0.5 ml
BSB 2976	Concentrate	1.0 ml
BSB 2977	Control Slides	5

Kappa, RPab



IHC and IF of Kappa on a FFPE Kidney Tissue (IHC) and on a Frozen ColonTissue (IF with FluoroMounter DAPI)

Kappa detects surface immunoglobulin on normal and neoplastic B-cells. In paraffin-embedded tissue, Kappa exhibits strong staining of kappa-positive plasma cells and cells that have absorbed exogenous immunoglobulin.

When studying B-cell neoplasms, the determination of light-chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either Kappa or Lambda light chains, whereas reactive proliferations display a mixture of Kappa and Lambda-positive cells. If only a single light-chain type is detected, a lympho-proliferative disorder is very likely. Monoclonality is determined by a Kappa-Lambda ratio greater than or equal to 3:1, a Lambda-Kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population.

In IgG-dominant immune complex-mediated glomerulonephritis, there are multiple pathological findings that strongly suggest the diagnosis of Lupus Nephritis including immunofluorescence staining for IgG, IgM, IgA, Kappa or Lambda, C3 and C1.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3086	Tinto Predilute	3.0 ml
BSB 3087	Tinto Predilute	7.0 ml
BSB 3088	Tinto Predilute	15.0 ml
BSB 3089	Concentrate	0.1 ml
BSB 3090	Concentrate	0.5 ml
BSB 3091	Concentrate	1.0 ml
BSB 3688	Control Slides	5

Bio SB
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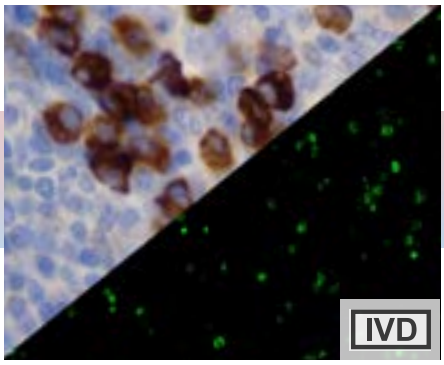
Kappa Light Chains, MMab



IHC and IF of Kappa on a FFPE Tonsil Tissue (IHC) and on a Frozen Spleen Tissue (IF)

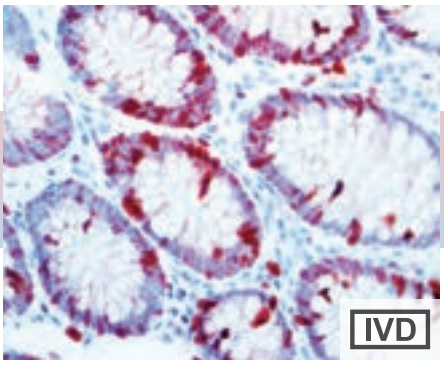
Kappa detects surface immunoglobulin on normal and neoplastic B-cells. In paraffin-embedded tissue, Kappa exhibits strong staining of kappa-positive plasma cells and cells that have absorbed exogenous immunoglobulin.

When studying B-cell neoplasms, the determination of light-chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-58*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5701	Tinto Predilute	3.0 ml
BSB 5702	Tinto Predilute	7.0 ml
BSB 5703	Tinto Predilute	15.0 ml
BSB 5704	Concentrate	0.1 ml
BSB 5705	Concentrate	0.5 ml
BSB 5706	Concentrate	1.0 ml
BSB 5707	Control Slides	5

Ki-67, RMab



IHC of Ki-67 on a FFPE Colon Tissue

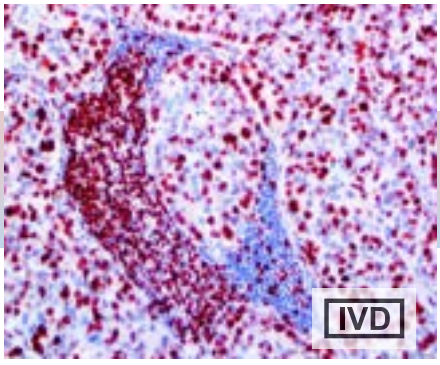
The Ki-67 protein is a cellular marker for proliferation. It is strictly associated with cell proliferation. During the interphase, the Ki-67 antigen can be exclusively detected within the cell nucleus, whereas in mitosis most of the protein is relocated to the surface of the chromosomes. Ki-67 protein is present during all active phases of the cell cycle (G1, S, G2, and mitosis), but is absent from resting cells (G0).

Ki-67 is an excellent marker to determine the growth fraction of a given cell population. The fraction of Ki-67-positive tumor cells (the Ki-67 labeling index) is often correlated with the clinical course of cancer. The best-studied examples in this context are Carcinomas of the Prostate and the Breast.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP5*
ISOTYPE: *IgG*
CONTROL: *Testis, Tonsil, Bone Marrow, Placenta, Colon, Tonsil, Fallopian Tube, Astrocytoma, Breast Carcinoma, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5708	Tinto Predilute	3.0 ml
BSB 5709	Tinto Predilute	7.0 ml
BSB 5710	Tinto Predilute	15.0 ml
BSB 5711	Concentrate	0.1 ml
BSB 5712	Concentrate	0.5 ml
BSB 5713	Concentrate	1.0 ml
BSB 5714	Control Slides	5

Ki-67, RMab



IHC of Ki-67 on FPPE Breast Carcinoma Tissue

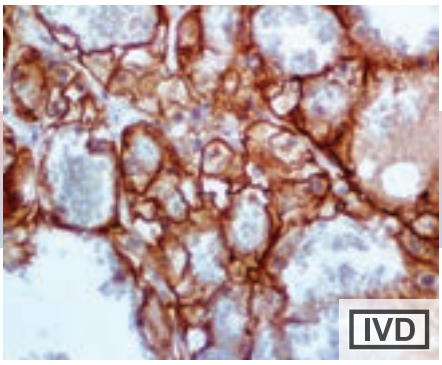
The Ki-67 protein is a cellular marker for proliferation. It is strictly associated with cell proliferation. During the interphase, the Ki-67 antigen can be exclusively detected within the cell nucleus, whereas in mitosis most of the protein is relocated to the surface of the chromosomes. Ki-67 protein is present during all active phases of the cell cycle (G1, S, G2, and mitosis), but is absent from resting cells (G0).

Ki-67 is an excellent marker to determine the growth fraction of a given cell population. The fraction of Ki-67-positive tumor cells (the Ki-67 labeling index) is often correlated with the clinical course of cancer. The best-studied examples in this context are Carcinomas of the Prostate and the Breast.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM360*
ISOTYPE: *IgG*
CONTROL: *Testis, Tonsil, Bone Marrow, Placenta, Colon, Tonsil, Fallopian Tube, Astrocytoma, Breast Carcinoma, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3767-3	Tinto Predilute	3.0 ml
BSB-3767-7	Tinto Predilute	7.0 ml
BSB-3767-15	Tinto Predilute	15.0 ml
BSB-3767-01	Concentrate	0.1 ml
BSB-3767-05	Concentrate	0.5 ml
BSB-3767-1	Concentrate	1.0 ml
BSB-3767-CS	Control Slides	5

Ksp-Cadherin, MMab



IHC of Ksp-Cadherin on a FFPE Kidney Tissue

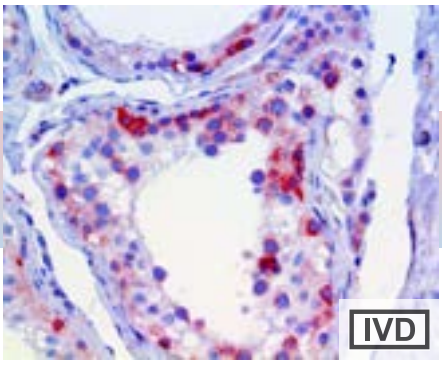
Ksp-Cadherin (Kidney-specific Cadherin) is a novel, kidney-specific member of the Cadherin family of cell-adhesion molecules. Within the kidney, Ksp-Cadherin is found exclusively in the baso-lateral membrane of renal tubular epithelial cells and collecting duct cells, and not in glomeruli, renal interstitial cells, or blood vessels. Different Cadherins, including E-Cadherin, Cadherin-6, and N-Cadherin, have been investigated in Renal Cell Cancers, demonstrating possible correlations of tumor differentiation and the presence of lymph node metastasis with loss of Cadherins.

Ksp-Cadherin has been used to distinguish Chromophobe Renal-Cell Carcinoma from Oncocytoma. Studies have found a membranous pattern of staining in 96% of 30 Chromophobe Carcinomas, and in only 6% of 31 Oncocytomas, leading to conclude that this is a useful antibody in differentiating these two lesions. On the other hand, another study found Ksp-Cadherin positivity in 100% of 13 chromophobe RCCs, and 95% of 20 Oncocytomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *4H6/F9*
ISOTYPE: *IgG1*
CONTROL: *Kidney, Chromophobe Renal Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6282	Tinto Predilute	3.0 ml
BSB 6283	Tinto Predilute	7.0 ml
BSB 6284	Tinto Predilute	15.0 ml
BSB 6285	Concentrate	0.1 ml
BSB 6286	Concentrate	0.5 ml
BSB 6287	Concentrate	1.0 ml
BSB 6288	Control Slides	5

LAG-3/CD223. RMab



IHC of LAG-3 / CD223 on a FFPE Testis Tissue

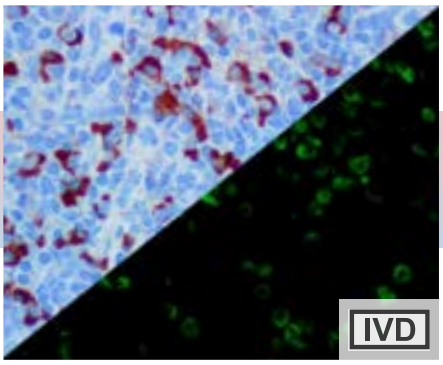
Lymphocyte-activation gene 3, also known as LAG-3 and designated as CD223, is a cell surface protein with diverse biologic effects on T cell function encoded by the LAG3 gene. The gene for LAG-3 lies adjacent to the gene for CD4 on human chromosome 12 (12p13) and is approximately 20% identical to the CD4 gene. LAG-3 is expressed on activated T cells, natural killer cells, B cells and plasmacytoid dendritic cells. The LAG-3 protein negatively regulates cellular proliferation, activation, and homeostasis of T cells, in a similar fashion to CTLA-4 and PD-1 and has been reported to play a role in Treg, regulatory T cells, suppressive function. LAG-3 also helps maintain CD8+ T cells in a tolerogenic state and, working with PD-1, helps maintain CD8 exhaustion during chronic viral infection. LAG-3 is known to be involved in the maturation and activation of dendritic cells.

Studies have shown that LAG-3 is a prognostic indicator of poor treatment outcomes in chronic lymphocytic leukemia, has been associated with higher risk of multiple myeloma, may play a modulating role in autoimmune diabetes and has been identified in a subset of HIV-specific LAG-3(+) CD8(+) T cells that negatively correlated with plasma viral load. IHC studies have shown LAG-3 expression on lymphocytes scattered in renal cell carcinoma, melanoma and lymphomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP294*
ISOTYPE: *IgG*
CONTROL: *Testis, Lymph Node, Spleen, Lymphoblastic Lymphoma, TCC*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3363	Tinto Predilute	3.0 ml
BSB 3364	Tinto Predilute	7.0 ml
BSB 3365	Tinto Predilute	15.0 ml
BSB 3366	Concentrate	0.1 ml
BSB 3367	Concentrate	0.5 ml
BSB 3368	Concentrate	1.0 ml
BSB 3369	Control Slides	5

Lambda, RPab



IHC and IF of Lambda on a FFPE Tonsil Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

Lambda detects surface immunoglobulin on normal and neoplastic B-cells. Lambda staining is seen in B-cell follicles of human lymphoid tissue.

When studying B-cell neoplasms, the determination of light chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population. In IgG-dominant immune complex-mediated glomerulonephritis, there are multiple pathological findings that strongly suggest the diagnosis of Lupus Nephritis including immunofluorescence staining for IgG, IgM, IgA, Kappa or Lambda, C3 and C1.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3092	Tinto Predilute	3.0 ml
BSB 3093	Tinto Predilute	7.0 ml
BSB 3094	Tinto Predilute	15.0 ml
BSB 3095	Concentrate	0.1 ml
BSB 3096	Concentrate	0.5 ml
BSB 3097	Concentrate	1.0 ml
BSB 3089	Control Slides	5

Bio SB
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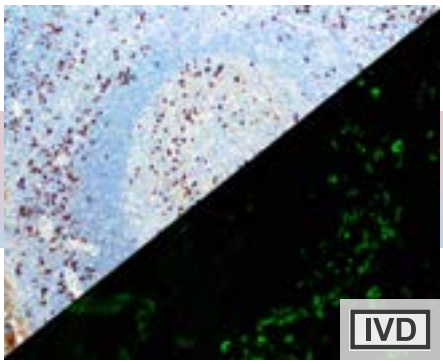
Lambda, MMab



IHC and IF of Lambda on a FFPE Tonsil Tissue

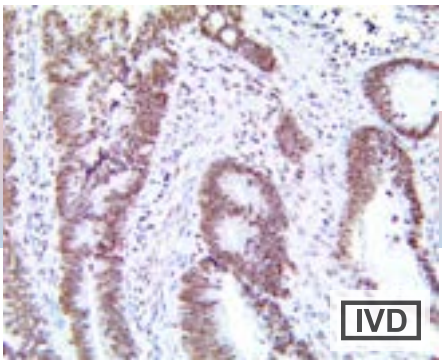
Lambda detects surface immunoglobulin on normal and neoplastic B-cells. Lambda staining is seen in B-cell follicles of human lymphoid tissue.

When studying B-cell neoplasms, the determination of light chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-16*
ISOTYPE: *IgG2a*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5715	Tinto Predilute	3.0 ml
BSB 5716	Tinto Predilute	7.0 ml
BSB 5717	Tinto Predilute	15.0 ml
BSB 5718	Concentrate	0.1 ml
BSB 5719	Concentrate	0.5 ml
BSB 5720	Concentrate	1.0 ml
BSB 5721	Control Slides	5

Lamin-B1, RMab



IHC of Lamin-B1 on a FFPE Colon Adenocarcinoma Tissue

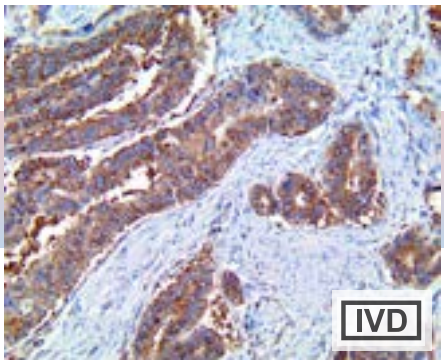
Lamin-B1 is an intermediate filament protein that in humans is encoded by the gene LMNB1. B-type Lamin along with A-type Lamin line the inner surface of the nuclear envelope and form a dynamic structure that is disassembled and reassembled each time a cell enters mitosis. Lamin-B1 plays a central role in chromatin organization, gene positioning, DNA replication and repair, cell cycle progression, stress responses, proliferation and differentiation.

Lamin-B1 loss is associated with cellular senescence and a broad range of aging-related diseases such as cardiovascular diseases and cancers. Recent studies showed Lamin-B1 deficiency promotes Lung Cancer development and metastasis by epigenetic derepression of RET, as well as malignancy and poor prognosis in Gastric Cancer. It has been observed that Lamin B1 levels are reduced in Lung Cancer patients compared to normal Lung tissue and that lower expression of Lamin B1 was associated with higher tumor grade. The levels of lamin A, on the other hand, were not altered in human Lung Tumors, indicating that the different types of lamins have distinct functions in lung carcinogenesis. Overexpression of Lamin-B1 can also indicate poor prognosis in Colon and Pancreatic Cancers.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-LMNB1*
ISOTYPE: *IgG*
CONTROL: *Colon, Breast, Fallopian Tube, Tonsil, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma, Colon Adenocarcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3735-3	Tinto Predilute	3.0 ml
BSB-3735-7	Tinto Predilute	7.0 ml
BSB-3735-15	Tinto Predilute	15.0 ml
BSB-3735-01	Concentrate	0.1 ml
BSB-3735-05	Concentrate	0.5 ml
BSB-3735-1	Concentrate	1.0 ml
BSB-3735-CS	Control Slides	5

Laminin-R/RPSA, MMab



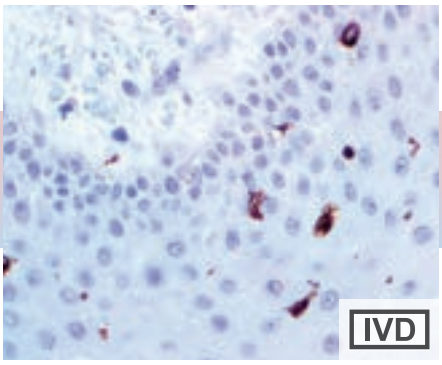
IHC of Laminin-R/RPSA on a FFPE Colon Carcinoma Tissue

Laminin receptor (Ribosomal Protein SA or 67LR) is a 67kDa protein in the extracellular matrix, coded by a 5,833 bp gene on Chromosome 3, containing seven exons and six introns. Laminin-R is involved in cellular adhesion to basement membranes and signal transduction pathways after binding the ligand Integrin-1. The receptor is also involved in pathways of cytoskeletal movement, chromatin structure, cellular migration, stress response, ribosomal function, translation, and rRNA processing. Laminin-R is also a receptor for green tea polyphenol and mediator in the Nitrous Oxide (eNOS) pathways used to force cancer cells into apoptosis. The 37kDa precursor protein, known also as p40, is a highly-conserved protein in the 40S ribosomal subunit.
Laminin-R has been found to be overexpressed in Breast, Colorectal, Pancreatic, Prostate, and Cervical Cancer, and in Lymphomas. Laminin-R interacts with cyclin-dependent kinases and inhibitors to control G1/S, S/G2 and G2/M phase cell cycle arrest; down-regulation of the receptor is correlated with arrested cell growth and a reduction in the development of tumors. Laminin-R has also been found to be involved in regulation of Survivin expression, as well as cancer metastasis and drug resistance.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-144*
ISOTYPE: *IgG1*
CONTROL: *Placenta, Kidney, Prostate, Tonsil, Spleen, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3736-3	Tinto Predilute	3.0 ml
BSB-3736-7	Tinto Predilute	7.0 ml
BSB-3736-15	Tinto Predilute	15.0 ml
BSB-3736-01	Concentrate	0.1 ml
BSB-3736-05	Concentrate	0.5 ml
BSB-3736-1	Concentrate	1.0 ml
BSB-3736-CS	Control Slides	5

Langerin/CD207, MMab



IHC of Langerin on a FFPE Skin Tissue

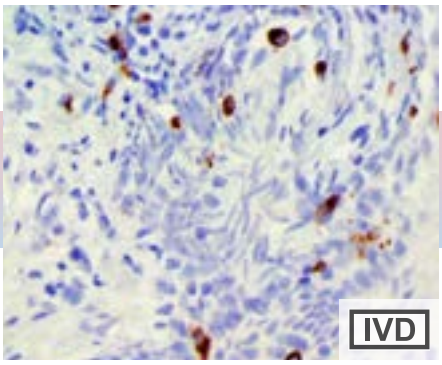
Langerin is a type II transmembrane cell surface receptor produced by Langerhans Cells, which are immature dendritic cells of the epidermis and mucosa. Epidermal LCs possess strong immunohistochemistry capacity and play a central role in the initiation and regulation of immune responses. Langerin is localized in the Birbeck granules, organelles present in the cytoplasm of Langerhans cells and consisting of superimposed and zippered membranes. It is a C-type lectin with mannose binding specificity, and it has been proposed that mannose binding by this protein leads to internalization of antigen into Birbeck granules and provides access to a nonclassical antigen-processing pathway.

Human spleen, lymph node, thymus, liver, lung, and heart express langerin protein. Langerin protein expression has utility in differentiating Langerhans cell histiocytosis from other non-Langerhans cell histiocytic proliferations.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *12D6*
ISOTYPE: *IgG2b/K*
CONTROL: *Skin, Breast, Prostate, Cervix, Liver, Salivary Gland, Langerhans Histiocytosis*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6842	Tinto Predilute	3.0 ml
BSB 6843	Tinto Predilute	7.0 ml
BSB 6844	Tinto Predilute	15.0 ml
BSB 6845	Concentrate	0.1 ml
BSB 6846	Concentrate	0.5 ml
BSB 6847	Concentrate	1.0 ml
BSB 6848	Control Slides	5

Langerin/CD207, RMab



IHC of Langerin on a FFPE Prostate Tissue

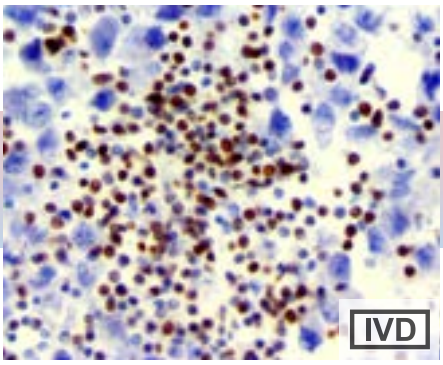
Langerin is a type II transmembrane cell surface receptor produced by Langerhans Cells, which are immature dendritic cells of the epidermis and mucosa. Epidermal LCs possess strong immunohistochemistry capacity and play a central role in the initiation and regulation of immune responses. Langerin is localized in the Birbeck granules, organelles present in the cytoplasm of Langerhans cells and consisting of superimposed and zippered membranes. It is a C-type lectin with mannose binding specificity, and it has been proposed that mannose binding by this protein leads to internalization of antigen into Birbeck granules and providing access to a nonclassical antigen-processing pathway.

Human spleen, lymph node, thymus, liver, lung and heart express langerin protein. Langerin protein expression has utility in differentiating Langerhans cell histiocytosis from other non-Langerhans cell histiocytic proliferations.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP349*
ISOTYPE: *IgG*
CONTROL: *Skin, Prostate, Breast, Liver, Cervix, Salivary Gland, Langerhans Histiocytosis*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3370	Tinto Predilute	3.0 ml
BSB 3371	Tinto Predilute	7.0 ml
BSB 3372	Tinto Predilute	15.0 ml
BSB 3373	Concentrate	0.1 ml
BSB 3374	Concentrate	0.5 ml
BSB 3375	Concentrate	1.0 ml
BSB 3376	Control Slides	5

LEF-1, RMab



IHC of LEF-1 on a FFPE Testicular Carcinoma Tissue

LEF1 is highly overexpressed and associated with disease progression and poor prognosis in B-cell chronic lymphocytic leukemia. Strong nuclear expression of LEF1 has been observed in majority of chronic lymphocytic leukemia/small lymphocytic lymphoma cases and LEF1 is not detected in other small B cell lymphomas. Gene expression profiling revealed overexpression of LEF-1 in chronic lymphocytic leukemia (CLL)/small lymphocytic lymphoma (SLL). LEF-1 immunostaining has been detected in all neoplastic cells of CLL/SLL cases. LEF-1 was identified in 50% of high grade follicular lymphoma and 38% of diffuse large B-cell lymphoma, but not in mantle cell lymphoma or marginal zone lymphoma. Recently, high LEF-1 was demonstrated as a favorable prognostic marker in cytogenetically normal acute myeloid leukemia. Due to its high sensitivity, LEF-1 has been proposed to be a suitable immunohistochemical marker for diagnosis and differential diagnosis for CLL/SLL.

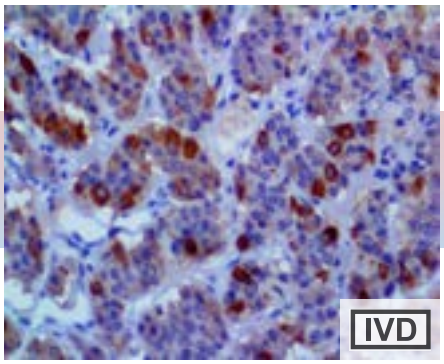
Alternately spliced isoforms may play additional roles in regulating cell growth in colon carcinoma, and nuclear LEF-1 immunostaining was detected in 36% of adenocarcinoma brain metastases.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP310*
ISOTYPE: *IgG*
CONTROL: *Breast, Tonsil, Breast Carconima, Small Lymphocytic Lymphoma, Langerhans Histiocytosis*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3377	Tinto Predilute	3.0 ml
BSB 3378	Tinto Predilute	7.0 ml
BSB 3379	Tinto Predilute	15.0 ml
BSB 3380	Concentrate	0.1 ml
BSB 3381	Concentrate	0.5 ml
BSB 3382	Concentrate	1.0 ml
BSB 3383	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

LH, MMab



IHC of LH on a FFPE Pituitary Tissue

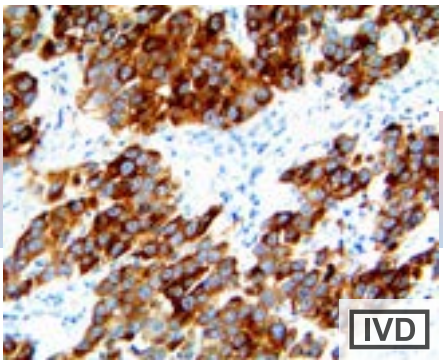
Luteinizing hormone (LH) is a hormone synthesized and secreted by gonadotropes in the anterior lobe of the pituitary gland. In concert with the other pituitary gonadotropin follicle-stimulating hormone (FSH), it is necessary for proper reproductive function. In the female, an acute rise of LH levels triggers ovulation. In the male, where LH has also been called Interstitial Cell-Stimulating Hormone (ICSH), it stimulates Leydig cell production of testosterone.

LH is a useful marker in classification of Pituitary Tumors and the study of pituitary disease. LH antibody reacts with LH-producing cells (gonadotrophs).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-53*
ISOTYPE: *IgG1/K*
CONTROL: *Normal Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rabbit, Pig*

CAT. #	PRESENTATION	VOL/QTY
BSB 5722	Tinto Predilute	3.0 ml
BSB 5723	Tinto Predilute	7.0 ml
BSB 5724	Tinto Predilute	15.0 ml
BSB 5725	Concentrate	0.1 ml
BSB 5726	Concentrate	0.5 ml
BSB 5727	Concentrate	1.0 ml
BSB 5728	Control Slides	5

LIN28, RMab



IHC of LIN28 on an FFPE Seminoma Tissue

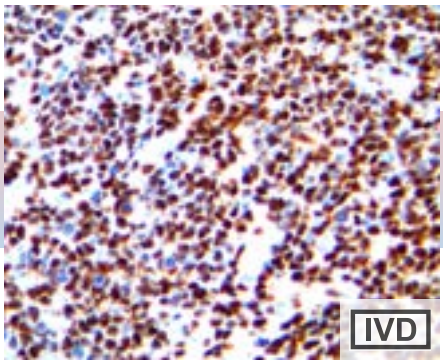
LIN28 homolog A is a protein that in humans is encoded by the LIN28 gene. LIN28 is thought to regulate the self-renewal of stem cells, is highly expressed in human embryonic stem cells and can enhance the efficiency of the formation of induced pluripotent stem (iPS) cells from human fibroblasts.

LIN28 has been found to be a highly sensitive marker for testicular intratubular germ cell neoplasias, classic seminomas, embryonal carcinomas, and yolk sac tumors (YST) with relatively high specificity. LIN28 can be used as a diagnostic marker for these tumors and has demonstrated a similar level of diagnostic utility as SALL4. The major advantage of LIN28 over OCT4 is in diagnosing yolk sac tumors (yolk sac tumors negative for OCT4). In another study, LIN28 was found to be a sensitive marker of ovarian primitive germ cell tumors like Gonadoblastomas, Dysgerminomas, Embryonal Carcinomas, and YSTs. LIN28 can be used to distinguish them from non- testicular germ cell tumors. High expression of Lin28 is associated with poor prognosis and high tumor aggressiveness in esophageal cancer and these effects are mediated through increased proliferation and invasiveness of esophageal cancer cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP150*
ISOTYPE: *IgG*
CONTROL: *Testis, Seminoma, Dysgerminoma, Yolk Sac Tumor, Embryonal Carcinoma*
LOCALIZATION: *Cytoplasmic,Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3560	Tinto Predilute	3.0 ml
BSB 3561	Tinto Predilute	7.0 ml
BSB 3562	Tinto Predilute	15.0 ml
BSB 3563	Concentrate	0.1 ml
BSB 3564	Concentrate	0.5 ml
BSB 3565	Concentrate	1.0 ml
BSB 3566	Control Slides	5

LMO2, RMab



IHC of LMO2 on an FFPE Lymphoblastic Lymphoma Tissue

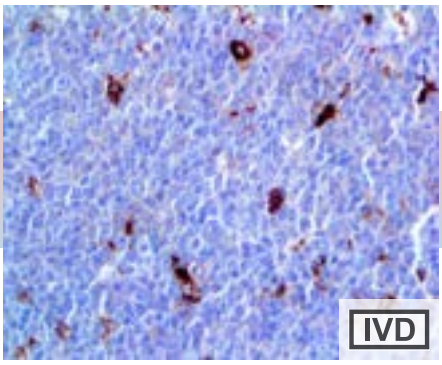
LIM domain only 2 (rhombotin-like 1), also known as LIM Domain Only Protein 2 and T-Cell Translocation Protein 2, is a protein which in humans is encoded by the LMO2 gene. LMO2 encodes a cysteine-rich, two LIM domain protein that is required for yolk sac erythropoiesis. The LMO2 protein has a central and crucial role in hematopoietic development and is highly conserved.

HGAL and LMO2 have been found helpful in classifying difficult cases of Follicular Lymphoma (FL) as an adjunct in the identification of FL of the nongastric GI tract. LMO2 expression has been reported to be special feature of GC DLBCL (Diffuse Large B Cell Lymphoma of germinal center subtype) which can be used as a diagnostic marker. LMO2 has shown usefulness as part of an IHC panel of germinal center-associated markers in eliminating cases of Diffuse Follicle Center Lymphoma. This is accomplished by taking into consideration the histologic and immunoarchitectural spectrum of Nodal Marginal Zone Lymphoma (NMZL) and the immunohistochemical analysis for CD43, CD23, CD21, BCL6, HGAL, and LMO2 in the diagnosis of NMZL.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-LM02*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Placenta, Follicular and Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3574	Tinto Predilute	3.0 ml
BSB 3575	Tinto Predilute	7.0 ml
BSB 3576	Tinto Predilute	15.0 ml
BSB 3577	Concentrate	0.1 ml
BSB 3578	Concentrate	0.5 ml
BSB 3579	Concentrate	1.0 ml
BSB 3580	Control Slides	5

Lysozyme, RPab



IHC of Lysozyme on a FFPE Tonsil Tissue

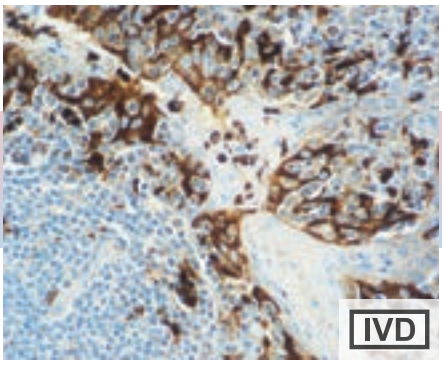
Lysozyme is a 14.4 kDa enzyme, commonly referred to as the "body's own antibiotic" since it kills bacteria. Lysozyme is an enzyme that destroys bacterial cell walls by hydrolyzing the polysaccharide component of the cell wall. It is abundantly present in a number of secretions, including tears. This protein is present in cytoplasmic granules of the polymorphonuclear neutrophils (PMN) and released through mucosal secretions such as tears and saliva. They can also be found in high concentration in egg white.

Lysozyme stains myeloid cells, histiocytes, granulocytes, macrophages, and monocytes in human tonsil, colon and skin. It is an important marker that may demonstrate the myeloid or monocytic nature of Acute Leukemia. The restrictive nature of Lysozyme antibody staining suggests that Lysozyme may be synthesized predominantly in reactive histiocytes rather than in resting, unstimulated phagocytes. It has not been determined whether Lysozyme stains any other cell or tissue type. Lysozyme may aid in the identification of histiocytic neoplasias and large lymphocytes, as well as classifying lymphoproliferative disorders.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Liver, Kidney, Spleen, Lung, Salivary Gland, Cervix, Pancreas, Bone Marrow, Colon, Lymphoblastic Lymphoma, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5729	Tinto Predilute	3.0 ml
BSB 5730	Tinto Predilute	7.0 ml
BSB 5731	Tinto Predilute	15.0 ml
BSB 5732	Concentrate	0.1 ml
BSB 5733	Concentrate	0.5 ml
BSB 5734	Concentrate	1.0 ml
BSB 5735	Control Slides	5

Lysozyme, RMab



IHC of Lysozyme on a FFPE Tonsil Tissue

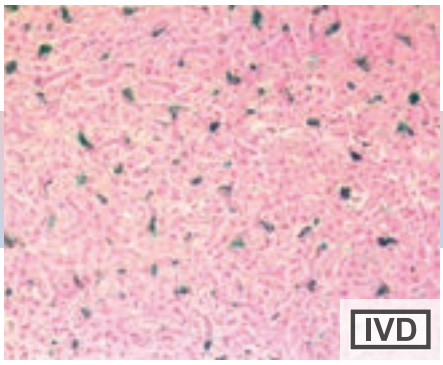
Lysozyme is a 14.4 kDa enzyme, commonly referred to as the "body's own antibiotic" since it kills bacteria. Lysozyme is an enzyme that destroys bacterial cell walls by hydrolyzing the polysaccharide component of the cell wall. It is abundantly present in a number of secretions, including tears. This protein is present in cytoplasmic granules of the polymorphonuclear neutrophils (PMN) and released through mucosal secretions such as tears and saliva. They can also be found in high concentration in egg white.

Lysozyme stains myeloid cells, histiocytes, granulocytes, macrophages, and monocytes in human tonsil, colon and skin. It is an important marker that may demonstrate the myeloid or monocytic nature of Acute Leukemia. The restrictive nature of Lysozyme antibody staining suggests that Lysozyme may be synthesized predominantly in reactive histiocytes rather than in resting, unstimulated phagocytes. It has not been determined whether Lysozyme stains any other cell or tissue type. Lysozyme may aid in the identification of histiocytic neoplasias and large lymphocytes, as well as classifying lymphoproliferative disorders.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP134*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Liver, Kidney, Spleen, Salivary Gland, Cervix, Pancreas, Bone Marrow, Colon, Lung*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6856	Tinto Predilute	3.0 ml
BSB 6857	Tinto Predilute	7.0 ml
BSB 6858	Tinto Predilute	15.0 ml
BSB 6859	Concentrate	0.1 ml
BSB 6860	Concentrate	0.5 ml
BSB 6861	Concentrate	1.0 ml
BSB 6862	Control Slides	5

Macrophage HAM-56, MMab



IHC of Macrophage on a FFPE Liver Tissue

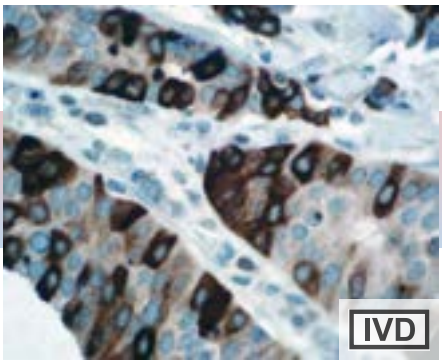
Macrophages comprise many forms of mononuclear phagocytes found in tissues that derive from hematopoietic stem cells in the bone marrow. Among the functions of macrophages are nonspecific phagocytosis and pinocytosis, killing of ingested microorganisms, and digestion and presentation of antigens to T and B-lymphocytes. Macrophages work to secrete a large number of diverse products such as lysozyme and collagenases, several complement components and coagulation factors, some prostaglandins and leukotrienes, and many regulatory molecules (Interferon, Interleukin 1).

Macrophage HAM-56 reacts with tingible macrophages (found in the germinal centers of lymph nodes), interdigitating macrophages of lymph nodes and tissue macrophages, (e.g., Kupffer cells of the liver and alveolar macrophages of the lung). This antibody also stains a subpopulation of endothelial cells, most prominently those of the capillaries and smaller blood vessels. HAM-56 reacts with monocytes, but is unreactive with B and T-lymphocytes.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HAM-56*
ISOTYPE: *IgM/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Monkey*

CAT. #	PRESENTATION	VOL/QTY
BSB 5736	Tinto Predilute	3.0 ml
BSB 5737	Tinto Predilute	7.0 ml
BSB 5738	Tinto Predilute	15.0 ml
BSB 5739	Concentrate	0.1 ml
BSB 5740	Concentrate	0.5 ml
BSB 5741	Concentrate	1.0 ml
BSB 5742	Control Slides	5

Mammaglobin, RMab



IHC of Mammaglobin on a FFPE Breast Tissue

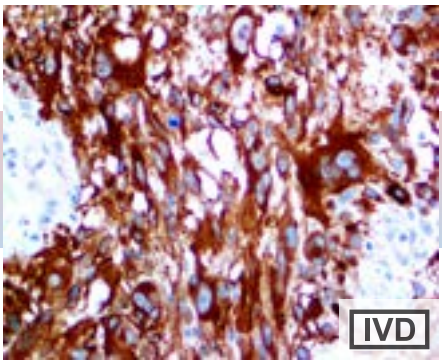
Mammaglobin is a gene that encodes a 10 kDa glycoprotein. In humans, expression of the gene is limited to the adult mammary gland. A correlation between increased expression of the gene and Breast Cancer has been reported. Mammaglobin mRNA is present in high levels in human Breast Cancer cell lines and primary Breast Cancers. High levels of mRNA have been detected in normal human sweat glands as well, but are absent in Sweat Gland Tumors.

Anti-Mammaglobin (EP249) has been shown to be effective in detecting up to 85% of Breast Carcinomas using immunohistochemical techniques. Studies investigating the detection of mRNA by RT PCR from circulating carcinoma cells in the peripheral blood of Breast Cancer patients have shown that mammaglobin is a highly-specific marker and correlates with several prognostic factors, such as lymph node involvement.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP249*
ISOTYPE: *IgG*
CONTROL: *Breast, Skin, Fallopian Tube, Breast Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Monkey, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5743	Tinto Predilute	3.0 ml
BSB 5744	Tinto Predilute	7.0 ml
BSB 5745	Tinto Predilute	15.0 ml
BSB 5746	Concentrate	0.1 ml
BSB 5747	Concentrate	0.5 ml
BSB 5748	Concentrate	1.0 ml
BSB 5749	Control Slides	5

Mart-1/Melan-A, MMab



IHC of MART-1 M2-7C10 on a FFPE Melanoma Tissue

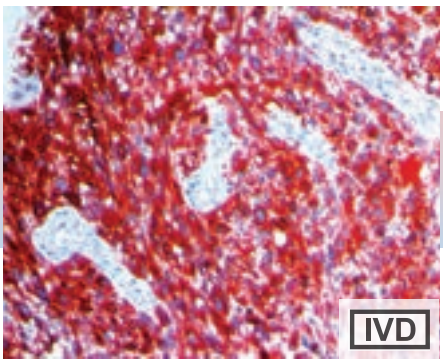
MART-1 M2-7C is a putative 18 kDa transmembrane protein consisting of 118 amino acids. It has a single transmembrane domain. MART-1/Melan-A is a protein antigen found on melanocytes. Antibodies against this antigen are used to recognize cells of melanocytic differentiation, useful for the diagnosis of Melanoma. The same name is used to refer to the gene which codes for this antigen.

The MART-1 M2-7C antigen is specific for the melanocyte lineage found in normal skin, retina, and melanocytes, but not in other normal tissues. It is thus useful as a marker for Melanocytic Tumors, with the caveat that it is normally found in benign nevi as well. This antibody is very useful in establishing the diagnosis of Metastatic Melanomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *M2-7C10*
ISOTYPE: *IgG2b/K*
CONTROL: *Normal Skin, Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5750	Tinto Predilute	3.0 ml
BSB 5751	Tinto Predilute	7.0 ml
BSB 5752	Tinto Predilute	15.0 ml
BSB 5753	Concentrate	0.1 ml
BSB 5754	Concentrate	0.5 ml
BSB 5755	Concentrate	1.0 ml
BSB 5756	Control Slides	5

Mart-1/Melan-A, MMab



IHC of MART-1/Melan-A on a FFPE Melanoma Tissue

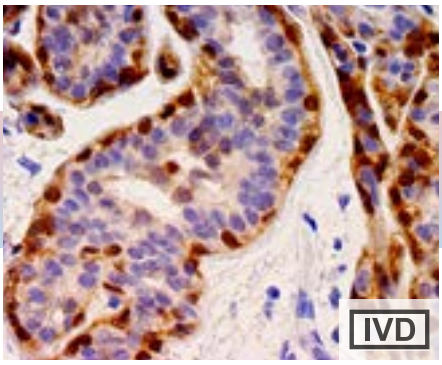
MART-1/Melan-A is a putative 18 kDa transmembrane protein consisting of 118 amino acids. It has a single transmembrane domain. MART-1/Melan-A is a protein antigen found on melanocytes. Antibodies against this antigen are used to recognize cells of melanocytic differentiation, useful for the diagnosis of Melanoma. The same name is used to refer to the gene which codes for this antigen.

The MART-1/Melan-A antigen is specific for the melanocyte lineage found in normal skin, retina, and melanocytes, but not in other normal tissues. It is thus useful as a marker for Melanocytic Tumors, with the caveat that it is normally found in benign nevi as well. This antibody is very useful in establishing the diagnosis of Metastatic Melanomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *A103*
ISOTYPE: *IgG1*
CONTROL: *Normal Skin, Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6870	Tinto Predilute	3.0 ml
BSB 6871	Tinto Predilute	7.0 ml
BSB 6872	Tinto Predilute	15.0 ml
BSB 6873	Concentrate	0.1 ml
BSB 6874	Concentrate	0.5 ml
BSB 6875	Concentrate	1.0 ml
BSB 6876	Control Slides	5

Maspin, MMab



IHC of Maspin on a FFPE Breast Tissue

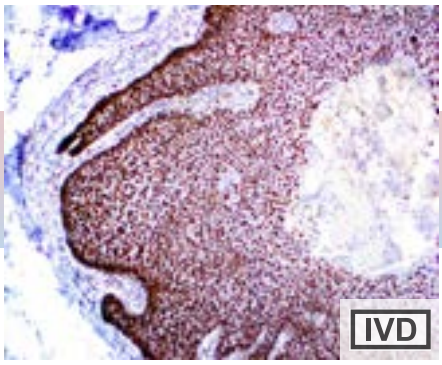
Maspin (mammary serine protease inhibitor) is a protein that in humans is encoded by the SERPINB5 gene. This protein belongs to the serpin (serine protease inhibitor) superfamily. SERPINB5 was originally reported to function as a tumor suppressor gene in epithelial cells, suppressing the ability of cancer cells to invade and metastasize to other tissues.

Maspin has been shown in primary breast cancer to be regulated by wild-type p53, defining a new category of molecular targets of p53 that have the potential to negatively regulate tumor invasion and metastasis. Loss of Maspin expression correlates with increased tumor aggressiveness and poor prognosis in advanced breast and prostate cancer. In contrast, Maspin has been shown to be overexpressed in pancreatic, ovarian, thyroid, gastric, lung, bladder, breast, skin and colon cancer. Several studies have investigated the prognostic significance of Maspin expression in lung cancer. In primary non-small cell lung cancer (NSCLC) was an independent negative prognostic factor for overall survival, whereas strong nuclear Maspin expression was associated with increased overall and disease-free survival in patients with resectable NSCLC.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-92*
ISOTYPE: *IgG2a*
CONTROL: *Prostate, Breast, Tonsil*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3265	Tinto Predilute	3.0 ml
BSB 3266	Tinto Predilute	7.0 ml
BSB 3267	Tinto Predilute	15.0 ml
BSB 3268	Concentrate	0.1 ml
BSB 3269	Concentrate	0.5 ml
BSB 3270	Concentrate	1.0 ml
BSB 3271	Control Slides	5

MCM2, RMab



IHC of MCM-2 on a FFPE HSIL of Anal Carcinoma

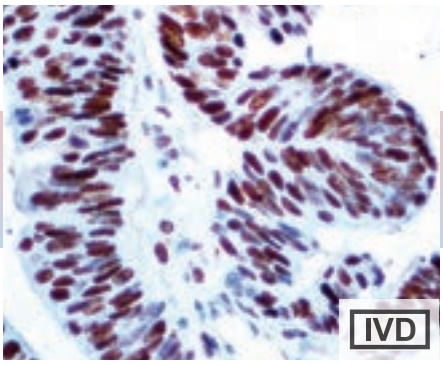
MCM-2 (mini-chromosome maintenance 2) is a human gene. The protein encoded by this gene is one of the highly conserved mini-chromosome maintenance proteins (MCM) that is involved in the initiation of eukaryotic genome replication. The hexameric protein complex formed by MCM proteins is a key component of the pre-replication complex, and may be involved in the formation of replication forks and in the recruitment of other DNA replication-related proteins. This protein forms a complex with MCM-4, 6, and 7, and has been shown to regulate the helicase activity of the complex. This protein is phosphorylated, and thus regulated by protein kinases CDC2 and CDC7.

MCM-2 is essential for eukaryotic DNA replication and drives the formation of pre-replicative complexes, which is the key first step during the G1 phase. Therefore, altered MCM-2 expression may be a hallmark of cell-cycle deregulation, which could be the most essential mechanism in the development and progression of human cancers. MCM2 has been identified by DNA microarray and transcriptional profiling as a gene that is over-expressed in Cervical Carcinomas. This protein is over-expressed in Cervical Dysplasia as a result of HPV infection. The over-expression of MCM-2 provides the link between oncogenic HPV infection and the molecular event of Cervical Dysplasia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-MCM2*
ISOTYPE: *IgG*
CONTROL: *HSIL, Cervical, Breast Cancer*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6331	Tinto Predilute	3.0 ml
BSB 6332	Tinto Predilute	7.0 ml
BSB 6333	Tinto Predilute	15.0 ml
BSB 6334	Concentrate	0.1 ml
BSB 6335	Concentrate	0.5 ml
BSB 6336	Concentrate	1.0 ml
BSB 6337	Control Slides	5

MCM3, RMab



IHC of MCM3 on a FFPE Colon Carcinoma Tissue

MCM3 is one of the highly conserved mini-chromosome maintenance proteins (MCM) that are involved in the initiation of eukaryotic genome replication. The hexameric protein complex formed by MCM proteins is a key component of the pre-replication complex and may be involved in the formation of replication forks and in the recruitment of other DNA replication proteins. MCM3 is a subunit of the protein complex that consists of MCM2-7. It has been shown to interact directly with MCM5/CDC46. This protein also interacts with, and thus is acetylated by MCM3AP, a chromatin-associated acetyltransferase. The acetylation of this protein inhibits the initiation of DNA replication and cell cycle progrsession.

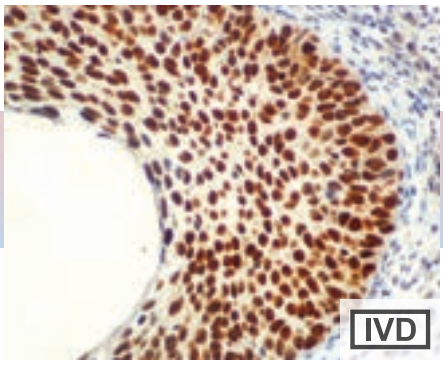
Increased expression of MCM3 has been demonstrated in various tumors by immunohistochemistry and is used as a marker for tumor progression.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP202*
ISOTYPE: *IgG*
CONTROL: *Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6884	Tinto Predilute	3.0 ml
BSB 6885	Tinto Predilute	7.0 ml
BSB 6886	Tinto Predilute	15.0 ml
BSB 6887	Concentrate	0.1 ml
BSB 6888	Concentrate	0.5 ml
BSB 6889	Concentrate	1.0 ml
BSB 6890	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

MCM5, RMab



IHC of MCM5 on a FFPE Cervical Cancer Tissue

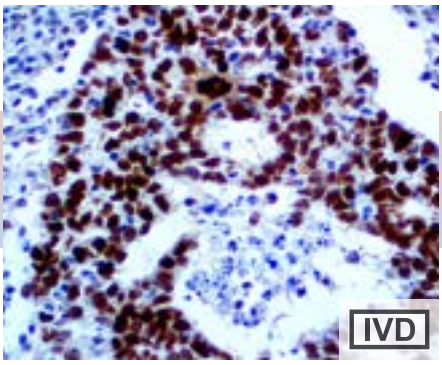
DNA replication licensing factor MCM5 is a member of the MCM family and is responsible for regulating DNA replication. It functions as a replicative helicase, the molecular motor that both unwinds duplex DNA and powers fork progression during DNA replication. MCM5 is upregulated in the transition from the G0 to the G1/S phase of the cell cycle and may actively participate in cell cycle regulation.

MCM5 may be a useful marker for skin cancer, colon cancer, and is of prognostic value in colon cancer and ovarian cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-MCM5*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Testis, Breast, Colon, Spleen, Cervical Carcinoma, Colon Carcinoma, Transitional Cell Carcinoma, Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6891	Tinto Predilute	3.0 ml
BSB 6892	Tinto Predilute	7.0 ml
BSB 6893	Tinto Predilute	15.0 ml
BSB 6894	Concentrate	0.1 ml
BSB 6895	Concentrate	0.5 ml
BSB 6896	Concentrate	1.0 ml
BSB 6897	Control Slides	5

MDM2, MMab



IHC of MDM2 on a FFPE Testicular Cancer Tissue

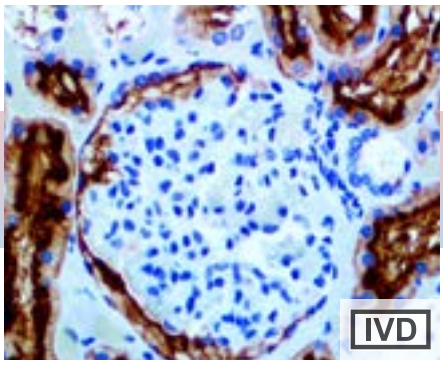
MDM2 is a protein that in humans is encoded by the MDM2 gene. MDM2 is an important negative regulator of the p53 tumor suppressor. The human homologue of this protein is sometimes called HDM2. Further supporting the role of MDM2 as an oncogene, several human tumor types have been shown to have increased levels of MDM2, including soft tissue sarcomas and osteosarcomas as well as breast tumors.

Well Differentiated Liposarcomas (WDLPS), Atypical Lipomatous Tumor/Well-Differentiated Liposarcoma (ALT-WDLPS) and Dedifferentiated Liposarcoma (DDLPS) may be difficult to distinguish from benign Adipose Tumors and from Poorly Differentiated Sarcomas, respectively. Genetically, they are characterized by amplification of MDM2 and CDK4 genes on chromosome 12q13-15. MDM2 and CDK4 protein overexpression have also been identified in these tumors. Detection of MDM2/CDK4 protein overexpression by IHC can be used to diagnose WDLPS and DDLPS. Immunohistochemical expression of MDM2 and CDK4 is specific and provides sensitive markers for the diagnosis of Low-grade Osteosarcomas, helping to differentiate them from benign fibrous and fibro-osseous lesions, particularly in cases with atypical radio-clinical presentation and/or limited biopsy samples.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-64*
ISOTYPE: *IgG1*
CONTROL: *Testis, Tonsil, Cervix, Placenta, LipoSarcoma & Soft Tissue, Testicular Cancer*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2978	Tinto Predilute	3.0 ml
BSB 2979	Tinto Predilute	7.0 ml
BSB 2980	Tinto Predilute	15.0 ml
BSB 2981	Concentrate	0.1 ml
BSB 2982	Concentrate	0.5 ml
BSB 2983	Concentrate	1.0 ml
BSB 2984	Control Slides	5

MDR-1, MMab



IHC of MDR-1 on a FFPE Kidney Tissue

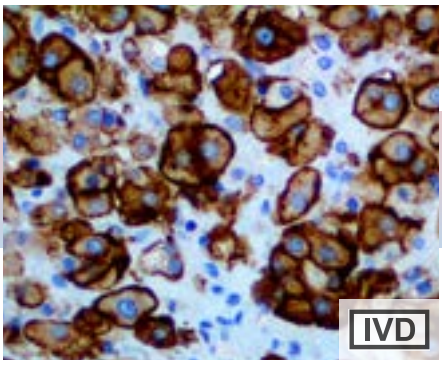
P-glycoprotein 1, also known as multidrug resistance protein 1 (MDR1) or ATP-binding cassette sub-family B member 1 (ABCB1) or cluster of differentiation 243 (CD243), functions as an energy-dependent efflux pump for structurally diverse agents ranging from ions to peptides. It is implicated in the development of the multiple drug resistance phenomenon observed in human cancer cells following prolonged chemotherapy. The classic form of multiple drug resistance is associated with an increase in the MDR protein, but not in all cases. MDR-1 is an apical transmembrane protein that is an integral part of the blood-brain barrier and functions as a drug transport pump that transports a variety of drugs from the brain back into the blood.

MDR-1 is extensively distributed and expressed in the intestinal epithelium, hepatocytes, renal proximal tubular cells, adrenal gland and capillary endothelial cells comprising the blood-brain and blood-testis barrier.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *JSB-1*
ISOTYPE: *IgG1*
CONTROL: *Skeletal Muscle, Kidney, Adrenal, Liver*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6898	Tinto Predilute	3.0 ml
BSB 6899	Tinto Predilute	7.0 ml
BSB 6900	Tinto Predilute	15.0 ml
BSB 6901	Concentrate	0.1 ml
BSB 6902	Concentrate	0.5 ml
BSB 6903	Concentrate	1.0 ml
BSB 6904	Control Slides	5

MDR-1, RMab



IHC of MDR-1 on a FFPE Adrenal Tissue

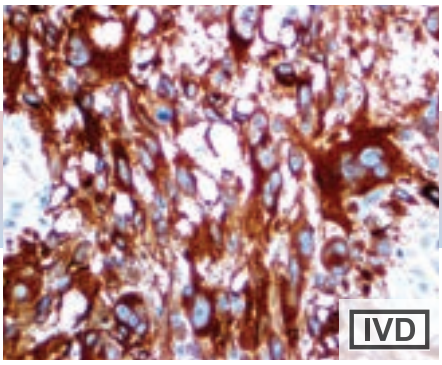
P-glycoprotein 1, also known as multidrug resistance protein 1 (MDR1) or ATP-binding cassette sub-family B member 1 (ABCB1) or cluster of differentiation 243 (CD243), functions as an energy-dependent efflux pump for structurally diverse agents ranging from ions to peptides. It is implicated in the development of the multiple drug resistance phenomenon observed in human cancer cells following prolonged chemotherapy. The classic form of multiple drug resistance is associated with an increase in the MDR protein, but not in all cases. MDR-1 is an apical transmembrane protein that is an integral part of the blood-brain barrier and functions as a drug transport pump that transports a variety of drugs from the brain back into the blood.

MDR-1 is extensively distributed and expressed in the intestinal epithelium, hepatocytes, renal proximal tubular cells, adrenal gland and capillary endothelial cells comprising the blood-brain and blood-testis barrier.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP271*
ISOTYPE: *IgG*
CONTROL: *Skeletal Muscle, Kidney, Adrenal, Liver*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mammalia*

CAT. #	PRESENTATION	VOL/QTY
BSB 2531	Tinto Predilute	3.0 ml
BSB 2532	Tinto Predilute	7.0 ml
BSB 2533	Tinto Predilute	15.0 ml
BSB 2534	Concentrate	0.1 ml
BSB 2535	Concentrate	0.5 ml
BSB 2536	Concentrate	1.0 ml
BSB 2537	Control Slides	5

Melanoma Cocktail: HMB-45, Mart-1 & Tyrosinase, MMab



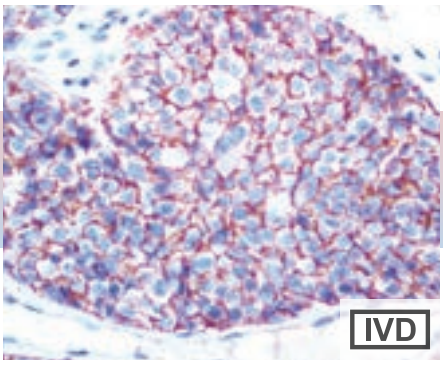
IHC of Melanoma Cocktail on a FFPE Melanoma Tissue

HMB-45 reacts against an antigen present in immature melanosomes, cutaneous, melanocytes, prenatal and infantile retinal pigment epithelium and melanoma cells. This antibody is very useful to identify Malignant Melanoma.
MART-1/Melan-A is a protein antigen found on melanocytes. Antibodies against this antigen are used to recognize cells of melanocytic differentiation, useful for the diagnosis of Melanoma. The same name is used to refer to the gene which codes for this antigen. The MART-1/Melan-A antigen is specific for the melanocyte lineage found in normal skin, retina, and melanocytes, but not in other normal tissues. It is thus useful as a marker for Melanocytic Tumors, with the caveat that it is normally found in benign nevi as well.
Tyrosinase is a copper-containing enzyme present in plant and animal tissues that catalyzes the production of melanin and other pigments from tyrosine by oxidation. Anti-Tyrosinase has been found to be quite specific for melanotic lesions such as Malignant Melanoma and Melanotic Neurofibroma. Essentially no carcinomas express this marker.
Melanoma cocktail HMB-45, Mart-1 and Tyrosinase are ideally suited to detect melanomas and melanocytic lesions and may prove to be a valuable marker for melanoma metastasis in sentinel lymph nodes.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HMB-45, A103 & BSB-6*
ISOTYPE: *IgG1/K, IgG1 & IgG2a*
CONTROL: *Skin, Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 6877	Tinto Predilute	3.0 ml
BSB 6878	Tinto Predilute	7.0 ml
BSB 6879	Tinto Predilute	15.0 ml
BSB 6880	Concentrate	0.1 ml
BSB 6881	Concentrate	0.5 ml
BSB 6882	Concentrate	1.0 ml
BSB 6883	Control Slides	5

Melanoma KBA-6.2, MMab



IHC of Melanoma/KBA.62 on a FFPE Melanoma Tissue

KBA.62 is a mouse monoclonal antibody that reacts against an antigen present in melanocytic tumors such as Melanomas. The antibody was generated to an extract of Melanoma. It reacted positively against Melanocytic Tumors but not other tumors, thus demonstrating specificity and sensitivity. Moreover, this antibody reacts positively against junctional nevus cells but not intradermal nevi, and against fetal melanocytes but not normal adult melanocytes.

This antibody is very useful to identify Malignant Melanoma. Metastatic Amelanotic Melanoma can often be confused with a variety of poorly differentiated Carcinomas, Large Cell Lymphomas, Sarcomas, Spindle Cell Carcinomas and various types of mesenchymal neoplasms. A keratin-negative, vimentin-rich neoplasm that immunoreacts with antibody to S-100 protein and with this melanoma antibody, is, with rare exception, a Melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *KBa6.2*
ISOTYPE: *IgG1*
CONTROL: *Melanoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6905	Tinto Predilute	3.0 ml
BSB 6906	Tinto Predilute	7.0 ml
BSB 6907	Tinto Predilute	15.0 ml
BSB 6908	Concentrate	0.1 ml
BSB 6909	Concentrate	0.5 ml
BSB 6910	Concentrate	1.0 ml
BSB 6911	Control Slides	5

Bio SB
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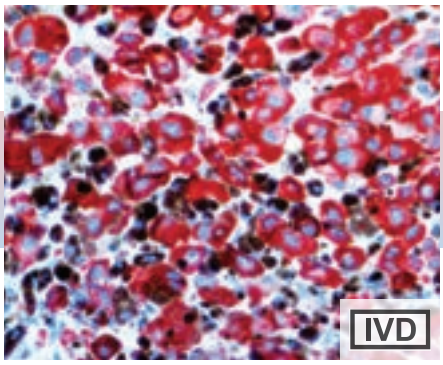
Melanoma PNL2, MMab



IHC of Melanoma/PNL2 on a FFPE Melanoma Tissue

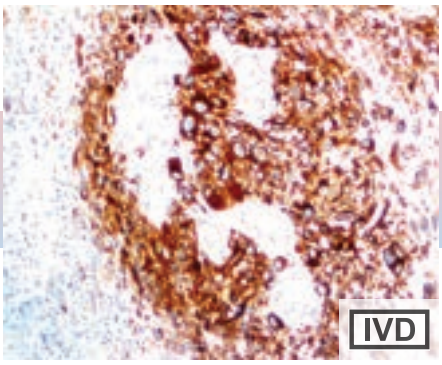
PNL2 is a mouse monoclonal antibody that reacts against an antigen present in melanocytic tumors such as Melanomas. The antibody was generated to an extract of Melanoma. It reacted positively against Melanocytic Tumors but not other tumors, thus demonstrating specificity and sensitivity. Moreover, this antibody reacts positively against junctional nevus cells but not intradermal nevi, and against fetal melanocytes but not normal adult melanocytes.

This antibody is very useful to identify Malignant Melanoma. Metastatic Amelanotic Melanoma can often be confused with a variety of poorly differentiated Carcinomas, Large Cell Lymphomas, Sarcomas, Spindle Cell Carcinomas and various types of mesenchymal neoplasms. A keratin-negative, vimentin-rich neoplasm that immunoreacts with antibody to S-100 protein and with this melanoma antibody, is, with rare exception, a Melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *PNL2*
ISOTYPE: *IgG1/K*
CONTROL: *Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 6912	Tinto Predilute	3.0 ml
BSB 6913	Tinto Predilute	7.0 ml
BSB 6914	Tinto Predilute	15.0 ml
BSB 6915	Concentrate	0.1 ml
BSB 6916	Concentrate	0.5 ml
BSB 6917	Concentrate	1.0 ml
BSB 6918	Control Slides	5

Melanosome HMB45, MMab



IHC of Melanosome HMB-45 on a FFPE Malignant Melanoma Tissue

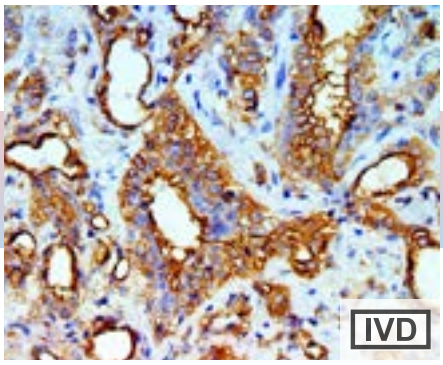
HMB-45 reacts against an antigen present in immature melanosomes, cutaneous, melanocytes, prenatal and infantile retinal pigment epithelium and melanoma cells. This antibody was generated to an extract of Melanoma. It reacted positively against Melanocytic Tumors but not other tumors, thus demonstrating specificity and sensitivity. Moreover, this antibody reacts positively against junctional nevus cells but not intradermal nevi, and against fetal melanocytes but not normal adult melanocytes.

This antibody is very useful to identify Malignant Melanoma. Metastatic Amelanotic Melanoma can often be confused with a variety of poorly differentiated Carcinomas, Large Cell Lymphomas, Sarcomas, Spindle Cell Carcinomas and various types of mesenchymal neoplasms. A keratin-negative, vimentin-rich neoplasm that immunoreacts with antibody to S-100 protein and with this melanoma antibody, is, with rare exception, a Melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HMB-45*
ISOTYPE: *IgG1K*
CONTROL: *Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5757	Tinto Predilute	3.0 ml
BSB 5758	Tinto Predilute	7.0 ml
BSB 5759	Tinto Predilute	15.0 ml
BSB 5760	Concentrate	0.1 ml
BSB 5761	Concentrate	0.5 ml
BSB 5762	Concentrate	1.0 ml
BSB 5763	Control Slides	5

Mesothelial Cell, MMab



IHC of Mesothelial Cell on a FFPE Mesothelioma Tissue

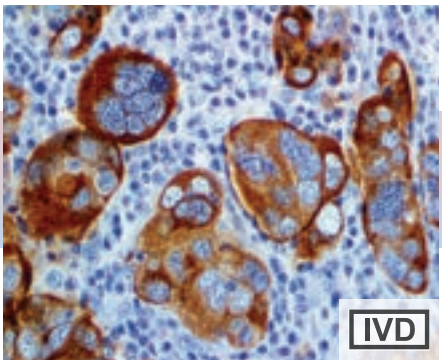
Mesothelial Cell HBME-1 has shown to label mesothelial cells, both benign and malignant and thus has been used in distinguishing mesothelioma from adenocarcinomas of various origins. HBME-1 has also been used to distinguish Thyroid carcinomas (both Follicular and Papillary) from benign thyroid lesions.

Mesothelial Cell HBME-1 and MOC-31 have been shown to have a diagnostic efficiency for the distinction between carcinoma and mesothelioma in pleura. HBME-1 staining may be useful for differentiating papillary carcinomas from follicular carcinomas; in papillary lesions it tends to be positive. Several immunohistochemical markers have been used to aid in the diagnosis of follicular-derived lesions of the thyroid (FDLT). HBME-1, ERK, and p16 were found to be more specific for malignancy, whereas CK19 and GAL-3 stained benign lesions with a higher frequency and were not specific for malignant FDLT.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HMBE-1*
ISOTYPE: *IgGM/K*
CONTROL: *Breast, Tonsil, Lung, Salivary Gland, TCC, Mesothelioma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3455	Tinto Predilute	3.0 ml
BSB 3456	Tinto Predilute	7.0 ml
BSB 3457	Tinto Predilute	15.0 ml
BSB 3458	Concentrate	0.1 ml
BSB 3459	Concentrate	0.5 ml
BSB 3460	Concentrate	1.0 ml
BSB 3461	Control Slides	5

Mesothelin, RMab



IHC of Mesothelin on a FFPE Ovarian Tissue

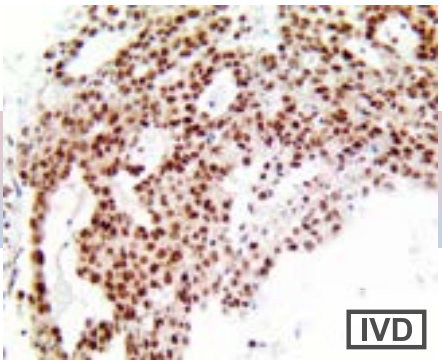
Mesothelin was first identified by its reactivity with monoclonal antibody K1. The mesothelin gene encodes a precursor protein that is processed to yield mesothelin, which is attached to the cell membrane by a glycophosphatidylinositol linkage and a 31-KDa shed fragment named megakaryocyte-potentiating factor (MPF). Its biological function is not known, but recent studies have shown that mesothelin forms a strong and specific complex with MUC16, which has been suggested to be the basis of ovarian cancer metastasis.

Mesothelin is present on normal mesothelial cells lining the pleura, peritoneum, and pericardium. In tumors, overexpression of Mesothelin has been observed in mesotheliomas, and other tumors including ovarian, pancreatic carcinomas, and cholangiocarcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP140*
ISOTYPE: *IgG*
CONTROL: *Cervix, Tonsil, Mesothelioma, Ovarian Cancer*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6919	Tinto Predilute	3.0 ml
BSB 6920	Tinto Predilute	7.0 ml
BSB 6921	Tinto Predilute	15.0 ml
BSB 6922	Concentrate	0.1 ml
BSB 6923	Concentrate	0.5 ml
BSB 6924	Concentrate	1.0 ml
BSB 6925	Control Slides	5

MGMT/AGAT, RMab



IHC of MGMT/AGAT on a FFPE Lung Adenocarcinoma Tissue

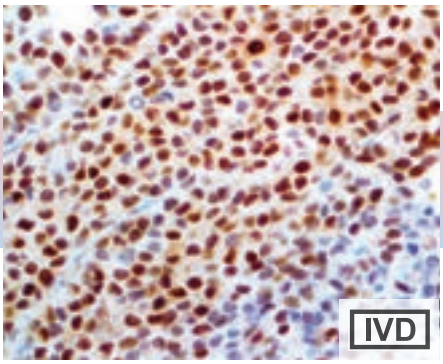
MGMT is a house-keeping gene expressed in all tissues, and its promoter methylation and resulting down-regulation of the AGT protein varies among tumor types. The MGMT promoter contains many regulatory domains, and methylation can help decrease protein expression and therefore resistance to drugs, improving effectiveness of alkylating treatments.

High MGMT expression has been reported in Glioma, Myeloma, Melanoma, Colon and Pancreatic Cancers, where inhibition or down-regulation make alkylating drug treatments more effective. MGMT expression is lost in some cancer types such as Lymphomas, Non-Small Cell Lung Cancer, Astrocyte Tumors, Breast, and Prostate Cancer, where it may fail to prevent mutations.
A study detected protein expression of MGMT by IHC in a series of newly diagnosed Glioblastomas and found that the MGMT status detected by either IHC or MSP was significantly correlated with the treatment response and survival of Glioblastoma patients. Another study addresses that MGMT in premalignant lesions from smokers and lung adenocarcinomas, their biological effects on gene regulation, and targeting MGMT for therapy and found strong evidence that the An allele of a MGMT promoter-enhancer SNP is a key determinant for MGMT methylation in lung carcinogenesis. Moreover, TMZ treatment may benefit a subset of lung cancer patients methylated for MGMT.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP337*
ISOTYPE: *IgG*
CONTROL: *Breast, Cervix, Fallopian Tube, Prostate, Testis, Transitional Cell Carcinoma, Lung Adenocarcinoma, Ductal Breast Carcinoma, Endometrial Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3737-3	Tinto Predilute	3.0 ml
BSB-3737-7	Tinto Predilute	7.0 ml
BSB-3737-15	Tinto Predilute	15.0 ml
BSB-3737-01	Concentrate	0.1 ml
BSB-3737-05	Concentrate	0.5 ml
BSB-3737-1	Concentrate	1.0 ml
BSB-3737-CS	Control Slides	5

MiTF, MMab



IHC of MiTF on a FFPE Melanoma Tissue

Microphthalmia-associated Transcription Factor (MiTF) is a basic helix-loop-helix leucine zipper transcription factor involved in melanocyte and osteoclast development. Mutations in MiTF cause auditory pigmentary syndromes, such as Waardenburg Syndrome Type II, Type IIa and Tietz Syndrome in humans. There are two known isoforms of MiTF differing by 66 amino acids at the NH2 terminus. Shorter forms are expressed in melanocytes and run as two bands at 52 kDa and 56 kDa, while the longer Mi form runs as a cluster of bands at 60-70 kDa in osteoclasts and in B16 Melonoma cells (but not other Melanoma cell lines), as well as mast cells and heart cells. MiTF plays a critical role in the differentiation of various cell types such as neural crest-derived melanocytes, mast cells, osteoclasts and optic cup-derived retinal pigment epithelium.

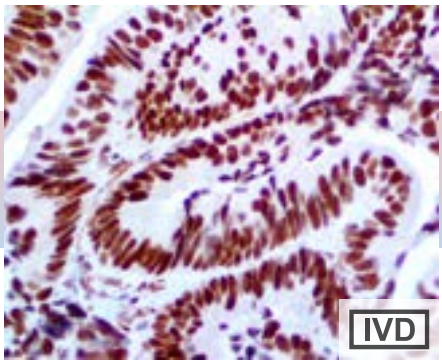
This antibody recognizes serine phosphorylated and non-phosphorylated melanocytic isoforms of microphthalmia. It is useful in identifying Malignant Melanoma, and distinguishing mast cell lesions from lesions of myeloid derivation. A relatively rare class of tumors known as PEComas (tumors showing perivascular epithelioid cell differentiation) express MiTF in a high percentage of cases (~90%).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *C5/D5*
ISOTYPE: *IgG1/K*
CONTROL: *Skin, Melanoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6247	Tinto Predilute	3.0 ml
BSB 6248	Tinto Predilute	7.0 ml
BSB 6249	Tinto Predilute	15.0 ml
BSB 6250	Concentrate	0.1 ml
BSB 6251	Concentrate	0.5 ml
BSB 6252	Concentrate	1.0 ml
BSB 6253	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

MLH1, MMab



IHC of MLH1 on a FFPE Colon Carcinoma Tissue

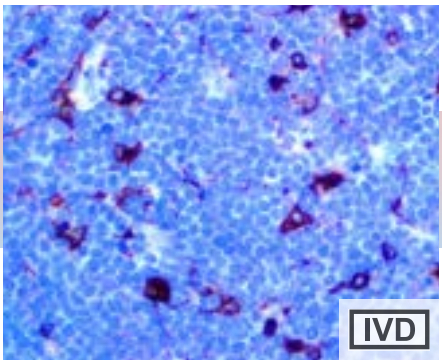
MLH1 is a mismatch repair gene of around 87 kDa, commonly associated with Hereditary Non-Polyposis Colorectal Cancer (HNPCC). This gene was identified as a locus frequently mutated in HNPCC. It is a human homolog of the E. coli DNA mismatch repair gene mutL, consistent with the characteristic alterations in microsatellite sequences (RER+ phenotype) found in HNPCC. Alternatively spliced transcript variants encoding different isoforms have been described, but their full-length natures have not been determined.

In a high proportion of patients with microsatellite instability (MSI-H), the MLH1 protein is typically deficient. This protein deficiency is linked to the autosomal dominant condition of Hereditary Non-Polyposis Colon Cancer. The anti-MLH1 antibody is useful in screening patients and families for this condition. Colon cancers that are microsatellite-unstable have a better prognosis than their microsatellite stable counterparts.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *G168-728*
ISOTYPE: *IgG2a*
CONTROL: *Testis, Tonsil, Colon, Kidney, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5764	Tinto Predilute	3.0 ml
BSB 5765	Tinto Predilute	7.0 ml
BSB 5766	Tinto Predilute	15.0 ml
BSB 5767	Concentrate	0.1 ml
BSB 5768	Concentrate	0.5 ml
BSB 5769	Concentrate	1.0 ml
BSB 5770	Control Slides	5

MMP-9, RMab



IHC of MMP-9 on a FFPE Lymphomblastic Lymphoma Tissue

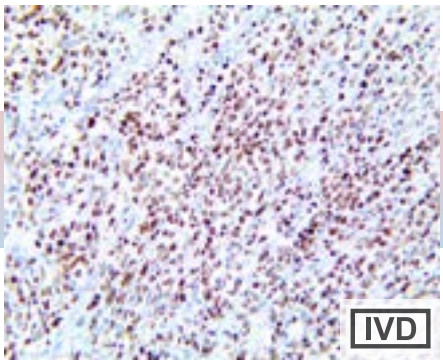
The matrix metalloproteinases (MMPs) are responsible for degradation of the extracellular matrix. The MMPs and their specific tissue inhibitor metalloproteinases (TIMP) have been associated with tumor cell invasion and metastasis in a number of adult tumors. MMP-9, also designated as 92-kDa Type IV Collagenase or gelatinase B, is a member of MMPs, which is produced as a 92- kDa pro-enzyme by neutrophils, macrophages, mast cells and stromal cells, as a normal constituent and released into the extracellular environment after activation in inflammatory tissues.

MMP-9 may be involved in the development of several human malignancies, as degradation of collagen IV in basement membrane and extracellular matrix facilitates tumor progression, including invasion, metastasis, growth and angiogenesis. The expression levels of MMP-9 in tumors are elevated compared with the corresponding normal tissues in a variety of cancer types, including breast, colon, gastric and nasopharyngeal cancers. MMP-9 may play an important role in angiogenesis and neovascularization. For example, MMP9 appears to be involved in the remodeling associated with malignant glioma neovascularization. Increased expression has been seen in a metastatic mammary cancer cell line.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP127*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Liver, Pituitary, Colon, Lymphoblastic Lymphoma, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2538	Tinto Predilute	3.0 ml
BSB 2539	Tinto Predilute	7.0 ml
BSB 2540	Tinto Predilute	15.0 ml
BSB 2541	Concentrate	0.1 ml
BSB 2542	Concentrate	0.5 ml
BSB 2543	Concentrate	1.0 ml
BSB 2544	Control Slides	5

MNDA, MMab



IHC of MNDA on a FFPE Diffuse Large B Cell Lymphoma Tissue

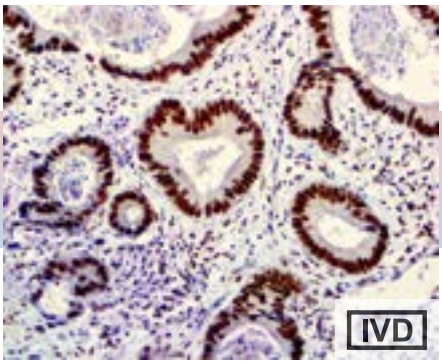
Myeloid cell Nuclear Differentiation Antigen (MNDA) is present in granulocytes and monocytes (myeloid and B cells), found in the marginal zones of germinal centers in tonsil, lymph node, spleen. MNDA is a highly basic protein from 1q22, and is part of the family of nuclear proteins expressed in reaction to interferons. MNDA contains a Pyrin 'death domain' used in self-association and is suggested to induce or help prevent different programmed cell death pathways in hematopoietic cells.

MNDA expression is studied mainly in leukemias and lymphomas. MNDA is a marker to distinguish Nodal Marginal Zone Lymphoma from Follicular Lymphoma, and has been shown to be downregulated in Myelodysplastic Syndrome, a precursor for Leukemia. MNDA overexpression in Osteosarcoma induces apoptosis and protects patients from metastasis, and expression in Chronic Lymphocytic Leukemia indicates the degradation of anti-apoptotic mRNA, allowing cells suffering genotoxic stress to undergo apoptosis.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-157*
ISOTYPE: *IgG1*
CONTROL: *Breast, Colon, Fallopian Tube, Brain, Tonsil, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3738-3	Tinto Predilute	3.0 ml
BSB-3738-7	Tinto Predilute	7.0 ml
BSB-3738-15	Tinto Predilute	15.0 ml
BSB-3738-01	Concentrate	0.1 ml
BSB-3738-05	Concentrate	0.5 ml
BSB-3738-1	Concentrate	1.0 ml
BSB-3738-CS	Control Slides	5

MSH2, MMab



IHC of MSH2 on FPPE Colon Carcinoma Tissue

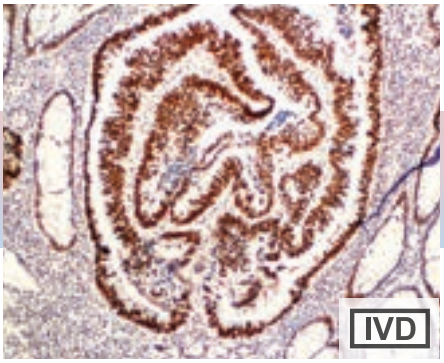
MSH2 is a mismatch repair gene commonly associated with Hereditary Non-Polyposis Colorectal Cancer (HNPCC). This gene was identified as a locus frequently mutated in HNPCC. When cloned, it is a human homolog of the E. coli DNA mismatch repair gene mutS, consistent with the characteristic alterations in microsatellite sequences (RER+ phenotype) found in HNPCC.

MSH2 is abnormally deficient in a high proportion of patients with microsatellite instability (MSI-H). This finding is associated with the autosomal dominant condition found in Hereditary Non-Polyposis Colon Cancer. This anti-MSH2 antibody (along with MLH1 antibody) is useful in screening patients and families for this rare condition. Colon cancers that are microsatellite unstable have a better prognosis than their microsatellite stable counterparts.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-147*
ISOTYPE: *IgG1*
CONTROL: *Colon, Skin, Breast, Tonsil, Fallopian Tube, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3722-3	Tinto Predilute	3.0 ml
BSB-3722-7	Tinto Predilute	7.0 ml
BSB-3722-15	Tinto Predilute	15.0 ml
BSB-3722-01	Concentrate	0.1 ml
BSB-3722-05	Concentrate	0.5 ml
BSB-3722-1	Concentrate	1.0 ml
BSB-3722-CS	Control Slides	5

MSH2, RMab



IHC of MSH2 on a FFPE Colon Carcinoma Tissue

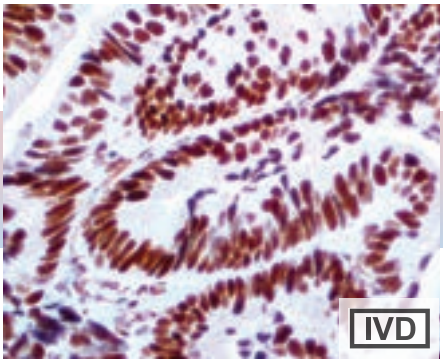
MSH2, also known as mutS protein homolog 2, is a mismatch repair gene commonly associated with Hereditary Non-Polyposis Colorectal Cancer (HNPCC). This gene was identified as a locus frequently mutated in HNPCC. When cloned, it is a human homolog of the E. coli DNA mismatch repair gene mutS, consistent with the characteristic alterations in microsatellite sequences (RER+ phenotype) found in HNPCC.

MSH2 is abnormally deficient in a high proportion of patients with microsatellite instability (MSI-H). This finding is associated with the autosomal dominant condition found in Hereditary Non-Polyposis Colon Cancer. This anti-MSH2 antibody (along with MLH1 antibody) is useful in screening patients and families for this rare condition. Colon cancers that are microsatellite unstable have a better prognosis than their microsatellite stable counterparts.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-MSH2*
ISOTYPE: *IgG*
CONTROL: *Colon Carcinoma, Colon, Skin, Breast, Tonsil, Fallopian Tube*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6926	Tinto Predilute	3.0 ml
BSB 6927	Tinto Predilute	7.0 ml
BSB 6928	Tinto Predilute	15.0 ml
BSB 6929	Concentrate	0.1 ml
BSB 6930	Concentrate	0.5 ml
BSB 6931	Concentrate	1.0 ml
BSB 5777	Control Slides	5

MSH6, MMab



IHC of MSH6 on a FFPE Colon Carcinoma Tissue

MSH6 is also known as mutS homolog 6, a gene commonly associated with Hereditary Non-Polyposis Colorectal Cancer (HNPCC). HNPCC is an autosomal, dominantly inherited disease associated with marked increase in cancer susceptibility. It is characterized by a familial predisposition to early onset Colorectal Carcinoma and extra-colonic cancers of the gastrointestinal, urological and female reproductive tracts. HNPCC is reported to be the most common form of inherited Colorectal Cancer in the western world. MSH6 is a mismatch repair gene which is deficient in a high proportion of patients with microsatellite instability (MSI-H).

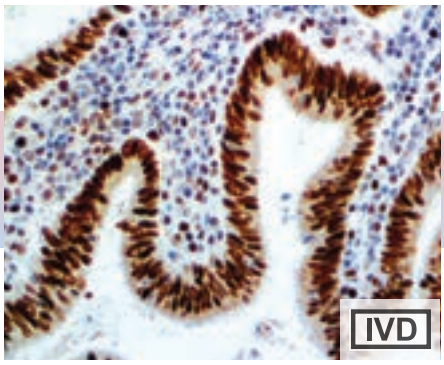
The anti-MSH6 antibody is useful in screening patients and families for HNPCC. Colon cancers that are microsatellite-unstable have a better prognosis than their microsatellite-stable counterparts.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *44*
ISOTYPE: *IgG1*
CONTROL: *Colon Mucosa, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Rat, Mouse, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 6142	Tinto Predilute	3.0 ml
BSB 6143	Tinto Predilute	7.0 ml
BSB 6144	Tinto Predilute	15.0 ml
BSB 6145	Concentrate	0.1 ml
BSB 6146	Concentrate	0.5 ml
BSB 6147	Concentrate	1.0 ml
BSB 6148	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

MSH6, RMab



IHC of MSH6 on a FFPE Colon Carcinoma Tissue

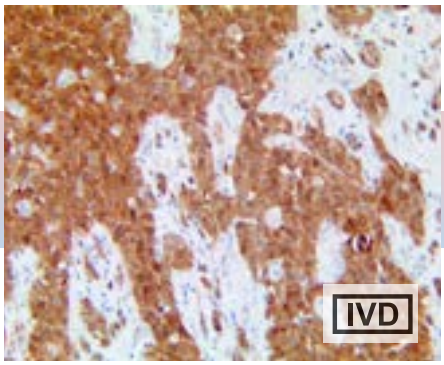
MSH6, also known as mutS homolog 6, is a gene commonly associated with Hereditary Non-Polyposis Colorectal Cancer (HNPCC). HNPCC is an autosomal, dominantly inherited disease associated with marked increase in cancer susceptibility. It is characterized by a familial predisposition to early onset Colorectal Carcinoma and extra-colonic cancers of the gastrointestinal, urological and female reproductive tracts. HNPCC is reported to be the most common form of inherited Colorectal Cancer in the western world. MSH6 is a mismatch repair gene which is deficient in a high proportion of patients with microsatellite instability (MSI-H).

The anti-MSH6 antibody is useful in screening patients and families for HNPCC. Colon cancers that are microsatellite-unstable have a better prognosis than their microsatellite-stable counterparts.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP49*
ISOTYPE: *IgG*
CONTROL: *Colon Mucosa, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6932	Tinto Predilute	3.0 ml
BSB 6933	Tinto Predilute	7.0 ml
BSB 6934	Tinto Predilute	15.0 ml
BSB 6935	Concentrate	0.1 ml
BSB 6936	Concentrate	0.5 ml
BSB 6937	Concentrate	1.0 ml
BSB 6938	Control Slides	5

MTAP, RMab



IHC of MTAP on a FFPE Melanoma Tissue

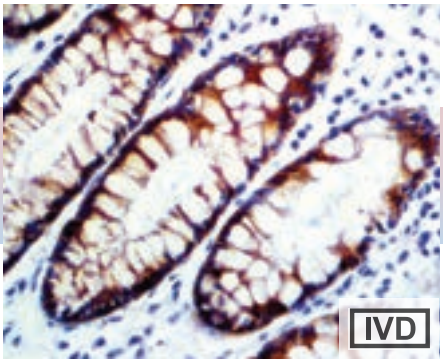
The S-methyl-5'-thioadenosine phosphorylase (MTAP) metabolizes methylthioadenosine (MTA), a byproduct of polyamine synthesis and regulator of protein methylation, to salvage adenine and methionine residues for reuse in many pathways affecting cell proliferation, signaling, and apoptosis. The MTAP gene, located at 9p12.3, is co-deleted with CDKN2A (encodes p16 tumor-suppressor) in several types of cancer and is abundant in all normal tissues but is deficient in various tumors.

IHC has been found to be an accurate and useful diagnostic method for detecting MTAP deficiency in NSCLC, and the frequency of MTAP deficiency was found to be relatively high. Accumulated MTA can upregulate transcription factors, activate ERK pathways in Melanoma and MAPK in Liver Cancer causing invasive and metastasizing tumors, and disrupt function of secretory cells in tissues like the prostate. Disrupted DNA methylation affects epigenetic factors and can lead to dedifferentiated stem-like cancer cells in Glioblastoma, although these cells can suffer purine starvation without a functioning salvage pathway. Overexpression of MTAP is also associated with increased proliferation and epithelial-to-mesenchymal transition in Colorectal Carcinoma.A study has found that a combination of MTAP or BAP1 loss detected by IHC can likely detect malignant pleural mesothelioma (MPM) and serve as a useful ancillary IHC for discriminating MPM from reactive mesothelial hyperplasia (RMH).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-MTAP*
ISOTYPE: *IgG*
CONTROL: *Breast, Colon, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3739-3	Tinto Predilute	3.0 ml
BSB-3739-7	Tinto Predilute	7.0 ml
BSB-3739-15	Tinto Predilute	15.0 ml
BSB-3739-01	Concentrate	0.1 ml
BSB-3739-05	Concentrate	0.5 ml
BSB-3739-1	Concentrate	1.0 ml
BSB-3739-CS	Control Slides	5

MUC1, MMab



IHC of MUC1 on a FFPE Colon Tissue

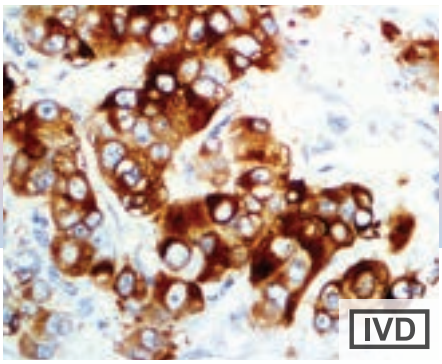
Mucin 1, also known as MUC1, is a human gene. This gene is a member of the mucin family and encodes a membrane-bound, glycosylated phosphoprotein. The protein is anchored to the apical surface of many epithelia by a transmembrane domain, the degree of glycosylation varying with cell type. Mucins are high molecular-weight glycoproteins which constitute the major component of the mucus layer that protects the gastric epithelium from chemical and mechanical aggressions. The MUC1 protein serves a protective function by binding to pathogens and also functions in a cell-signaling capacity. Overexpression, aberrant intracellular localization, and changes in glycosylation of this protein have been associated with carcinomas. Multiple alternatively-spliced transcript variants that encode different isoforms of this gene have been reported, but the full-length nature of only some has been determined.

MUC1 is a large cell, surface-mucin glycoprotein expressed by most glandular and ductal epithelial cells and some hematopoietic cell lineages. It is expressed on most secretory epithelium, including mammary gland and some hematopoietic cells. It is expressed in lactating mammary glands and overexpressed in more than 90% Breast Carcinomas and metastases. Transgenic MUC1 has been shown to associate with all four cebB receptors and localize with erbB1 (EGFR) in lactating glands.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-44*
ISOTYPE: *IgG1*
CONTROL: *Breast, Colon, Kidney, Fallopian Tube, Tonsil, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6149	Tinto Predilute	3.0 ml
BSB 6150	Tinto Predilute	7.0 ml
BSB 6151	Tinto Predilute	15.0 ml
BSB 6152	Concentrate	0.1 ml
BSB 6153	Concentrate	0.5 ml
BSB 6154	Concentrate	1.0 ml
BSB 6155	Control Slides	5

MUC1, RMab



IHC of MUC1 on a FFPE Breast Carcinoma Tissue

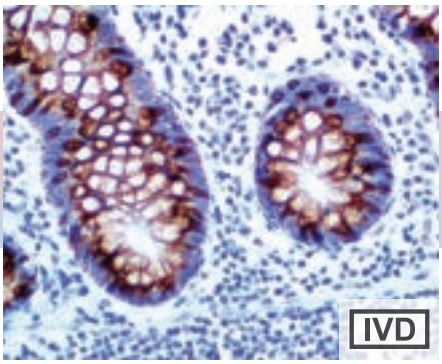
Mucin 1, also known as MUC1, is a member of the mucin family and encodes a membrane-bound, glycosylated phosphoprotein. The protein is anchored to the apical surface of many epithelia by a transmembrane domain, the degree of glycosylation varying with cell type. Mucins are high molecular-weight glycoproteins which constitute the major component of the mucus layer that protects the gastric epithelium from chemical and mechanical aggressions. The MUC1 protein serves a protective function by binding to pathogens and also functions in a cell-signaling capacity. Overexpression, aberrant intracellular localization, and changes in glycosylation of this protein have been associated with carcinomas. Multiple alternatively-spliced transcript variants that encode different isoforms of this gene have been reported, but the full-length nature of only some has been determined.

MUC1 is a large cell, surface-mucin glycoprotein expressed by most glandular and ductal epithelial cells and some hematopoietic cell lineages. It is expressed on most secretory epithelium, including mammary gland and some hematopoietic cells. It is expressed in lactating mammary glands and overexpressed in more than 90% Breast Carcinomas and metastases. Transgenic MUC1 has been shown to associate with all four cebB receptors and localize with erbB1 (EGFR) in lactating glands.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP85*
ISOTYPE: *IgG*
CONTROL: *Breast, Colon, Kidney, Fallopian Tube, Tonsil, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6939	Tinto Predilute	3.0 ml
BSB 6940	Tinto Predilute	7.0 ml
BSB 6941	Tinto Predilute	15.0 ml
BSB 6942	Concentrate	0.1 ml
BSB 6943	Concentrate	0.5 ml
BSB 6944	Concentrate	1.0 ml
BSB 6945	Control Slides	5

MUC2, MMab



IHC of MUC2 on a FFPE Colon Tissue

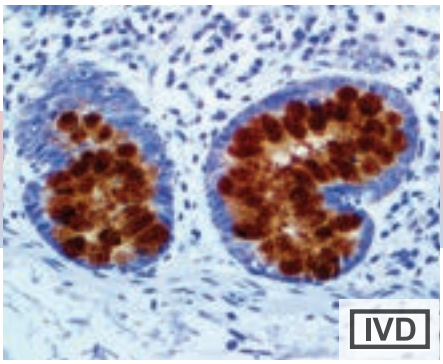
Mucin 2, also known as MUC2, is a human gene that encodes a member of the mucin protein family. The protein encoded by this gene forms an insoluble mucous barrier that protects the gut lumen. The protein polymerizes into a gel of which 80% is composed of oligosaccharide side chains.

MUC2 expression is detected in such human tissues as normal colon, breast, prostate, salivary gland, and in gastrointestinal, colonic, breast and prostate neoplasia. This antibody labels MUC2 in normal Colon and Colon Carcinomas where it produces intense perinuclear staining in goblet cells. It also reacts with normal and neoplastic breast tissues and with Prostate Adenocarcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-45*
ISOTYPE: *IgG1/K*
CONTROL: *Small Intestine, Colon, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6156	Tinto Predilute	3.0 ml
BSB 6157	Tinto Predilute	7.0 ml
BSB 6158	Tinto Predilute	15.0 ml
BSB 6159	Concentrate	0.1 ml
BSB 6160	Concentrate	0.5 ml
BSB 6161	Concentrate	1.0 ml
BSB 6162	Control Slides	5

MUC2, RMab



IHC of MUC2 on a FFPE Colon Tissue

Mucin 2, also known as MUC2, is a human gene. This gene encodes a member of the mucin protein family. The protein encoded by this gene forms an insoluble mucous barrier that protects the gut lumen. The protein polymerizes into a gel of which 80% is composed of oligosaccharide side chains.

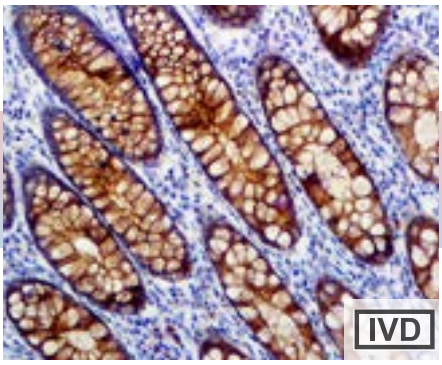
MUC2 expression is detected in such human tissues as normal colon, breast, prostate, salivary gland, and in gastrointestinal, colonic, breast and prostate neoplasia. This antibody labels MUC2 in normal Colon and Colon Carcinomas where it produces intense perinuclear staining in goblet cells. It also reacts with normal and neoplastic breast tissues and with Prostate Adenocarcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP187*
ISOTYPE: *IgG*
CONTROL: *Small Intestine, Colon, Colon Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6946	Tinto Predilute	3.0 ml
BSB 6947	Tinto Predilute	7.0 ml
BSB 6948	Tinto Predilute	15.0 ml
BSB 6949	Concentrate	0.1 ml
BSB 6950	Concentrate	0.5 ml
BSB 6951	Concentrate	1.0 ml
BSB 6952	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

MUC4, MMab



IHC of MUC4 on a FFPE Colon Tissue

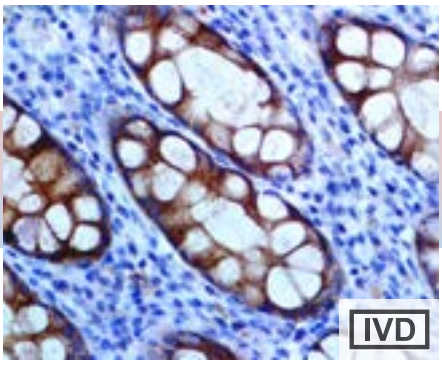
Mucin 4 (MUC4) is a mucin protein that in humans is encoded by the MUC4 gene. Like other mucins, MUC4 is a high-molecular weight glycoprotein. MUC4 belongs to the human mucin family that is membrane-anchored and can range in molecular weight from 550 to 930 kDa for the actual protein. MUC4 antibody labels normal epithelial cells in the trachea, GI tract and prostate, but not in the pancreas.

MUC-4 has been found to play various roles in the progression of cancer, particularly due to its signaling and anti-adhesive properties which contribute to tumor development and metastasis. It is also found to play roles in other diseases such as endometriosis and inflammatory bowel disease. An abnormal expression of MUC4 has been reported in various carcinomas of the colon, pancreas, breast, and ovaries. Increased expression of MUC4 has been observed in pancreatic carcinoma and cervical squamous carcinoma. MUC4 is helpful in differentiating lung adenocarcinoma (positive) from malignant mesothelioma (negative). Additionally, MUC4 is useful in the identification of low-grade fibromyxoid sarcoma (LGFMS), and sclerosing epithelioid fibrosarcoma. MUC4 expression is also detected in the glandular component of biphasic synovial sarcomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *8G7*
ISOTYPE: *IgG1*
CONTROL: *Colon, Prostate, Cervix, Placenta, Salivary Gland, Pancreatic Carcinoma, Cervical Squamous Carcinoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2985	Tinto Predilute	3.0 ml
BSB 2986	Tinto Predilute	7.0 ml
BSB 2987	Tinto Predilute	15.0 ml
BSB 2988	Concentrate	0.1 ml
BSB 2989	Concentrate	0.5 ml
BSB 2990	Concentrate	1.0 ml
BSB 2991	Control Slides	5

MUC-4, RMab



IHC of MUC-4 on a FFPE Colon Tissue

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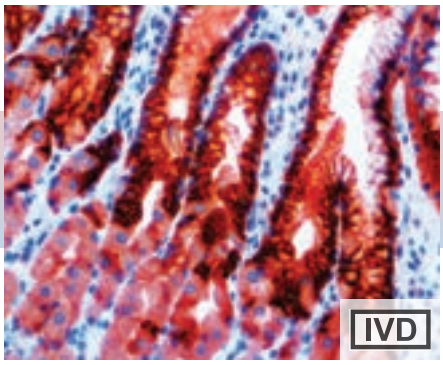
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP256*
ISOTYPE: *IgG*
CONTROL: *Colon, Liver, Kidney, Pancreatic Carcinoma, Cervical Squamous Carcinoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2552	Tinto Predilute	3.0 ml
BSB 2553	Tinto Predilute	7.0 ml
BSB 2554	Tinto Predilute	15.0 ml
BSB 2555	Concentrate	0.1 ml
BSB 2556	Concentrate	0.5 ml
BSB 2557	Concentrate	1.0 ml
BSB 2558	Control Slides	5

MUC5AC, MMab



IHC of MUC5AC on a FFPE Stomach Tissue

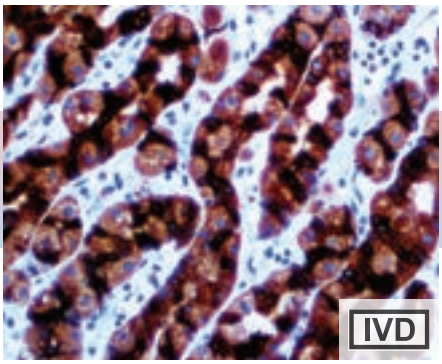
Mucin 5AC, also known as MUC5AC, is a human gene. The Mucin 5AC antigen is found in columnar mucous cells of surface gastric epithelium and in goblet cells of the fetal and precancerous colon but not in normal colon cells. Mucin genes are expressed in a regulated cell- and tissue-specific manner. MUC1 is detected in mucous cells of the surface epithelium and neck region of the gastric antrum, as well as in pyloric glands and oxynthic glands of the body region. MUC5AC is highly expressed in foveolar epithelium of both body and antrum, whereas MUC6 protein expression is limited to mucous neck cells of the body and pyloric glands of the antrum.

The mucin expression pattern of Gastric Carcinoma is heterogeneous. It includes mucins normally expressed in gastric mucosa (MUC1, MUC5AC and MUC6) and de novo expression of the intestinal mucin MUC2. The heterogeneous pattern of mucin expression, including the expression of the intestinal mucin MUC2, may provide new insights into the differentiation pathways of Gastric Carcinoma. It has been shown that in Gastric Carcinomas evaluated for expression of several mucins (MUC1, MUC2, MUC5AC and MUC6), mucin expression is associated with tumor type (MUC5AC with Diffuse and Infiltrative Carcinomas and MUC2 with Mucinous Carcinomas) but not with the clinico-biological behavior of the tumors. Mucin expression is associated with tumor location (MUC5AC with Antrum Carcinomas and MUC2 with Cardia Carcinomas), indirectly reflecting differences in tumor differentiation according to tumor location.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CLH2*
ISOTYPE: *IgG1*
CONTROL: *Stomach, Colon, Kidney*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6163	Tinto Predilute	3.0 ml
BSB 6164	Tinto Predilute	7.0 ml
BSB 6165	Tinto Predilute	15.0 ml
BSB 6166	Concentrate	0.1 ml
BSB 6167	Concentrate	0.5 ml
BSB 6168	Concentrate	1.0 ml
BSB 6169	Control Slides	5

MUC6, MMab



IHC of MUC6 on a FFPE Stomach Tissue

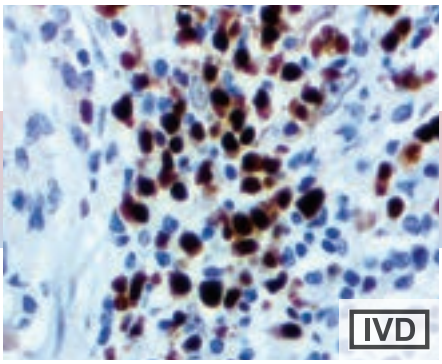
Mucin 6, also known as MUC6, is a human gene. Mucin is a high M.W. (>1,000 kDa) glycoprotein, expressed by mucous cells of the gastric epithelium and by goblet cells of the fetal, precancerous and cancerous colon, but not by those of the normal colon. It also appears in other epithelial tissues, which are embryologically derived from the foregut (epigastric and bronchial epithelium) and in Müller ducts (mucous cells of the endocervix and urethral epithelium near the prostatic utriculus).

MUC6 antibody works well with ethanol-fixed, cultured epithelial cells and ethanol- or formalin-fixed, paraffin-embedded tissue sections. It stains the surface gastric epithelium of normal human gastrointestinal tract and reacts with fetal, precancerous and cancerous colonic mucosa, but not with normal colon.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CLH5*
ISOTYPE: *IgG1*
CONTROL: *Stomach*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6170	Tinto Predilute	3.0 ml
BSB 6171	Tinto Predilute	7.0 ml
BSB 6172	Tinto Predilute	15.0 ml
BSB 6173	Concentrate	0.1 ml
BSB 6174	Concentrate	0.5 ml
BSB 6175	Concentrate	1.0 ml
BSB 6176	Control Slides	5

MUM1, RMab



IHC of MUM1 on a FFPE Kidney Tissue

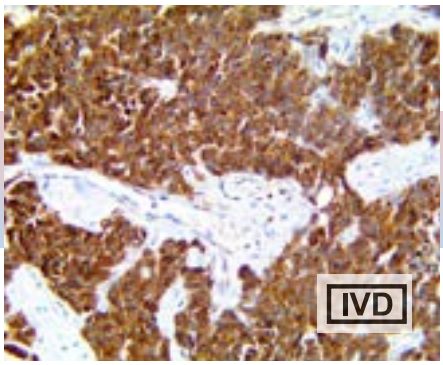
MUM1 (multiple myeloma oncogene-1) also known as interferon regulatory factor 4 (IRF4) is a 50 kDa protein and is a member of the interferon regulatory factor family of transcription factors. It is induced by antigen receptor mediated stimuli and plays an important role in cell proliferation, differentation and survival. MUM1 is expressed in the nuclei and cytoplasm of plasma cells and a small percentage of germinal center (GC) B-cells commited to plasmacytic or memory cell differentation in the "light zone".

MUM1 is useful for subclassification of lymphoid malignancies and is an excellent marker for Hodgkin's and Reed-Sternberg cells of classic Hodgin's disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP190*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Colon, Kidney, Breast, Lymph Node, Plasmacytoma, Hodgkin's Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6953	Tinto Predilute	3.0 ml
BSB 6954	Tinto Predilute	7.0 ml
BSB 6955	Tinto Predilute	15.0 ml
BSB 6956	Concentrate	0.1 ml
BSB 6957	Concentrate	0.5 ml
BSB 6958	Concentrate	1.0 ml
BSB 6959	Control Slides	5

Musashi 2, RMab



IHC of Musashi 2 on a FFPE Lung Neuroendocrine Carcinoma Tissue

Musashi-2 (MSI2) is an RNA-binding protein present in the cytoplasm of hematopoietic, neuronal progenitor, and stem cells. Musashi proteins have an RNA-recognition motif used to bind and stabilize mRNA in stem cell populations. MSI2 is also present in blood cells, astrocytes, and the development of reproductive cells in spermatogenesis and oogenesis.

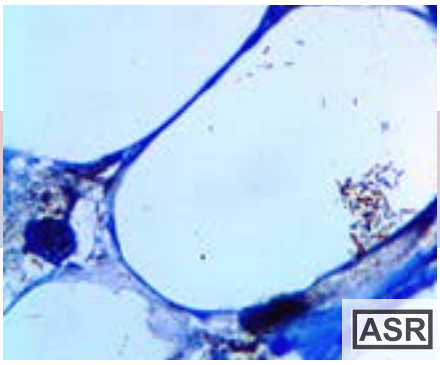
Musashi 2 can indicate the presence of stem cells in tumors of Colorectal, Lung, and Pancreatic Cancers, and in Glioblastoma, Leukemias, and xenografts, where it supports proliferation and prevents apoptosis. It's RNA-binding ability is increased in Leukemia cells over normal hematopoietic stem cells, and it's expression in Acute Myeloid Leukemia is associated with poor prognosis. MSI2-HOXA9 and other fusions/ transformations are rare but MSI2 over-expression is found in almost all hematological disorders, and can be up-regulated further resulting in worse prognosis. Studies comparing normal cervical tissues have found that the expression of MSI2 is increased in cervical cancer tissues and may act as a prognostic biomarker in patients with cervical cancer. MSI2 has been found to be significantly upregulated in bladder cancer cells and tissues compared with normal bladder urothelial cells and tissues. High expression of MSI2 in bladder cancer specimens demonstrated that MSI2 can induce bladder cancer cell migration and invasion by activating the JAK2/STAT3 pathway, and may be a valuable prognostic biomarker for bladder cancer patients.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM422*
ISOTYPE: *IgG*
CONTROL: *Testis, Kidney, Colon, Transitional Cell Carcinoma, Breast Cancer*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3740-3	Tinto Predilute	3.0 ml
BSB-3740-7	Tinto Predilute	7.0 ml
BSB-3740-15	Tinto Predilute	15.0 ml
BSB-3740-01	Concentrate	0.1 ml
BSB-3740-05	Concentrate	0.5 ml
BSB-3740-1	Concentrate	1.0 ml
BSB-3740-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Mycobacterium tuberculosis, RPab



IHC of Myobacterium Tuberculosis on a FFPE Infected Lung Tissue

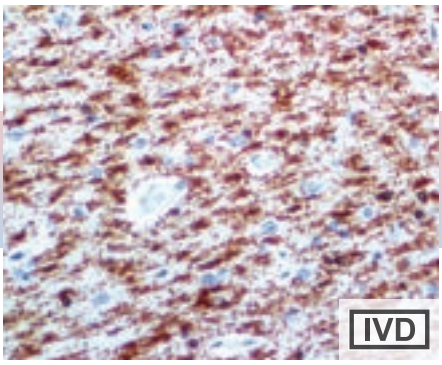
Mycobacterium tuberculosis is a pathogenic bacterial species of the Mycobacteriaceae family and the causative agent of most cases of tuberculosis. M. tuberculosis has an unusual, waxy coating on its cell surface (primarily due to the presence of mycolic acid), which makes the cells impervious to Gram staining; M. tuberculosis can appear Gram negative and Gram positive in clinical settings. Antibiotic resistant strains of mycobacterium tuberculosis have developed resistance to more than one TB drug, due to mutations in their genes.

M. tuberculosis is characterized by caseating granulomas containing Langhans giant cells, which have a "horseshoe" pattern of nuclei. Cells are often seen wrapped together, due to the presence of fatty acids in the cell wall that stick together. This appearance is referred to as chording, like strands of chord that make up a rope. The clinical and histological criteria used to diagnose lymphadenitis caused by Mycobacterium tuberculosis complex organisms have poor specificity. Acid-fast staining and culture have low sensitivity and specificity. The diagnosis of tuberculosis by immunohistochemistry can be used to detect the mycobacterial antigen on formalin-fixed tissue biopsies and it's consider fast, sensitive, and a highly specific method for establishing the etiological diagnosis of tuberculosis in histologic specimens.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Infected Tissue*
LOCALIZATION: *Cell Wall*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2992	Tinto Predilute	3.0 ml
BSB 2993	Tinto Predilute	7.0 ml
BSB 2994	Tinto Predilute	15.0 ml
BSB 2995	Concentrate	0.1 ml
BSB 2996	Concentrate	0.5 ml
BSB 2997	Concentrate	1.0 ml
BSB 2998	Control Slides	5

Myelin Basic Protein, RPab



IHC of Myelin Basic Protein on a FFPE Brain Tissue

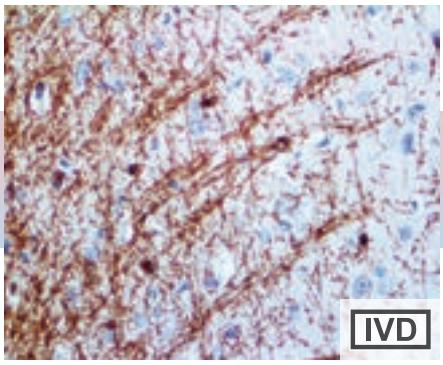
Myelin Basic Protein (MBP) is a protein believed to be important in the process of myelination of nerves in the central nervous system (CNS). The pool of MBP in the central nervous system is very diverse, with several splice variants being expressed and a large number of post-translational modifications on the protein, which include phosphorylation, methylation, deamidation and citrullination.

MBP has been demonstrated in Neuromas, Neurofibromas, and Neurogenic Sarcomas. However, other spindle-cell neoplasms do not stain with this antibody. Immunoreactivity for MBP in Granular-cell Tumors strengthens the concept of a Schwann-cell derivation of these lesions. Unlike other nervous system proteins such as GFAP and S-100, MBP has not been demonstrated in melanocytes or tumors derived from them.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Brain, Neuroblastoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 5778	Tinto Predilute	3.0 ml
BSB 5779	Tinto Predilute	7.0 ml
BSB 5780	Tinto Predilute	15.0 ml
BSB 5781	Concentrate	0.1 ml
BSB 5782	Concentrate	0.5 ml
BSB 5783	Concentrate	1.0 ml
BSB 5784	Control Slides	5

Myelin Basic Protein, RMab



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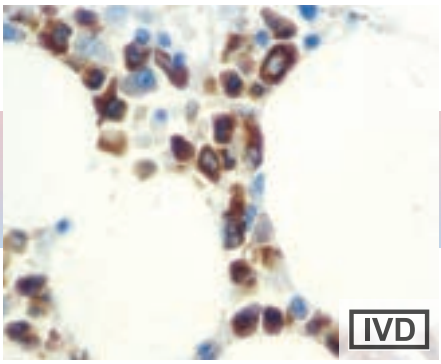
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP207*
ISOTYPE: *IgG*
CONTROL: *Brain, Neuroblastoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6960	Tinto Predilute	3.0 ml
BSB 6961	Tinto Predilute	7.0 ml
BSB 6962	Tinto Predilute	15.0 ml
BSB 6963	Concentrate	0.1 ml
BSB 6964	Concentrate	0.5 ml
BSB 6965	Concentrate	1.0 ml
BSB 6966	Control Slides	5

Myeloperoxidase, RPab



IHC of Myeloperoxidase on a FFPE Bone Marrow Tissue

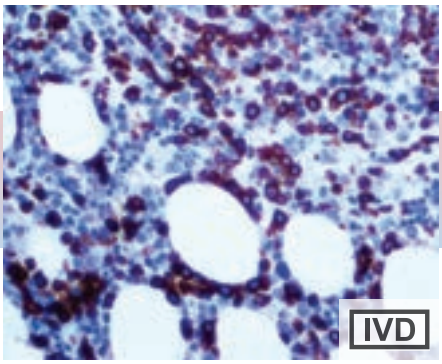
Myeloperoxidase (MPO) is a peroxidase enzyme most abundantly present in neutrophil granulocytes. It is a lysosomal protein stored in azurophilic granules of the neutrophil. MPO has a heme pigment, which causes its green color in secretions rich in neutrophils, such as pus and some forms of mucus. Historically, immunohistochemical staining for myeloperoxidase was used in the diagnosis of Acute Myeloid Leukemia to demonstrate that the leukemic cells were derived from the myeloid lineage. Myeloperoxidase staining is still important in the diagnosis of Extramedullary Leukemia or Chloroma.

Myeloperoxidase detects granulocytes and monocytes in blood and precursors of granulocytes in the bone marrow. This antibody can detect myeloid cell populations of the bone marrow as well as in other sites.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Bone Marrow*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5785	Tinto Predilute	3.0 ml
BSB 5786	Tinto Predilute	7.0 ml
BSB 5787	Tinto Predilute	15.0 ml
BSB 5788	Concentrate	0.1 ml
BSB 5789	Concentrate	0.5 ml
BSB 5790	Concentrate	1.0 ml
BSB 5791	Control Slides	5

Myeloperoxidase, RMab



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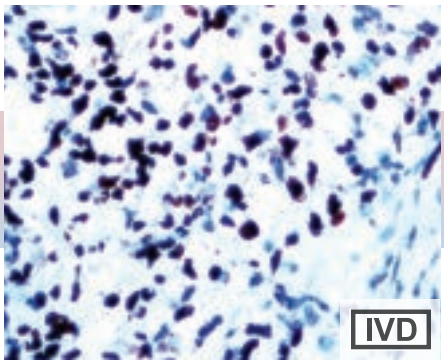
Myeloperoxidase detects granulocytes and monocytes in blood and precursors of granulocytes in the bone marrow. This antibody can detect myeloid cell populations of the bone marrow as well as in other sites.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP151*
ISOTYPE: *IgG*
CONTROL: *Bone Marrow*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6967	Tinto Predilute	3.0 ml
BSB 6968	Tinto Predilute	7.0 ml
BSB 6969	Tinto Predilute	15.0 ml
BSB 6970	Concentrate	0.1 ml
BSB 6971	Concentrate	0.5 ml
BSB 6972	Concentrate	1.0 ml
BSB 6973	Control Slides	5

MyoD1, RMab



IHC of MyoD1 on a FFPE Rhabydomyosarcoma Tissue

MyoD1 belongs to a family of proteins known as myogenic regulatory factors (MRFs) and has a key role in regulating muscle differentation. These bHLH (basic helix loop helix) transcription factors act sequentially in myogenic differentiation. MyoD1 is expressed in activated satellite cells, but not in quiescent satellite cells. In development, MyoD1 commits mesoderm cells to a skeletal lineage, and then regulates that process. It may also play a role in muscle repair.

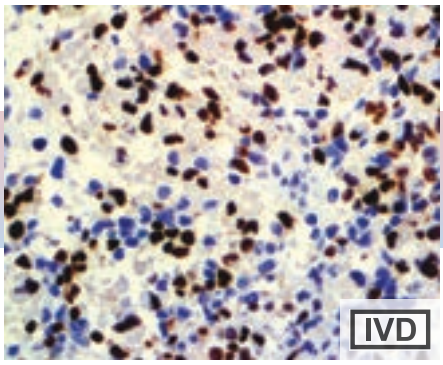
In abnormal tissues, MyoD1 labels tumor cells in Rhabdomyosarcoma and is one of the earliest markers of myogenic commitment.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP212*
ISOTYPE: *IgG*
CONTROL: *Fetal Muscle, RhabdomyoSarcoma & Soft Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6974	Tinto Predilute	3.0 ml
BSB 6975	Tinto Predilute	7.0 ml
BSB 6976	Tinto Predilute	15.0 ml
BSB 6977	Concentrate	0.1 ml
BSB 6978	Concentrate	0.5 ml
BSB 6979	Concentrate	1.0 ml
BSB 6980	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Myogenin, MMab



IHC of Myogenin on a FFPE Rhabdomyosarcoma Tissue

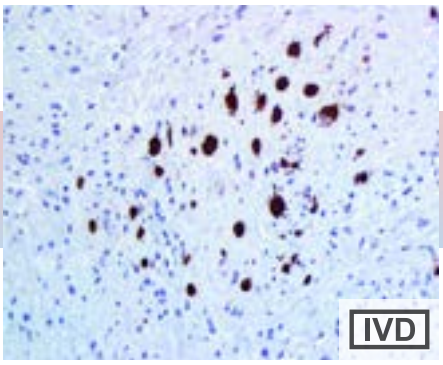
Myogenin is a transcription factor active in muscles. In particular, it is a myogenic regulatory factor. Myogenin is a member of a family of myogenic regulatory genes, which includes MyoD, myf5 and MRF4. These genes encode a set of transcription factors which are essential for muscle development. Expression of myogenin is restricted to cells of skeletal-muscle origin. It is, therefore, a useful marker for tumors of the muscle lineage, being strongly expressed in Alveolar Rhabdomyosarcomas.

Anti-myogenin labels the nuclei of myoblasts in developing muscle tissue, and is expressed in tumor cell nuclei of Rhabdomyosarcoma and some Leiomyosarcomas. Positive nuclear staining may occur in Wilm's Tumor.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *F5D*
ISOTYPE: *IgG1/K*
CONTROL: *Rhabdomyosarcoma & Soft Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Dog, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5792	Tinto Predilute	3.0 ml
BSB 5793	Tinto Predilute	7.0 ml
BSB 5794	Tinto Predilute	15.0 ml
BSB 5795	Concentrate	0.1 ml
BSB 5796	Concentrate	0.5 ml
BSB 5797	Concentrate	1.0 ml
BSB 5798	Control Slides	5

Myoglobin, RMab



IHC of Myoglobin on a FFPE Rhabdomyosarcoma Tissue

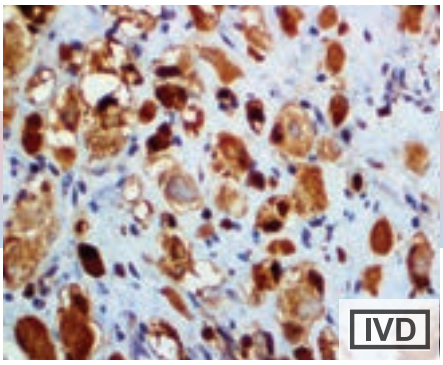
Myoglobin is a single-chain globular protein of 153 amino acids, containing a heme (iron-containing porphyrin) prosthetic group in the center around which the remaining apoprotein folds. With a molecular weight of 16.7 kDa, Myoglobin is the primary oxygen-carrying pigment of muscle tissues.

Immunostaining with Myoglobin provides a specific, sensitive and practical procedure for the identification of Rhabdomyosarcoma. Since myoglobin is found exclusively in skeletal and cardiac muscle, it may be used to distinguish Rhabdomyosarcoma from other soft-tissue tumors. Myoglobin staining is also useful when demonstrating rhabdomyoblastic differentiation in other tumors, e.g., Neurogenic Sarcomas and Malignant Mixed Mesodermal Tumors of the uterus and ovary.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *BSB-104*
ISOTYPE: *IgG1*
CONTROL: *Skeletal Muscle Tiussue*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3384	Tinto Predilute	3.0 ml
BSB 3385	Tinto Predilute	7.0 ml
BSB 3386	Tinto Predilute	15.0 ml
BSB 3387	Concentrate	0.1 ml
BSB 3388	Concentrate	0.5 ml
BSB 3389	Concentrate	1.0 ml
BSB 3390	Control Slides	5

Myoglobin, RMab



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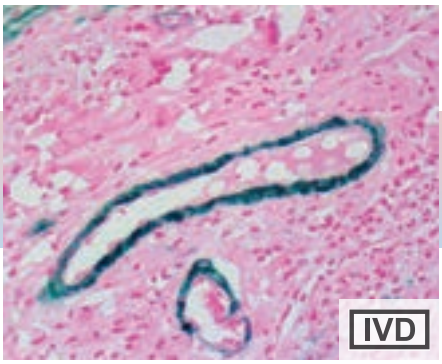
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP87*
ISOTYPE: *IgG*
CONTROL: *Skeletal Muscle Tissue*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 6981	Tinto Predilute	3.0 ml
BSB 6982	Tinto Predilute	7.0 ml
BSB 6983	Tinto Predilute	15.0 ml
BSB 6984	Concentrate	0.1 ml
BSB 6985	Concentrate	0.5 ml
BSB 6986	Concentrate	1.0 ml
BSB 6987	Control Slides	5

Myosin Smooth Muscle, MMab



IHC of Myosin Smooth Muscle Heavy Chain on a FFPE Appendix Tissue

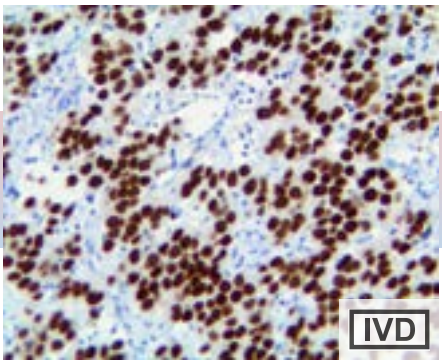
Myosins are a large family of motor proteins found in eukaryotic tissues. They are responsible for actin-based motility. Smooth Muscle Myosin, Heavy Chain is a cytoplasmic structural protein that is a major component of the contractile apparatus of the smooth muscle cells, as well as a myoepithelium-associated protein.

SMM-H24 is a mouse monoclonal antibody to Smooth Muscle Myosin, Heavy Chain that reacts with human visceral and vascular smooth muscle cells. The antibody also reacts with human myoepithelial cells. It is very helpful in distinguishing between benign sclerosing breast lesions and infiltrating Carcinomas in difficult cases, since it strongly stains the myoepithelial layer in the benign lesions while it is negative in the infiltrating Carcinomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-17*
ISOTYPE: *IgG1/K*
CONTROL: *Intestine, Breast, Appendix*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5924	Tinto Predilute	3.0 ml
BSB 5925	Tinto Predilute	7.0 ml
BSB 5926	Tinto Predilute	15.0 ml
BSB 5927	Concentrate	0.1 ml
BSB 5928	Concentrate	0.5 ml
BSB 5929	Concentrate	1.0 ml
BSB 5930	Control Slides	5

Nanog, RMab



IHC of Nanog on an FFPE Seminoma Tissue

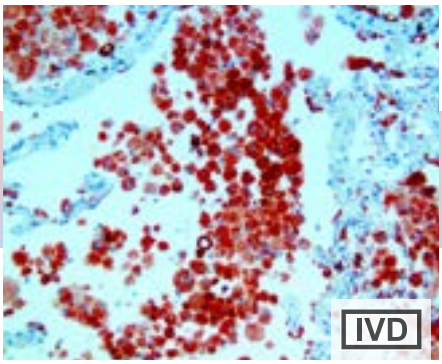
Homeobox protein Nanog is a transcriptional factor that helps embryonic stem cells (ESCs) maintain pluripotency by suppressing cell determination factors. In humans, this protein is encoded by the NANOG gene. Nanog is thought to function in concert with other factors such as Oct-4 and SOX2 to establish ESC identity. Nanog is highly expressed in cancer stem cells and thus may function as an oncogene to promote carcinogenesis. High expression of Nanog correlates with poor survival in cancer patients.

Nanog is highly and specifically expressed in carcinoma in situ (CIS), embryonal carcinomas, and seminomas, but not in teratomas and yolk sac tumors. Additionally, it has been reported that Human embryonic stem cell genes OCT4, NANOG, STELLAR, and GDF3 are expressed in both seminoma and breast carcinoma. Positive Nanog expression is significantly associated with high-grade ovarian serous carcinoma and is absent in benign, borderline, and low-grade serous lesions. A study suggests the expression of Nanog exhibiting cellular shuttling behavior and increasing stromal distribution during the progression of cervical cancer. Recently it was suggested that Nanog overexpression, a hazard factor of differentiation, lymph node metastasis, and tumor size, may predicate decreased overall survival (OS) and disease-free survival (DFS) for lung cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP225*
ISOTYPE: *IgG*
CONTROL: *Testis, Cervix, Seminoma, Embryonal Carcinoma, TCC*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3581	Tinto Predilute	3.0 ml
BSB 3582	Tinto Predilute	7.0 ml
BSB 3583	Tinto Predilute	15.0 ml
BSB 3584	Concentrate	0.1 ml
BSB 3585	Concentrate	0.5 ml
BSB 3586	Concentrate	1.0 ml
BSB 3587	Control Slides	5

Napsin A, MMab



IHC of Napsin A on a FFPE Lung Carcinoma Tissue

The activation peptides of aspartic proteinases play a role as inhibitors of the active site. These peptide segments, or pro-parts, are deemed important for correct folding, targeting, and control of the activation of aspartic proteinase zymogens. The pronapsin A gene is expressed predominantly in lung and kidney. Its translation product is predicted to be a fully functional glycosylated aspartic proteinase precursor containg an RGD motif and an addition 18 residues at its C-terminus.

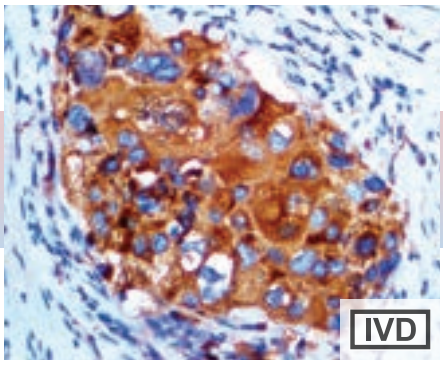
In normal tissue, anti-Napsin A labels type II pneumocytes in adult lung and epithelial cells in kidney tissues. In abnormal tissues, Napsin A is a useful marker for lung adenocarcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-112*
ISOTYPE: *IgG1/K*
CONTROL: *Kidney, Lung, Lung Carcinoma, Renal Cell Caricnoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3392	Tinto Predilute	3.0 ml
BSB 3393	Tinto Predilute	7.0 ml
BSB 3394	Tinto Predilute	15.0 ml
BSB 3395	Concentrate	0.1 ml
BSB 3396	Concentrate	0.5 ml
BSB 3397	Concentrate	1.0 ml
BSB 3398	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Napsin A, RMab



IHC of Napsin A on a FFPE Lung Adenocarcinoma Tissue

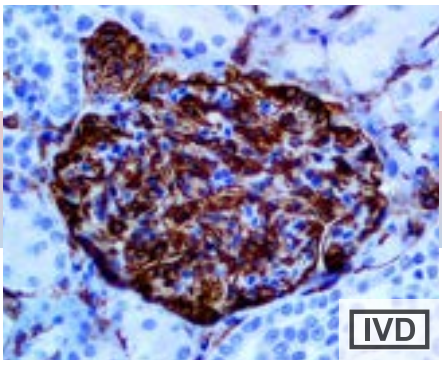
The activation peptides of aspartic proteinases play a role as inhibitors of the active site. These peptide segments, or pro-parts, are deemed important for correct folding, targeting, and control of the activation of aspartic proteinase zymogens. The pronapsin A gene is expressed predominantly in lung and kidney. Its translation product is predicted to be a fully functional glycosylated aspartic proteinase precursor containg an RGD motif and an addition 18 residues at its C-terminus.

In normal tissue, anti-Napsin A labels type II pneumocytes in adult lung and epithelial cells in kidney tissues. In abnormal tissues, Napsin A is a useful marker for lung adenocarcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP205*
ISOTYPE: *IgG*
CONTROL: *Kidney, Lung, Lung Carcinoma, Renal Cell Caricnoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6988	Tinto Predilute	3.0 ml
BSB 6989	Tinto Predilute	7.0 ml
BSB 6990	Tinto Predilute	15.0 ml
BSB 6991	Concentrate	0.1 ml
BSB 6992	Concentrate	0.5 ml
BSB 6993	Concentrate	1.0 ml
BSB 6994	Control Slides	5

Nestin, RMab



IHC of Nestin on a FFPE Kidney Tissue

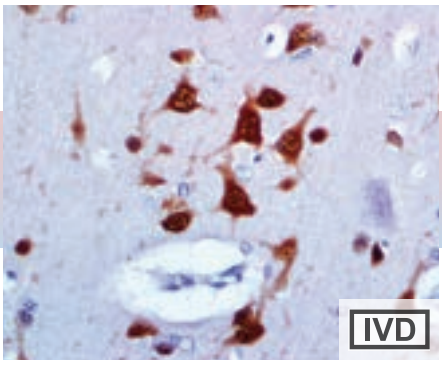
Nestin is a type VI intermdiate filament protein; they are expressed mostly in nerve cells where they are implicated in the radial growth of the axon. Nestin is expressed in dividing cells during the early stages of development in the Central Nervous System (CNS), Peripheral Nervous System (PNS) and in myogenic and other tissues. Nestin is expressed by many types of cells during development, although its expression is usually transient and does not persist into adulthood. Nestin is however expressed in the neuronal precursor cells of the subgranular zone in adult organisms. Its expression is also reinduced in the adult during pathological situations, such as the formation of the glial scar after CNS injury and during regeneration of injured muscle tissue.

It has been reported that Nestin expression is significantly increased in melanoma and correlated with more advanced stages of the disease. It has also been reported in tumors of the CNS, including astrocytoma, ependymoma, oligodendroglioma, glioblastoma, and primitive neureoctodermal tumors, as well as in carcinomas such as prostatic adenocarcinoma, pancreatic ductal carcinoma, thyroid carcinoma, and in mesenchymal tumors. In breast carcinoma subtypes, Nestin is highly expressed in basal breast cancer but not in the HER2 subtype or luminal epithelial phenotype. In normal skin, Nestin is expressed in endothelial cells and the bulge area of hair follicles.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP287*
ISOTYPE: *IgG*
CONTROL: *Kidney, Breast, Adrenal, Myometrium, Liver Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2000	Tinto Predilute	3.0 ml
BSB 2001	Tinto Predilute	7.0 ml
BSB 2002	Tinto Predilute	15.0 ml
BSB 2003	Concentrate	0.1 ml
BSB 2004	Concentrate	0.5 ml
BSB 2005	Concentrate	1.0 ml
BSB 2006	Control Slides	5

NeuN, MMab



IHC of NeuN on a FFPE Brain Tissue

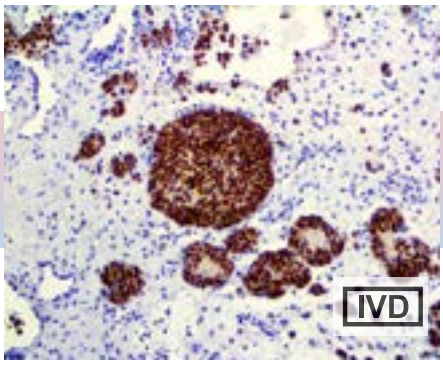
NeuN (Feminizing Locus on X-3, Fox-3, or Hexaribonucleotide Binding Protein-3) is a neuron-specific protein that is present in most Central Nervous System (CNS) and Peripheral Nervous System (PNS) neuronal cell types. NeuN protein distributions are restricted to neuronal nuclei, perikarya and some proximal neuronal processes in both fetal and adult brain. However, some neurons fail to be recognized by NeuN at all ages, such as INL retinal cells, Cajal-Retzius cells, Purkinje cells, inferior olivary and dentate nucleus neurons, and sympathetic ganglion cells.

NeuN is widely used to label neurons since the vast majority of neurons are strongly positive. NeuN immunoreactivity becomes obvious as neurons mature, typically after they have downregulated expression of Doublecortin, a marker seen in the earliest stages of neuronal development.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *A60*
ISOTYPE: *IgG1*
CONTROL: *Brain*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Avian, Chicken, Ferret, Mouse, Pig, Rat, Salamander*

CAT. #	PRESENTATION	VOL/QTY
BSB 2007	Tinto Predilute	3.0 ml
BSB 2008	Tinto Predilute	7.0 ml
BSB 2009	Tinto Predilute	15.0 ml
BSB 2010	Concentrate	0.1 ml
BSB 2011	Concentrate	0.5 ml
BSB 2012	Concentrate	1.0 ml
BSB 2013	Control Slides	5

NeuN, RMab



IHC of NeuN on a FFPE Brain Tissue

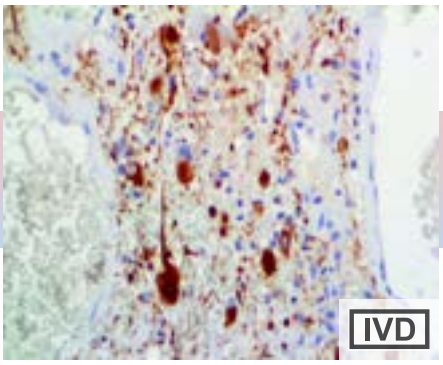
NeuN (Feminizing Locus on X-3, Fox-3, or Hexaribonucleotide Binding Protein-3) is a neuron-specific protein that is present in most central nervous system (CNS) and peripheral nervous system (PNS) neuronal cell types. NeuN protein distributions are restricted to neuronal nuclei, perikarya and some proximal neuronal processes in both fetal and adult brains. However, some neurons fail to be recognized by NeuN at all ages, such as inner nuclear layer retinal cells, Cajal-Retzius cells, Purkinje cells, inferior olivary and dentate nucleus neurons, and sympathetic ganglion cells.

NeuN is widely used to label neurons since the vast majority of neurons are strongly positive. NeuN immunoreactivity becomes obvious as neurons mature, typically after they have downregulated expression of doublecortin, a marker seen in the earliest stages of neuronal development. NeuN was detected in most of the amyloid bodies, is considered a marker of neuronal differentiation in brain tumor and has been found in all major subtypes except pilocytic astrocytoma. NeuN IHC have demonstrated NeuN immunoreactivity in 56% of epithelial neuroendocrine carcinomas (ENEC) (19/34): 4 of 7 (57%) grade 1 ENECs (Carcinoid), 4 of 5 (90%) grade 2 ENECs (atypical carcinoid), and 11 of 22 (50%) grade 3 ENECs (small and large cell neuroendocrine carcinoma).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-NeuN*
ISOTYPE: *IgG*
CONTROL: *Brain*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3781-3	Tinto Predilute	3.0 ml
BSB-3781-7	Tinto Predilute	7.0 ml
BSB-3781-15	Tinto Predilute	15.0 ml
BSB-3781-01	Concentrate	0.1 ml
BSB-3781-05	Concentrate	0.5 ml
BSB-3781-1	Concentrate	1.0 ml
BSB-3781-CS	Control Slides	5

Neurofilament, MMab



IHC of Neurofilament on a FFPE Brain Tissue

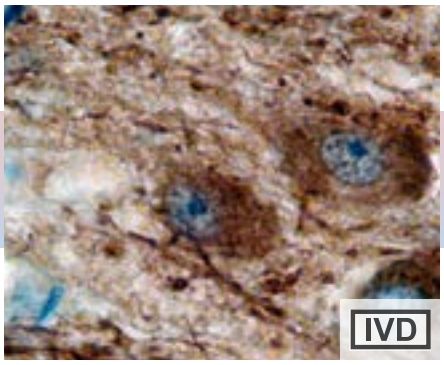
Neurofilaments are the Type IV family of intermediate filaments that are found in high concentrations along the axons of vertebrate neurons.

Neurofilament antibody stains an antigen localized in a number of neural, neuroendocrine and endocrine tumors. Neuromas, Ganglioneuromas, Gangliogliomas, Ganglioneuroblastomas and Neuroblastomas stain positively for neurofilament. Neurofilaments are also present in Paragangliomas and Adrenal and Extra-Adrenal Pheochromocytomas. Carcinoids, Neuroendocrine Carcinomas of the Skin, and Oat Cell Carcinomas of the Lung also express neurofilament.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *2F11*
ISOTYPE: *IgG1/K*
CONTROL: *Brain*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human., Dog, Rat, Mouse, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5813	Tinto Predilute	3.0 ml
BSB 5814	Tinto Predilute	7.0 ml
BSB 5815	Tinto Predilute	15.0 ml
BSB 5816	Concentrate	0.1 ml
BSB 5817	Concentrate	0.5 ml
BSB 5818	Concentrate	1.0 ml
BSB 5819	Control Slides	5

Neurofilament, RMab



IHC of Neurofilament on a FFPE Brain Tissue

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ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP79*
ISOTYPE: *IgG*
CONTROL: *Brain*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2014	Tinto Predilute	3.0 ml
BSB 2015	Tinto Predilute	7.0 ml
BSB 2016	Tinto Predilute	15.0 ml
BSB 2017	Concentrate	0.1 ml
BSB 2018	Concentrate	0.5 ml
BSB 2019	Concentrate	1.0 ml
BSB 2020	Control Slides	5

Bio SB
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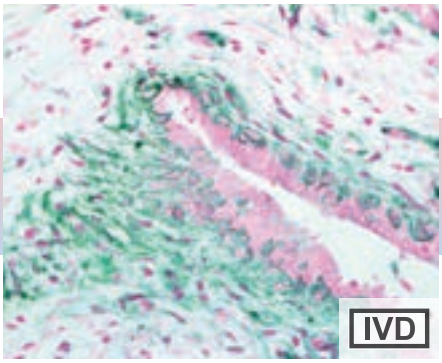
NGFR, MMAb



IHC of NGFR on a FFPE Breast Fibroadenoma Tissue

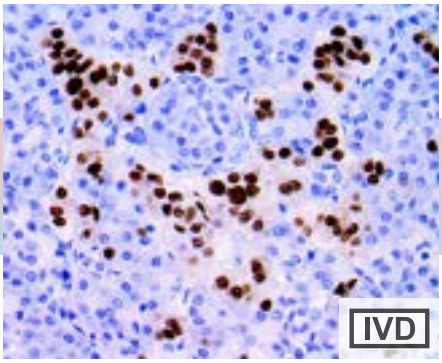
NGFR (Nerve Growth Factor Receptor), also termed p75 or CD271, is the low-affinity NGFR (LNGFR) which binds NGF and other neurotrophins, including BDNF, NT3 and NT4/5 with similar low-affinity. NGFR p75 is a 75 kD transmembrane glycoprotein that is mainly expressed in Schwann cells and neurons and in a variety of non-neuronal cells. NGFR p75 is necessary for regulating neuronal growth, migration, differentiation and cell death during development of the central and peripheral nervous system. NGFR p75 plays a central role in the regulation of cell number by apoptosis in the developing CNS. During early development, activation of NGFR p75 by NGF induces apoptotic cell death in some neuronal cells, probably through activation of the sphingomyelinase/ceramide pathway, the ICE-like proteases and the JNK pathway. CD271 has recently been described as being expressed in mesenchymal stem cells (bone marrow stromal cells).

NGFR is expressed not only in sympathetic and sensory neurons, but also in various neural crest cell or tumor derivatives such as melanocytes, Melanomas, Neuroblastomas, Pheochromocytomas, Neurofibromas, and neurotized nevi (Type C melanocytes). It is now apparent that expression of NGFR is ubiquitous and not limited to the nervous system, being expressed in mature non-neural cells such as perivascular cells, dental pulp cells, lymphoid follicular dendritic cells, basal epithelium of oral mucosa and hair follicles, prostate basal cells and myoepithelial cells. Studies in Prostate and Urothelial Cancer suggest that NGFR may act as a tumor suppressor, negatively regulating cell growth and proliferation. NGFR labels the myoepithelial cells of breast ducts and intralobular fibroblasts of breast ducts and, thus, aids in the diagnosis of malignancy in the breast.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-18*
ISOTYPE: *IgG1*
CONTROL: *Brain, Breast, Prostate, Neuroblatoma, CNS Tumor*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6289	Tinto Predilute	3.0 ml
BSB 6290	Tinto Predilute	7.0 ml
BSB 6291	Tinto Predilute	15.0 ml
BSB 6292	Concentrate	0.1 ml
BSB 6293	Concentrate	0.5 ml
BSB 6294	Concentrate	1.0 ml
BSB 6295	Control Slides	5

NKX2.2, RMab



IHC of NKX2.2 on a FFPE Pancreas Tissue

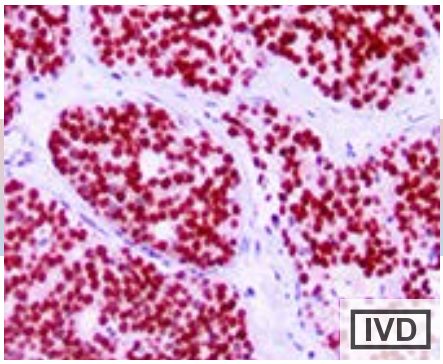
Homeobox protein NKX2.2 is a protein encoded by the NKX2-2 gene. NKX2.2 is a homeodomain-containing transcription factor that plays a critical role in neuroendocrine/glial differentiation. NKX2.2 is expressed in the developing forebrain and spinal cord. Functionally, the transcription factor is thought to be involved with neuronal developing, patterning, and fate specification of neurons and oligodendrocytes.

NKX2.2 was recently reported as a valuable marker for Ewing's sarcoma. The vast majority of Ewing's sarcomas (85%) harbor a chromosomal translocation, most commonly t(11;22)(q24;q12) encoding an aberrant EWS-FLI transcription factor. NKX2.2 expression is tightly correlated with EWS-FLI expression, a critical downstream target that is required for the cancerous behavior of Ewing's sarcoma. While CD99 is the classical marker for Ewing's sarcoma diagnosis, it is relatively nonspecific. In addition to Ewing's sarcoma, CD99 is also expressed on lymphocytes, hematopoietic cells, endothelial cells and a variety of tumors. In contrast, NKX2.2 labels 93% of Ewing's sarcoma and only a small subset (14/130) of non-Ewing tumors, demonstrating a sensitivity of 93% and specificity of 89%. Staining with NKX2.2 can aid in the differential diagnosis of small round cell tumors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP336*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Brain, Pituitary, Colon, Ewing's Sarcoma & Soft Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3106	Tinto Predilute	3.0 ml
BSB 3107	Tinto Predilute	7.0 ml
BSB 3108	Tinto Predilute	15.0 ml
BSB 3109	Concentrate	0.1 ml
BSB 3110	Concentrate	0.5 ml
BSB 3111	Concentrate	1.0 ml
BSB 3112	Control Slides	5

NKX3.1, RMab



IHC of NKX3.1 on a FFPE Prostatatic Carcinoma Tissue

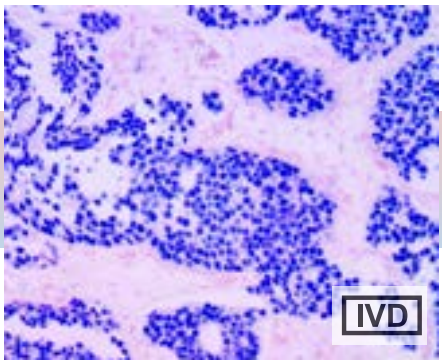
Homeobox protein NKX3.1, also known as BAPX2 and NKX3A is a protein that in humans is encoded by the NKX3.1 gene located on chromosome 8p. NKX3.1 is a prostatic tumor suppressor gene, which is an androgen-regulated, prostate-specific homeobox gene whose expression is predominantly localized in the prostate epithelium. It is a negative regulator of epithelial cell growth in prostate tissue. Loss of NKX3A protein expression is a common finding in human prostate carcinomas and prostatic intraepithelial neoplasia. NKX3-1 expression is seen in prostate epithelium, testis, ureter, and pulmonary bronchial mucous glands.

NKX3-1 has been established as a marker for identifying metastatic tumors. NKX3.1-positive prostate carcinoma cells exhibit nuclear staining. Additionally, most cases of Urothelial Carcinoma have been found to be negative for NKX3.1 and may be helpful to distinguish between high grade Prostate Adenocarcinoma and high grade Infiltrating Urothelial Carcinoma. NKX3.1 has also been found to be expressed in Invasive Ductal Carcinomas (IDC) and Invasive Lobular Carcinomas (ILC) of the breast. NKX3.1 expression is limited to ER, PR, and AR positive carcinomas and is more frequently expressed in ILC than IDC. NKX3.1 has a high specificity and sensitivity for prostate adenocarcinomas and can be used to help distinguish between Prostate Carcinoma and Urothelial Carcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP356*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostate Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3113	Tinto Predilute	3.0 ml
BSB 3114	Tinto Predilute	7.0 ml
BSB 3115	Tinto Predilute	15.0 ml
BSB 3116	Concentrate	0.1 ml
BSB 3117	Concentrate	0.5 ml
BSB 3118	Concentrate	1.0 ml
BSB 3119	Control Slides	5

NKX3.1, RMab



IHC of NKX3.1 on a FFPE Prostatic Carcinoma Tissue

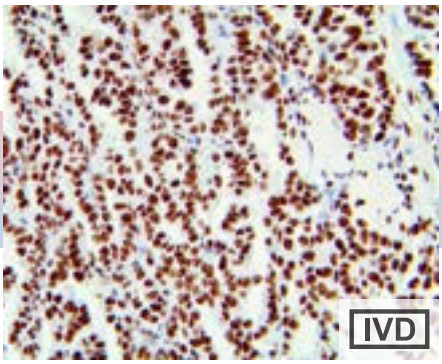
Homeobox protein NKX3.1, also known as BAPX2 and NKX3A is a protein that in humans is encoded by the NKX3.1 gene located on chromosome 8p. NKX3.1 is a prostatic tumor suppressor gene, which is an androgen-regulated, prostate-specific homeobox gene whose expression is predominantly localized in the prostate epithelium. It is a negative regulator of epithelial cell growth in prostate tissue. Loss of NKX3A protein expression is a common finding in human prostate carcinomas and prostatic intraepithelial neoplasia. NKX3-1 expression is seen in prostate epithelium, testis, ureter, and pulmonary bronchial mucous glands.

NKX3-1 has been established as a marker for identifying metastatic tumors. In a study the sensitivity for identifying metastatic prostatic adenocarcinomas was 98.6% for NKX3.1, 94.2% for prostate specific antigen and 98.6% for prostatic acid phosphatase and a specificity of 99.7% for NKX3.1. NKX3.1-positive prostate carcinoma cells exhibit nuclear staining. Additionally, most cases of urothelial carcinoma have been found to be negative for NKX3.1 and may be helpful to distinguish between high grade prostate adenocarcinoma and high grade Infiltrating urothelial carcinoma. NKX3.1 expression is limited to ER, PR, and AR positive carcinomas and is more frequently expressed in ILC than IDC. NKX3.1 has a high specificity and sensitivity for prostate adenocarcinomas and can be used to help distinguish between prostate carcinoma and urothelial carcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM430*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostate Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3785-3	Tinto Predilute	3.0 ml
BSB-3785-7	Tinto Predilute	7.0 ml
BSB-3785-15	Tinto Predilute	15.0 ml
BSB-3785-01	Concentrate	0.1 ml
BSB-3785-05	Concentrate	0.5 ml
BSB-3785-1	Concentrate	1.0 ml
BSB-3785-CS	Control Slides	5

NPM1/B23, MMab



IHC of NPM1/B23 on an FFPE Renal Cell Carcinoma Tissue

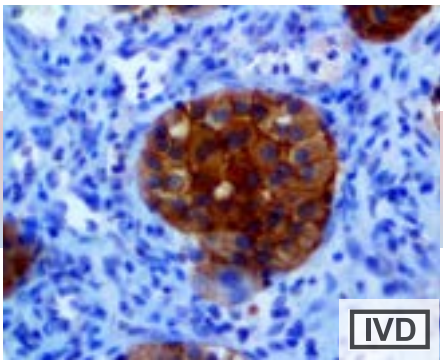
Nucleophosmin 1 (NPM1), also known as nucleolar phosphoprotein B23, is a protein that in humans is encoded by the NPM1 gene. The nuclear protein B23 (also referred to as nucleophosmin) is involved in ribosomal assembly, rRNA transport, centrosome duplication, maintenance of genomic stability, and embryonic development.

NPM1 gene is up-regulated, mutated and chromosomally translocated in many tumor types. Chromosomal aberrations involving NPM1 were found in patients with non-Hodgkin lymphoma, Acute Promyelocytic Leukemia, Myelodysplastic Syndrome, and Acute Myelogenous Leukemia. NPM1 is a nuclear protein. In approximately 50% to 60% of cytogenetically normal Acute Myeloid Leukemia (AML), NPM1 is mutated and localized in the cytoplasm. Both wild type and mutant NPM1 can be detected by immunohistochemistry (IHC). The expression of NPM1 is heterogeneous in gastric tumors. NPM1 down-regulation may have a role in gastric carcinogenesis and may help in the selection of anticancer treatment strategies. NPM1 has a critical role in the regulation of colon cancer cells migration and invasion and it may serve as a potential marker for the prognosis of colon cancer patients.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-124*
ISOTYPE: *IgG1/k*
CONTROL: *Breast, Cervix, Testis, Pancreas, RCC, TCC*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3588	Tinto Predilute	3.0 ml
BSB 3589	Tinto Predilute	7.0 ml
BSB 3590	Tinto Predilute	15.0 ml
BSB 3591	Concentrate	0.1 ml
BSB 3592	Concentrate	0.5 ml
BSB 3593	Concentrate	1.0 ml
BSB 3594	Control Slides	5

NRAS, RMab



IHC of NRAS on a FFPE Melanoma Tissue

NRAS is an enzyme that in humans is encoded by the NRAS gene. The NRAS oncogene is a member of the Ras gene family. It is mapped on chromosome 1. The Ras genes have GTP/GDP binding and GTPase activity, and their normal function may be as G-like regulatory proteins involved in the normal control of cell growth. Mutations which change amino acid residues 12, 13 or 61 activate the potential of N-Ras to transform cultured cells and are implicated in a variety of human tumors.

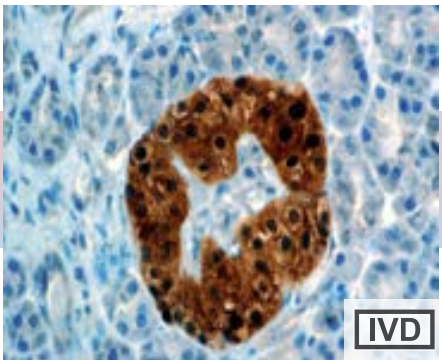
The Q61R is the most common NRAS mutation found in melanoma that is thought to occur due to UV and radiation exposure. The Q61R mutation results in an amino acid substitution at position 61 in NRAS, from a glutamine (Q) to an arginine (R). It is a commonly acquired mutation found in primary melanomas from melanoma-prone families that have known germline CDKN2A mutations, and it is associated with loss of the wild-type NRAS allele. It is also detected in patients with congenital melanocytic nevi (CMN), which can develop into malignant melanoma. The NRAS Q61R is the most common oncogenic event in encapsulated thyroid tumors of follicular cell origin with high-grade features. 20% of adrenocortical tumors solely carry this RAS alteration; however, adrenocortical hyperplasia does not, suggesting NRAS Q61R is an oncogenic event driving adrenocortical tumor development.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-NRAS*
ISOTYPE: *IgG*
CONTROL: *Small Intestine, Melanoma, ASTMA2, Lung Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2663	Tinto Predilute	3.0 ml
BSB 2664	Tinto Predilute	7.0 ml
BSB 2665	Tinto Predilute	15.0 ml
BSB 2666	Concentrate	0.1 ml
BSB 2667	Concentrate	0.5 ml
BSB 2668	Concentrate	1.0 ml
BSB 2669	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

NSE, MMab



IHC of NSE on a FFPE Pancreas Tissue

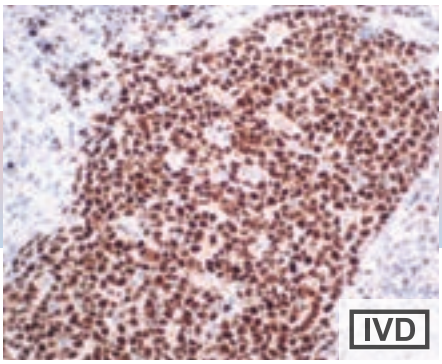
Neuron-Specific Enolase (NSE, Enolase 2) is a human gene. It makes a phosphopyruvate hydratase. This gene encodes one of the three enolase isoenzymes found in mammals. This isoenzyme, a homodimer, is found in mature neurons and cells of neuronal origin. A switch from alpha enolase to gamma enolase occurs in neural tissue during development in rats and primates.

NSE is present in high concentration in neurons and in central and peripheral neuroendocrine cells; therefore, NSE reacts with cells of neural and neuroendocrine lineage. If neoplastic cells coexpress keratins and NSE, neuroendocrine differentiation is probable. However, neural tumors that do not express keratin, and show no staining with NSE, would not exclude neural or neuroendocrine differentiation. Thus, detection of neural and neuroendocrine lineage requires the use of panels which include NSE and other markers such as keratin, chromogranin, synaptophysin and neurofilament.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-94*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas, Brain, Pituitary, Adrenal, Thyroid*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5820	Tinto Predilute	3.0 ml
BSB 5821	Tinto Predilute	7.0 ml
BSB 5822	Tinto Predilute	15.0 ml
BSB 5823	Concentrate	0.1 ml
BSB 5824	Concentrate	0.5 ml
BSB 5825	Concentrate	1.0 ml
BSB 5826	Control Slides	5

OCT-2, RMab



IHC of OCT-2 on a FFPE Lymphoma Tissue

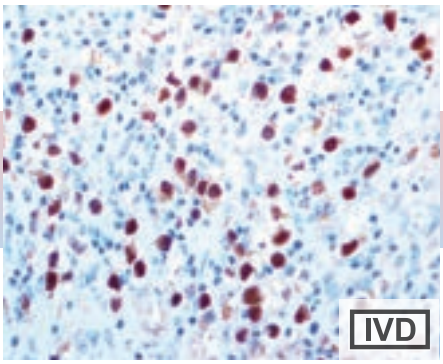
Octamer transcription factor-2 (OCT-2) possesses a leucine zipper domain and belongs to the POU family of transcription factors. It binds to the octamer motif (5-ATTTCAT-3), activates immunoglobulin gene expression and regulates transcription in a number of tissues. OCT-2 is important for the expression of B cell specific genes, such as CD20 and CRISP-3. OCT-2 is expressed in mature B cells, predominantly germinal center B cells.

The OCT-2 antibody labels various B cell lymphomas with strong expression in germinal center-derived lymphomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP115*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2021	Tinto Predilute	3.0 ml
BSB 2022	Tinto Predilute	7.0 ml
BSB 2023	Tinto Predilute	15.0 ml
BSB 2024	Concentrate	0.1 ml
BSB 2025	Concentrate	0.5 ml
BSB 2026	Concentrate	1.0 ml
BSB 2027	Control Slides	5

OCT-4, RMab



IHC of OCT-4 on a FFPE Seminoma Tissue

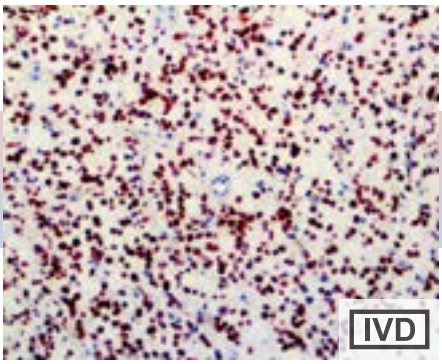
OCT-4 (octamer-binding transcription factor 4) also known as POU5F1 (POU domain, class 5, transcription factor 1) is a protein that in humans is homeodomain transcription factor of the POU family. This protein is critically involved in the self-renewal of undifferentiated embryonic stem cells. Clear cell carcinoma may enter the differential diagnosis of dysgerminoma as both may grow in nests or tubules, contain clear cells, and have a prominent inflammatory infiltrate (lymphocytes in dysgerminoma and plasma cells in clear cell carcinoma).

Expression of the OCT-4 antibody is potentially correlated with tumorigenesis and can affect some aspects of tumor behavior such as tumor recurrence or resistance to therapies. OCT-4 is expressed in undifferentiated pluriopotency cells, germ cells in ovary and testes. OCT-4 is a sensitive and specific marker for germ cell tumors. It is consistently detected in carcinoma in situ/gonadoblastoma, seminomas, germinoma, dysgerminoma, and embryonal carcinoma but not in the differentiated components of nonseminomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP143*
ISOTYPE: *IgG*
CONTROL: *Seminoma, Dysgerminoma, Testis Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2028	Tinto Predilute	3.0 ml
BSB 2029	Tinto Predilute	7.0 ml
BSB 2030	Tinto Predilute	15.0 ml
BSB 2031	Concentrate	0.1 ml
BSB 2032	Concentrate	0.5 ml
BSB 2033	Concentrate	1.0 ml
BSB 2034	Control Slides	5

OLIG2, RMab



IHC of OLIG2 on a FFPE Brain Tissue

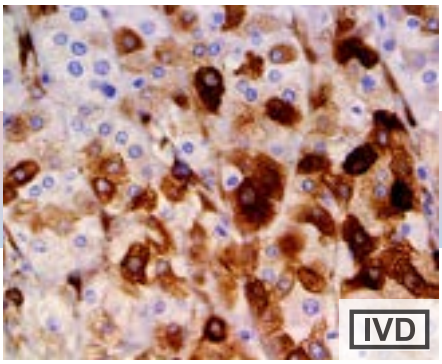
Oligodendrocyte transcription factor (OLIG2) is a basic helix-loop-helix (bHLH) transcription factor encoded by the Olig2 gene. The protein is of 329 amino acids in length, 32kDa in size and contains 1 basic helix-loop-helix DNA-binding domain. It is one of the three members of the bHLH family. The other two members are OLIG1 and OLIG3. The expression of OLIG2 is mostly restricted in central nervous system, where it acts as both an anti-neurigenic and a neurigenic factor at different stages of development. OLIG2 is well known for determining motor neuron and oligodendrocyte differentiation, as well as its role in sustaining replication in early development.

No OLIG2 expression has been found in the non-glial tumors including neuroepithelial tumors, ependymomas, subependymomas, medulloblastomas, and non-neuroepithelial tumors, such as CNS lymphomas, meningiomas, schwannomas, atypical teratoid/rhabdoid tumor, and haemangioblastomas. Compared to the strong staining seen in glioma samples, a weak expression is observed in non-tumoral brain tissue (gliosis). OLIG2 is universally expressed in glioblastoma and other diffuse gliomas (astrocytomas, oligodendrogliomas and oligoastrocytomas), and is a useful positive diagnostic marker of these brain tumors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP112*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Colon, Brain, Astrocytoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2559	Tinto Predilute	3.0 ml
BSB 2560	Tinto Predilute	7.0 ml
BSB 2561	Tinto Predilute	15.0 ml
BSB 2562	Concentrate	0.1 ml
BSB 2563	Concentrate	0.5 ml
BSB 2564	Concentrate	1.0 ml
BSB 2565	Control Slides	5

Osteonectin/SPARC, MMab



IHC of Osteonectin / SPARC on a FFPE Bladder TCC Tissue

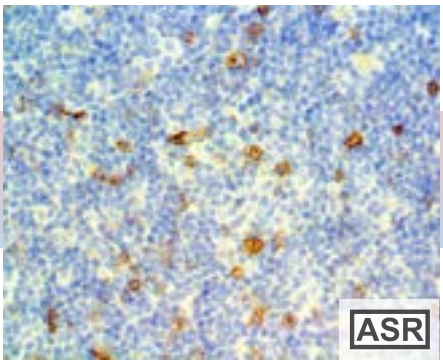
Osteonectin also known as secreted protein acidic and rich in cysteine (SPARC) or basement-membrane protein 40 (BM-40) is a protein that in humans is encoded by the SPARC gene. Osteonectin is a glycoprotein in the bone that binds calcium. Fibroblasts, including periodontal fibroblasts, synthesize Osteonectin. This protein is synthesized by macrophages at sites of wound repair and platelet degranulation, so it may play an important role in wound healing.

Osteonectin also increases the production and activity of matrix metalloproteinases, a function important to invading cancer cells within bone. Overexpression of Osteonectin is reported in many human cancers such as breast, prostate and colon. A correlation between Osteonectin overexpression and ampullary cancers and chronic pancreatitis has been reported. By immunohistochemistry, faint immunoreactivity was detected in the normal pancreas. In contrast, strong staining of the cancer cells was observed in addition to extensive Osteonectin immunoreactivity in surrounding fibroblasts and in the extracellular matrix. In metastatic tissues, strong immunoreactivity was observed in fibroblasts and in extracellular matrix surrounding metastatic cancer cells, whereas the signal was absent in most tumor cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-93*
ISOTYPE: *IgG1*
CONTROL: *Adrenal, Testis, Placenta, TCC, Testicular Cancer, Cervical Cancer*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3258	Tinto Predilute	3.0 ml
BSB 3259	Tinto Predilute	7.0 ml
BSB 3260	Tinto Predilute	15.0 ml
BSB 3261	Concentrate	0.1 ml
BSB 3262	Concentrate	0.5 ml
BSB 3263	Concentrate	1.0 ml
BSB 3264	Control Slides	5

OX-40/CD134, MMab



IHC of OX-40/CD134 on a FFPE Lymph Node Tissue

OX-40 also known as CD134 and Tumor Necrosis Factor Receptor Superfamily Member 4 (TNFRSF4), is a member of the TNFR-superfamily of receptors. OX40 and OX40L also regulate cytokine production from T cells, antigen-presenting cells, NK cells, and NKT cells, and modulate cytokine receptor signaling. In line with these important modulatory functions, OX40/OX40L interactions have been found to play a central role in the development of multiple inflammatory and autoimmune diseases. In addition, recent genome-wide association studies have identified single-nucleotide polymorphisms of the OX40L and OX40 genes that are related to cardiovascular diseases and SLE, providing direct evidence for the involvement of the OX40-OX40L interaction in human diseases.

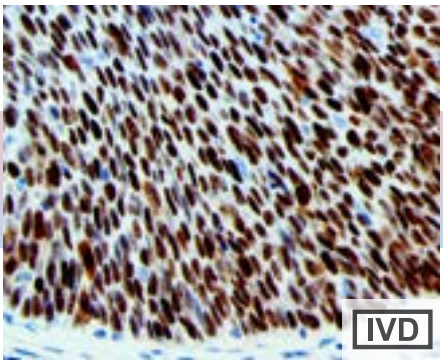
OX40 is a potent costimulatory receptor that can potentiate T-cell receptor signaling on the surface of T lymphocytes, leading to their activation by a specifically recognized antigen. In particular, OX40 engagement by ligands present on dendritic cells dramatically increases the proliferation, effector function, and survival of T cells. Preclinical studies have shown that OX40 agonists increase antitumor immunity and improve tumor-free survival by increasing T and B cell responses to reporter antigen immunizations, led to preferential upregulation of OX40 on CD4(+) FoxP3(+) regulatory T cells in tumor-infiltrating lymphocytes, and increased the antitumor reactivity of T and B cells in patients with melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-90*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node, Thymus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3120	Tinto Predilute	3.0 ml
BSB 3121	Tinto Predilute	7.0 ml
BSB 3122	Tinto Predilute	15.0 ml
BSB 3123	Concentrate	0.1 ml
BSB 3124	Concentrate	0.5 ml
BSB 3125	Concentrate	1.0 ml
BSB 3126	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

p14 ARF/ CDKN2A, RMab



IHC of p14 ARF on an FFPE Anal Carcinoma Tissue

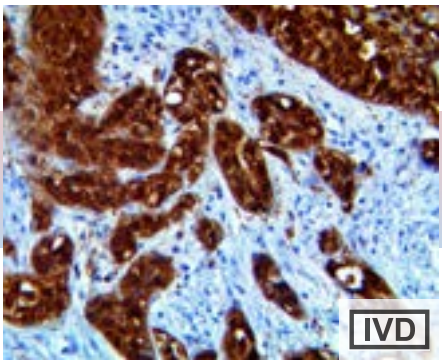
p14 ARF (also called ARF tumor suppressor, ARF, p14ARF) encoded by the p16 tumor suppressor gene is an alternate reading frame protein product of the CDKN2A locus (i.e. INK4a/ARF locus). p14ARF accumulates mainly in the nucleolus where it forms stable complexes with NPM or MDM2. Both p16INK4a and p14ARF are involved in cell cycle regulation. p14ARF inhibits MDM2, thus promoting p53, which promotes p21 activation, which then binds and inactivates certain cyclin-CDK complexes, which would otherwise promote transcription of genes that would carry the cell through the G1/S checkpoint of the cell cycle. Loss of p14ARF by a homozygous mutation in the CDKN2A (INK4A) gene will lead to elevated levels in MDM2 and, therefore, loss of p53 function and cell cycle control.

p14 ARF, has been reported to be associated with the clinicopathological features of different cancers. Very commonly, cancer is associated with a loss of function of INK4a, ARF, Rb, or p53. Without ARF, MDM2 can inappropriately inhibit p53, leading to increased cell survival. The INK4a/ARF locus is found to be deleted or silenced in many kinds of tumors. Homozygous deletions and other mutations of CDK2NA (ARF) have been found to be associated with Glioblastoma. p14ARF expression has been found to be significantly associated with the risk of lung cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-p14*
ISOTYPE: *IgG*
CONTROL: *Cervical, Anal and Ovarian Carcinomas*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3595	Tinto Predilute	3.0 ml
BSB 3596	Tinto Predilute	7.0 ml
BSB 3567	Tinto Predilute	15.0 ml
BSB 3598	Concentrate	0.1 ml
BSB 3599	Concentrate	0.5 ml
BSB 3600	Concentrate	1.0 ml
BSB 3601	Control Slides	5

p16, MMab



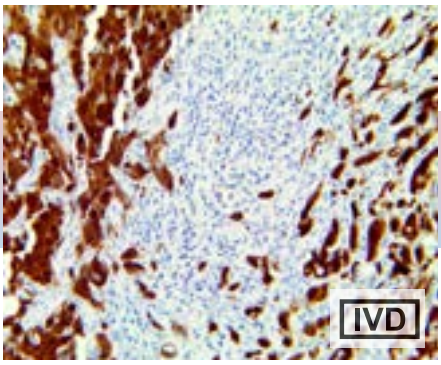
IHC of p16 on an FFPE Transitional Cell Carcinoma Tissue

p16 is a tumour supporessor gene. p16 is an important gene in regulating the cell cycle. p16INK4a regulates the cell cycle by binding and deactivating various cyclin-CdK complexes. p16 is a G1/S-cell cycle regulator that is involved in the pathway that converges in the tumor suppressor protein Rb.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *16P04,JC2*
ISOTYPE: *IgG1*
CONTROL: *Testis, NSCLC, TCC*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5827	Tinto Predilute	3.0 ml
BSB 5828	Tinto Predilute	7.0 ml
BSB 5828	Tinto Predilute	15.0 ml
BSB 5830	Concentrate	0.1 ml
BSB 5831	Concentrate	0.5 ml
BSB 5832	Concentrate	1.0 ml
BSB 5833	Control Slides	5

p16, RMab



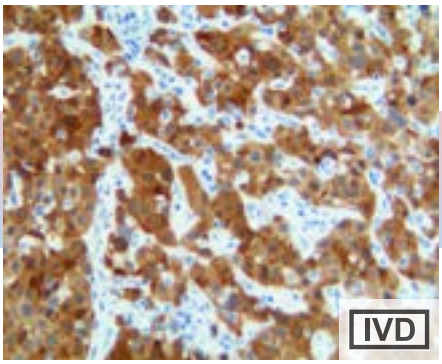
IHC of p16 on a FFPE Mucoepidermoid Carcinoma Tissue

p16 is a tumor suppressor gene. p16 is an important gene in regulating the cell cycle. p16INK4a regulates the cell cycle by binding and deactivating various cyclin-CDK complexes. p16 is a G1/S-cell cycle regulator that is involved in the pathway that converges in the tumor suppressor protein Rb.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM267*
ISOTYPE: *IgG*
CONTROL: *Testis, NSCLC, Transitional Cell Carcinoma*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3768-3	Tinto Predilute	3.0 ml
BSB-3768-7	Tinto Predilute	7.0 ml
BSB-3768-15	Tinto Predilute	15.0 ml
BSB-3768-01	Concentrate	0.1 ml
BSB-3768-05	Concentrate	0.5 ml
BSB-3768-1	Concentrate	1.0 ml
BSB-3768-CS	Control Slides	5

p16, RMab



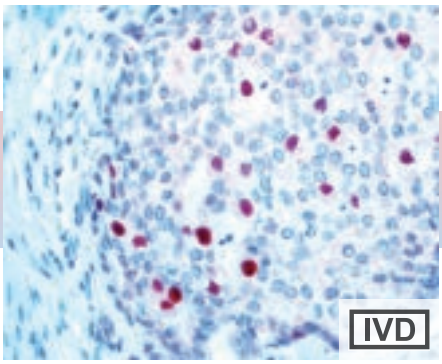
IHC of p16 on an FFPE Lung Squamous Cell Carcinoma Tissue

p16 is a tumor suppressor gene. p16 is an important gene in regulating the cell cycle. p16INK4a regulates the cell cycle by binding and deactivating various cyclin-CDK complexes. p16 is a G1/S-cell cycle regulator that is involved in the pathway that converges in the tumor suppressor protein Rb.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-p16*
ISOTYPE: *IgG*
CONTROL: *Testis, NSCLC, TCC*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3476	Tinto Predilute	3.0 ml
BSB 3477	Tinto Predilute	7.0 ml
BSB 3478	Tinto Predilute	15.0 ml
BSB 3479	Concentrate	0.1 ml
BSB 3480	Concentrate	0.5 ml
BSB 3481	Concentrate	1.0 ml
BSB 3684	Control Slides	5

p21, MMab



IHC of p21 on a FFPE Colon Carcinoma Tissue

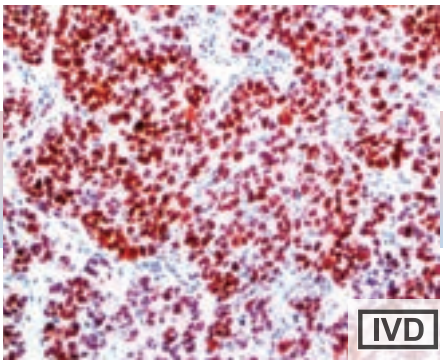
p21 is a potent cyclin-dependent kinase inhibitor. The p21 protein binds to and inhibits the activity of cyclin-CDK2 or -CDK1 complexes, and thus functions as a regulator of cell cycle progression at G1. The expression of this gene is tightly controlled by the tumor suppressor protein p53, through which this protein mediates the p53-dependent cell cycle G1 phase arrest in response to a varity of stimuli. In addition to growth arrest, p21 can mediate cellular senescence. p21 can also interact with proliferating cell nuclear antigen (PCNA) and
plays a regulatory role in S phase DNA replication and DNA damage repair.

Normal cells typically display a rather intense nuclear p21 expression. Loss of p21 expression has been associated with poor prognosis in several carcinomas including Gastric Carcinoma, Non-Small Cell Lung Carcinoma and Thyroid Carcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *DCS-60.2*
ISOTYPE: *IgG2a*
CONTROL: *Tonsil, Colon, Fallopian Tube, Breast Cancer, Colon Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2063	Tinto Predilute	3.0 ml
BSB 2064	Tinto Predilute	7.0 ml
BSB 2065	Tinto Predilute	15.0 ml
BSB 2066	Concentrate	0.1 ml
BSB 2067	Concentrate	0.5 ml
BSB 2068	Concentrate	1.0 ml
BSB 2069	Control Slides	5

p27, MMab



IHC of p27 on a FFPE Breast Carcinoma Tissue

p27KIP1 is a cell cycle regulatory mitotic inhibitor of Cdk activity. p27KIP1 is a candidate-tumor suppressor gene, and has been proposed to function as a possible mediator of TGF beta induced G1 arrest. p27 is up-regulated in response to antimitogenic stimuli. The increased protein expression of p27 results in cellular arrest by binding to cyclin/Cdk complexes such as cyclin D1/Cdk4.

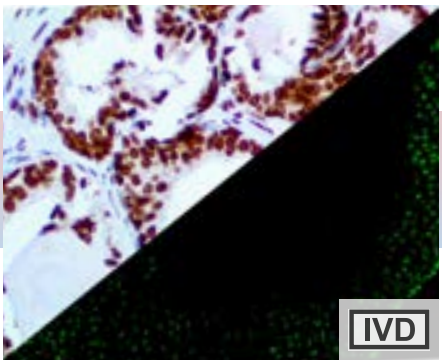
Low p27 expression has been associated with unfavorable prognosis in Renal-cell Carcinoma, Colon Carcinoma, Breast Carcinomas, Non-small-cell Lung Carcinoma, Hepatocellular Carcinoma, Multiple Myeloma, lymph node metastases in Papillary Carcinoma of the Thyroid, and a more aggressive phenotype of Carcinoma in the Cervix.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *SX53G8*
ISOTYPE: *IgG1/K*
CONTROL: *Testis, Breast, Adrenal, Prostate, Tonsil, Lung, Colon, Non-Small Cell Lung Carcinoma, Colon Adenocarcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5834	Tinto Predilute	3.0 ml
BSB 5835	Tinto Predilute	7.0 ml
BSB 5836	Tinto Predilute	15.0 ml
BSB 5837	Concentrate	0.1 ml
BSB 5838	Concentrate	0.5 ml
BSB 5839	Concentrate	1.0 ml
BSB 5840	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

p40, RMab



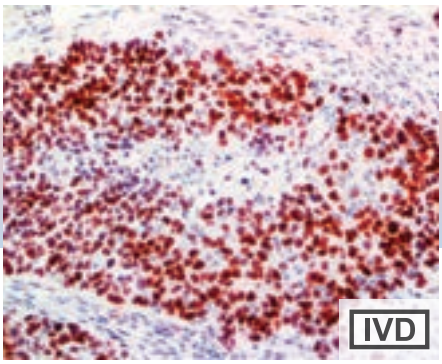
IHC and IF of p40 on an FFPE Prostate Tissue (IHC) an FFPE Tonsil Tissue (IF)

p40 is an antibody that recognizes ΔNp63-a p63 isoform and it is highly specific for squamous/ basal cells. It may be a valuable marker in detecting Squamous Cell Carcinoma where p63 is currently used. It recognizes the shortest variant of p53. p40 is superior in specificity to p63 because it does not label lung adenocarinomas like p63 does, which eliminates the potential of misinterpreting a positive adenocarcinoma as a squamous cell carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *ZR8*
ISOTYPE: *IgG*
CONTROL: *Normal Prostate, Breast, Skin*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2070	Tinto Predilute	3.0 ml
BSB 2071	Tinto Predilute	7.0 ml
BSB 2072	Tinto Predilute	15.0 ml
BSB 2073	Concentrate	0.1 ml
BSB 2074	Concentrate	0.5 ml
BSB 2075	Concentrate	1.0 ml
BSB 2076	Control Slides	5

p53, MMab



IHC of p53 on a FFPE Breast Carcinoma Tissue

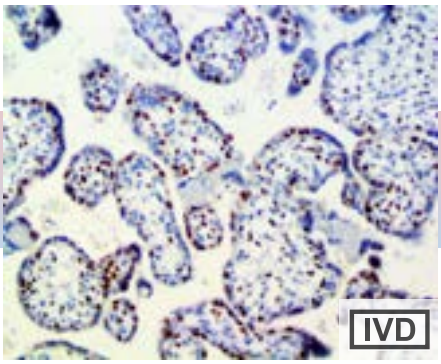
p53 (also known as tumor protein 53 [TP53]) is a transcription factor that regulates the cell cycle and, hence, functions as a tumor suppressor. p53 has been described as "the guardian of the genome", referring to its role in conserving stability by preventing genome mutation. p53 has many anti-cancer mechanisms. It can activate DNA repair proteins when DNA has sustained damage; it can also hold the cell cycle at the G1/S regulation point on DNA damage recognition. It can initiate apoptosis, programmed cell death, if DNA damage proves to be irreparable. p53 is central to many of the cell's anti-cancer mechanisms. It can induce growth arrest, apoptosis and cell senescence.

Mutations involving p53 have been found in a wide variety of malignant tumors, including Breast, Ovarian, Bladder, Colon, Lung, and Melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *DO7*
ISOTYPE: *IgG2b/K*
CONTROL: *Lung, Breast, Ovarian Carcinoma, Prostatic Carcinoma, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Cat, Horse, Sheep, Bovine, Monkey*

CAT. #	PRESENTATION	VOL/QTY
BSB 5841	Tinto Predilute	3.0 ml
BSB 5842	Tinto Predilute	7.0 ml
BSB 5843	Tinto Predilute	15.0 ml
BSB 5844	Concentrate	0.1 ml
BSB 5845	Concentrate	0.5 ml
BSB 5846	Concentrate	1.0 ml
BSB 5847	Control Slides	5

p57, MMab



IHC of p57 on a FFPE Placenta Tissue

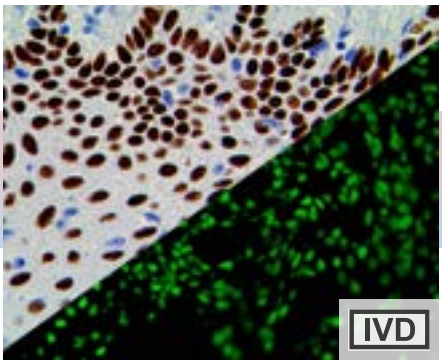
p57 or p57KIP2 is a tumor-suppressor human gene that belongs to the cip/kip gene family. It encodes a cell cycle inhibitor that binds to G1 cyclin-CDK complexes. Thus, p57 causes arrest of the cell-cycle in G1 phase. A mutation of this gene may lead to loss of control over the cell-cycle leading to uncontrolled cellular proliferation. The gene encoding human p57KIP2 is located on chromosome 11p15.5, a region implicated in sporadic cancers, Wilm's Tumor and Beckwith Wiedemann Syndrome (BWS is characterized by increased risk of tumor formation in childhood), making it a tumor suppressor candidate.

Anti-p57 has been used to aide in discriminating Complete Hydatidiform Mole (CHM) (no nuclear labeling of cytotrophoblasts) from Partial Hydatidiform Mole (PHM) and hydropic abortion. In normal placenta, many cytotrophoblast nuclei and stromal cells are labelled with this antibody. Similar findings apply to PHM and hydropic abortus tissues. Intervillous Trophoblastic Islands (IVTIs) demonstrate nuclear labeling in all three entities and serve as an internal control.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Kp10*
ISOTYPE: *IgG1b/K*
CONTROL: *Placenta, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6191	Tinto Predilute	3.0 ml
BSB 6192	Tinto Predilute	7.0 ml
BSB 6193	Tinto Predilute	15.0 ml
BSB 6194	Concentrate	0.1 ml
BSB 6195	Concentrate	0.5 ml
BSB 6196	Concentrate	1.0 ml
BSB 6197	Control Slides	5

p63, MMab



IHC and IF of p63 on an FFPE Basal Cell Carcinoma Tissue (IHC) an FFPE Tonsil Tissue (IF)

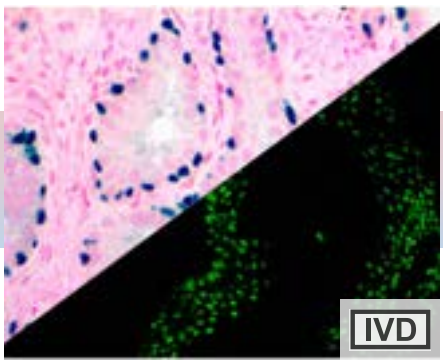
In addition to p53, mammalian cells contain two homologous genes, p63 and p73. These genes give rise to the expression of proteins that are highly similar to p53 in structure and function. In particular, p63 and p73 proteins can induce p53-responsive genes and elicit programmed cell death. p73 and p63 are important during development and differentiation. In particular, p63 appears to be primarily implicated in epithelial development.

Anti-p63 to human p63 protein labels an epitope common to all six p63 isotypes (TAp63α, TAp63β, TAp63γ, ΔNp63α, ΔNp63β, ΔNp63γ). p63 labels the nuclei of myoepithelial cells in the prostate gland as well as breast tissue, making it useful in differentiating benign vs. malignant prostate lesions and breast lesions.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *4A4*
ISOTYPE: *IgG2a/K*
CONTROL: *Prostate, Breast, Skin, Salivary Gland*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3602	Tinto Predilute	3.0 ml
BSB 3603	Tinto Predilute	7.0 ml
BSB 3604	Tinto Predilute	15.0 ml
BSB 3605	Concentrate	0.1 ml
BSB 3606	Concentrate	0.5 ml
BSB 3607	Concentrate	1.0 ml
BSB 3608	Control Slides	5

p63, RMab



IHC and IF of p63 on a FFPE Prostate Tissue (IHC) and a FFPE Skin Tissue (IF)

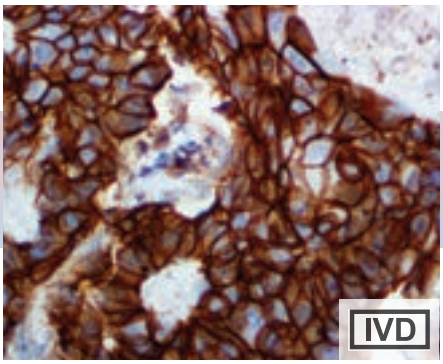
In addition to p53, mammalian cells contain two homologous genes, p63 and p73. These genes give rise to the expression of proteins that are highly similar to p53 in structure and function. In particular, p63 and p73 proteins can induce p53-responsive genes and elicit programmed cell death. p73 and p63 are more important during development and differentiation. In particular, p63 appears to be primarily implicated in epithelial development.

Anti-p63 to human p63 protein labels an epitope common to all six p63 isotypes (TAp63α, TAp63β, TAp63γ, ΔNp63α, ΔNp63β, ΔNp63γ). p63 labels the nuclei of myoepithelial cells in the prostate gland as well as breast tissue, making it useful in differentiating benign vs. malignant prostate lesions and breast lesions.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP174*
ISOTYPE: *IgG*
CONTROL: *Prostate, Breast, Skin, Salivary Gland*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat, Rabbit*

CAT. #	PRESENTATION	VOL/QTY
BSB 5848	Tinto Predilute	3.0 ml
BSB 5849	Tinto Predilute	7.0 ml
BSB 5850	Tinto Predilute	15.0 ml
BSB 5851	Concentrate	0.1 ml
BSB 5852	Concentrate	0.5 ml
BSB 5853	Concentrate	1.0 ml
BSB 5854-1	Control Slides	5

p120 Catenin, RMab



IHC of p120 Catenin on a FFPE Breast Carcinoma Tissue

p120 Catenin is a member of the Armadillo protein family, which function in adhesion between cells and signal transduction. The association of catenins to cadherins produces a complex which is linked to the actin filament network, and which seems to be important for cadherins cell-adhesion properties. Cytoplasmic accumulation of p120 Catenin has been observed in lung cancer, pancreatic cancer, gastric cancer and colon cancers and is associated with poor prognosis in colon cancer patients.

In breast lobular neoplasia, anti-p120 Catenin shows a diffuse cytoplasmic immunostaining pattern, while breast ductal neoplasia retains the membrane immunostaining pattern. p120 Catenin can be useful in differentiating between lobular carcinoma and ductal carcinoma of the breast, and in identifying early lesions of lobular neoplasia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP66*
ISOTYPE: *IgG*
CONTROL: *Breast, Testis, Kidney, Prostate, Pancreas, Tonsil, Salivary Gland, Skin, Cervix, Colon, Malignant, Melanoma, Transitional Cell Carcinoma, Breast Lobular Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2077	Tinto Predilute	3.0 ml
BSB 2078	Tinto Predilute	7.0 ml
BSB 2079	Tinto Predilute	15.0 ml
BSB 2080	Concentrate	0.1 ml
BSB 2081	Concentrate	0.5 ml
BSB 2082	Concentrate	1.0 ml
BSB 2083	Control Slides	5

Bio SB
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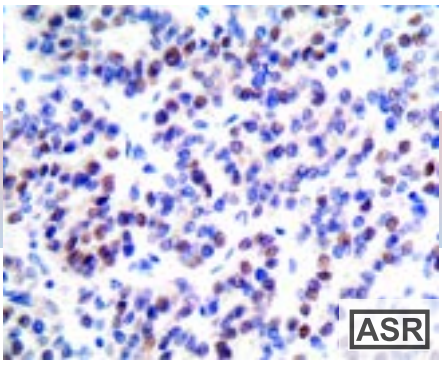
pan TRK, RMab



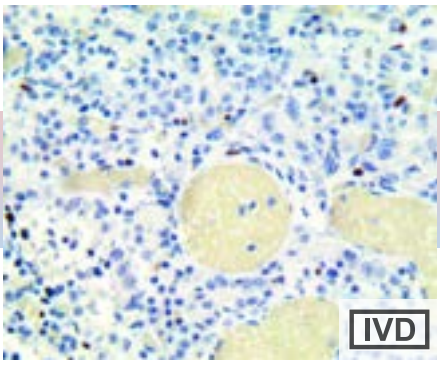
IHC panTRK on a Papillary Thyroid Carcinoma Tissue

Pan-TRK IHC has shown to be positive in most cases with NTRK fusion transcripts confirmed by Archer. One study established the Pan-TRK IHC sensitivity and specificity for transcribed NTRK fusions to be 95.2% and 100%, respectively. All positive IHC cases had cytoplasmic staining while the following fusion partner-specific patterns were discovered: all LMNA-NTRK1 fusions displayed nuclear membrane accentuation, all TPM3/4 fusions displayed cellular membrane accentuation, and half of ETV6-NTRK3 fusions displayed nuclear staining. NTRK gene fusions have been identified in both pediatric and adult primary central nervous system tumors, including Glioblastoma Multiforme, Pediatric Gliomas and Astrocytomas. Various translocations involving NTRK1 or NTRK3 have been reported in Spitzoid melanocytic neoplasms, as well as in compound Spitz Nevi. TRK fusions have also been reported in Intrahepatic Cholangiocarcinomas, Breast Cancer, quadruple wild-type (ETV6-NTRK3) Gastrointestinal Stromal Tumors, Gallbladder Adenocarcinomas, Pancreatic Carcinomas, Sinus-Nasal Low-Grade Non-Intestinal-type Adenocarcinomas and Neuroendocrine Tumors of the small bowel. In addition to being present in solid tumors, NTRK gene fusions have been also detected in Acute Lymphoblastic Leukemia and Acute Myeloid Leukemia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-TRK*
ISOTYPE: *IgG*
CONTROL: *Brain, Lung, Papillary Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-2376-3	Tinto Predilute	3.0 ml
BSB-2376-7	Tinto Predilute	7.0 ml
BSB-2376-15	Tinto Predilute	15.0 ml
BSB-2376-01	Concentrate	0.1 ml
BSB-2376-05	Concentrate	0.5 ml
BSB-2376-1	Concentrate	1.0 ml
BSB-2376-CS	Control Slides	5

pan-TRK, RMab



IHC of pan-TRK on a FFPE Diffuse Gastric Carcinoma Tissue

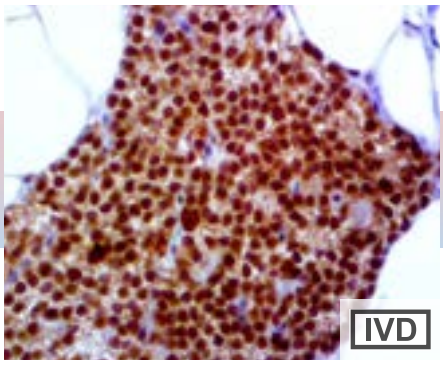
Neurotrophic tyrosine kinase (NTRK) proto-oncogene family codes for proteins Trk A, Trk B, and Trk C, which participate in pathways of neuron cell growth, differentiation, signaling, and survival. The transmembrane neurotrophic receptors are activated by neurotrophins (Nerve Growth Factor, Brain-Derived Growth Factor, and neurotrophins 3/4/5) and in turn the TRKs activate MAPK, AKT, and Phospholipase C pathways. Non-fusion alterations in NTRK have been found in 14% of tested cancers. panTRK staining can be cytoplasmic, nuclear (as in NTRK-ETV6 and NTRK-LMNA fusions), or membranous (in NTRK-TMP3/4) depending on the fusion pair.

NTRK fusions result in NTRK3-ETV6 pairs in 90% of cases, most commonly found in Carcinomas and Sarcomas of the Mammary and Salivary Secretory Glands. NTRK gene fusions are also found in Brain primary tumors and metastases, Lung, Breast, Papillary Thyroid Carcinoma, Colorectal and Pancreatic cancer. NTRK mesenchymal tumors have multiple morphological features and coexpression of S100, CD34, and panTRK.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM423*
ISOTYPE: *IgG*
CONTROL: *Brain, Lung Neuroendocrine Cancer*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3742-3	Tinto Predilute	3.0 ml
BSB-3742-7	Tinto Predilute	7.0 ml
BSB-3742-15	Tinto Predilute	15.0 ml
BSB-3742-01	Concentrate	0.1 ml
BSB-3742-05	Concentrate	0.5 ml
BSB-3742-1	Concentrate	1.0 ml
BSB-3742-CS	Control Slides	5

Parafibromin, MMab



IHC of Parafibromin on a FFPE Parathyroid Carcinoma Tissue

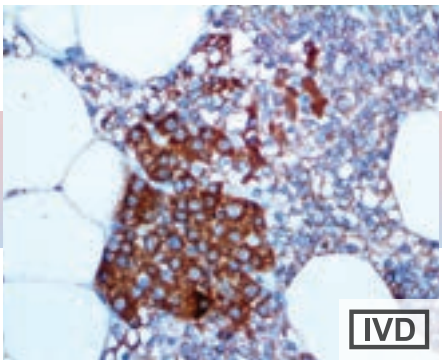
Cell division cycle 73, Paf1/RNA polymerase II complex component, homolog (S. cerevisiae), also known as CDC73 and parafibromin, is a protein which in humans is encoded by the CDC73 gene. Mutations in the CDC73 gene are associated with hyperparathyroidism-jaw tumor syndrome (HPT-JT) and parathyroid carcinomas.

The proposed role of HRPT2 as a tumor suppressor was supported by mutation screening in parathyroid adenomas with cystic features, which identified three somatic inactivating mutations, all located in exon 1. None of these mutations were detected in normal controls, and all were predicted to cause deficient or impaired protein function. Sporadic parathyroid carcinomas frequently have HRPT2 mutations that are likely to be of pathogenetic importance. Certain patients with apparently sporadic parathyroid carcinoma carry germ-line mutations in HRPT2 and may have the HPT-JT syndrome or a phenotypic variant.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-50*
ISOTYPE: *IgG1*
CONTROL: *Parathyroid, Colon, Testis, Adrenal, Breast, Cervix, Kidney, Pituitary, Brain, Pancreas, Salivary Gland, Lymphoblastic Lymphoma, Transitional Cell Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2747	Tinto Predilute	3.0 ml
BSB 2748	Tinto Predilute	7.0 ml
BSB 2749	Tinto Predilute	15.0 ml
BSB 2750	Concentrate	0.1 ml
BSB 2751	Concentrate	0.5 ml
BSB 2752	Concentrate	1.0 ml
BSB 2753	Control Slides	5

Parathyroid Hormone/PTH, MMab



IHC of Parathyroid Hormone on a FFPE Parathyroid Tissue

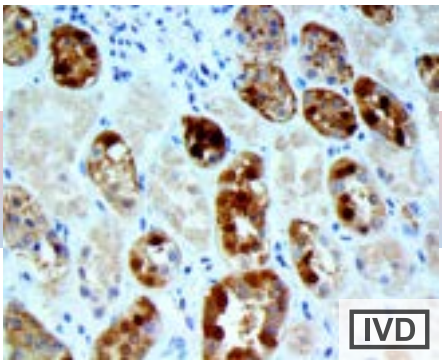
Parathyroid hormone (PTH), parathormone or parathyrin, is secreted by the chief cells of the parathyroid glands as a polypeptide containing 84 amino acids. It acts to increase the concentration of calcium (Ca2+) in the blood, whereas Calcitonin (a hormone produced by the parafollicular cells (C cells) of the thyroid gland) acts to decrease calcium concentration. PTH acts to increase the concentration of calcium in the blood by acting upon the parathyroid hormone 1 receptor (high levels in bone and kidney) and the parathyroid hormone 2 receptor (high levels in the central nervous system, pancreas, testis, and placenta). PTH half-life is approximately 4 minutes.

Anti-PTH antibody is also useful to distinguish parathyroid hyperplasia/neoplasms from thyroid and metastatic neoplasms. If the patient's hypercalcemic status is not known, PTH immunohistochemistry is helpful, especially if clear cell parathyroid carcinomas are nonsecretory and there is no abnormality in mineral metabolism. The other instance in which anti-PTH antibodies are useful is in the consideration of parathyroid carcinomas located primarily in the anterior mediastinum. In this situation distinction from primary thymic metastatic carcinomas, non-Hodgkin's lymphoma and germ cell tumors is necessary.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-24*
ISOTYPE: *IgG1*
CONTROL: *Parathyroid*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2084	Tinto Predilute	3.0 ml
BSB 2085	Tinto Predilute	7.0 ml
BSB 2086	Tinto Predilute	15.0 ml
BSB 2087	Concentrate	0.1 ml
BSB 2088	Concentrate	0.5 ml
BSB 2089	Concentrate	1.0 ml
BSB 2090	Control Slides	5

Parvalbumin, RMab



IHC of Parvalnumin on a FFPE Kidney Tissue

Parvalbumin is a calcium-binding albumin protein with low molecular weight (typically 9-11 kDa), structurally related to calmodulin and troponin C and a stable protein involved in calcium signaling. Parvalbumin plays a role in many physiological processes, namely cell-cycle regulation, second messenger production, muscle contraction, organization of microtubules and phototransduction. Parvalbumin is localized in fast-contracting muscles, where its levels are highest, as well as in the brain and some endocrine tissues. In normal kidney, parvalbumin has been shown to be limited to the distal tubular and collecting duct cells (the intercalated cells).

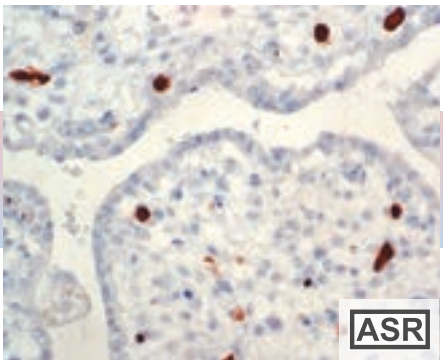
Studies have demonstrated that parvalbumin may be a suitable IHC marker for distinguishing primary and metastatic chromophobe carcinoma from conventional (clear cell) and papillary renal cell carcinoma. Parvalbumin is strongly expressed in almost all primary, as well as metastatic, chromophobe renal cell carcinoma (RCC) (100%) and oncocytoma (69%), but is essentially negative in other types of RCCs, such as clear cell RCC and papillary RCC.

Additionally, alterations in the function of parvalbumin-expressing neurons have been implicated in various areas of clinical interest such as Alzheimer's disease and age-related cognitive defects.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP300*
ISOTYPE: *IgG*
CONTROL: *Brain, Kidney, Tonsil, Lymph Node, Chromophobe RCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3406	Tinto Predilute	3.0 ml
BSB 3407	Tinto Predilute	7.0 ml
BSB 3408	Tinto Predilute	15.0 ml
BSB 3409	Concentrate	0.1 ml
BSB 3410	Concentrate	0.5 ml
BSB 3411	Concentrate	1.0 ml
BSB 3412	Control Slides	5

Parvovirus, MMab



IHC of Parvovirus B19 on a FFPE Placenta Tissue

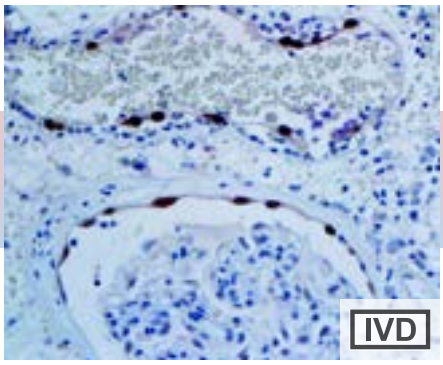
Parvovirus B19 belongs to the Parvoviridae family of small DNA viruses. It is classified as Erythrovirus because of its capability to invade red blood cell precursors in the bone marrow. Anti-Parvovirus antibody targets the capsid proteins VP1 and VP2 on Human Parvovirus.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *R92F6*
ISOTYPE: *IgG1*
CONTROL: *Parvovirus Infected Tissue*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5854	Tinto Predilute	3.0 ml
BSB 5855	Tinto Predilute	7.0 ml
BSB 5856	Tinto Predilute	15.0 ml
BSB 5857	Concentrate	0.1 ml
BSB 5858	Concentrate	0.5 ml
BSB 5859	Concentrate	1.0 ml
BSB 5860	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

PAX-2, RMab



IHC of PAX-2 on a FFPE Kidney Tissue

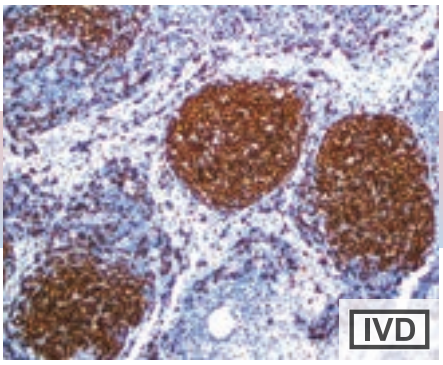
PAX-2 is a homeogene strongly expressed during kidney development. PAX-2 gene is expressed in the metanephric mesenchyma after ureter bud induction and is a key factor for the mesenchyma-epithelium conversion. Animals transgenic for PAX-2 have severe renal abnormalities and cysts but no solid tumoral features.

Anti-PAX-2 can be used to distinguish Ovarian Serous Papillary Carcinoma (PAX-2 positive) from Primary Breast Carcinoma (PAX-2 negative). It can also be used to distinguish Clear Cell Renal Carcinoma (positive) from Hepatocellular Carcinoma (negative).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP235*
ISOTYPE: *IgG*
CONTROL: *Kidney, Fallopian Tube, Clear Cell Renal Carcinoma, Ovarian Serous Papillary Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2566	Tinto Predilute	3.0 ml
BSB 2567	Tinto Predilute	7.0 ml
BSB 2568	Tinto Predilute	15.0 ml
BSB 2569	Concentrate	0.1 ml
BSB 2570	Concentrate	0.5 ml
BSB 2571	Concentrate	1.0 ml
BSB 2572	Control Slides	5

PAX-5, RMab



IHC of PAX-5 on a FFPE Tonsil Tissue

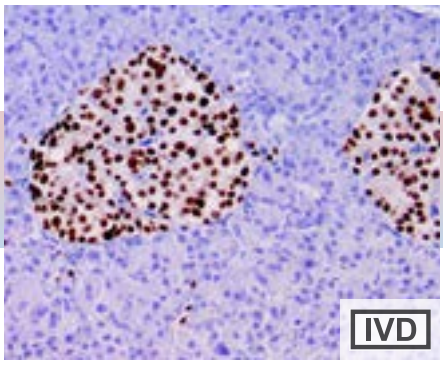
The PAX proteins are important regulators in early development, and alterations in the expression of their genes are thought to contribute to neoplastic transformation. The PAX-5 gene encodes the B-cell lineage-specific activator protein (BSAP) that is expressed at early, but not late, stages of B-cell differentiation. Its expression has also been detected in developing CNS and testis; therefore, PAX-5 gene product may not only play an important role in B-cell differentiation, but also in neural development and spermatogenesis.

PAX-5 expression is not only continuously required for B-cell lineage commitment during early B-cell development but also for B-cell lineage maintenance. PAX-5 is found in most cases of mature and precursor B-cell Non-Hodgkin's Lymphomas/Leukemias. PAX-5 is not detected in Multiple Myeloma and solitary Plasmacytoma, making it useful for such differentiation. Diffuse Large B-cell Lymphomas do express PAX-5, except for those with terminal B-cell differentiation. T-cell neoplasms do not stain with anti-PAX-5; however, there is a strong association with CD20 expression.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PAX5*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Thymus, Colon, Liver, Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5861	Tinto Predilute	3.0 ml
BSB 5862	Tinto Predilute	7.0 ml
BSB 5863	Tinto Predilute	15.0 ml
BSB 5864	Concentrate	0.1 ml
BSB 5865	Concentrate	0.5 ml
BSB 5866	Concentrate	1.0 ml
BSB 5867	Control Slides	5

PAX-6, RMab



IHC of PAX-6 of a FFPE Pancreas Tissue

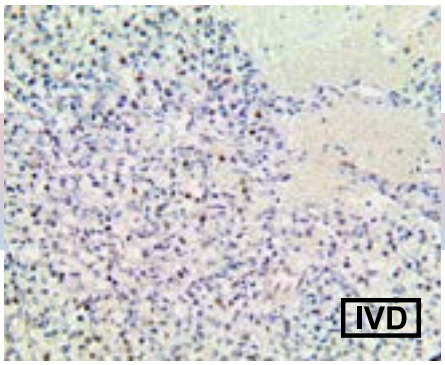
Paired box protein PAX-6 also known as aniridia type II protein (AN2) is a protein that in humans is encoded by the PAX6 gene. PAX6 is a transcription factor present during embryonic development of sensory organs (including eye, nasal and olfactory tissues), central nervous and endocrine system. As a transcription factor, PAX6 activates and/or deactivates gene expression patterns to ensure for proper development tissues. Mutations of the PAX6 gene are known to cause various disorders of the eyes. Two common disorders associated with a mutation are: aniridia, the absence of the iris, and Peter's anomaly, thinning and clouding of the cornea.

PAX6 labels neuroendocrine cells and derived tumor cells and is helpful in identification of neuroendocrine tumors. A recent study showed that PAX6 and PAX8 were positive in the majority of neuroendocrine tumors originated from pancreas, duodenum, and colon. Additionally, Neuroendocrine tumors of the lung (NELC), which account for 25% of all lung cancer cases, and transcription factors may drive dedifferentiation of these tumors. SOX4 ($p = 0.0002$), SOX11 ($p < 0.0001$) and PAX6 ($p = 0.0002$) have been found to be significant for tumor type and elevated PAX6 and SOX11 expression correlates with poor outcome in large cell neuroendocrine carcinomas and small cell lung cancer ($p < 0.0001$ and $p = 0.0232$, respectively) based on survival data of 34 patients (57%). Therefore, aggressiveness of NELC correlated with increasing expression of transcription factors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP341*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Pituitary, Neuroendocrine Tumors*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, predicted Mouse, predicted Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3127	Tinto Predilute	3.0 ml
BSB 3128	Tinto Predilute	7.0 ml
BSB 3129	Tinto Predilute	15.0 ml
BSB 3130	Concentrate	0.1 ml
BSB 3131	Concentrate	0.5 ml
BSB 3132	Concentrate	1.0 ml
BSB 3133	Control Slides	5

PAX-7, MMab



IHC of PAX-7 on a FFPE Renal Cell Carcinoma Tissue

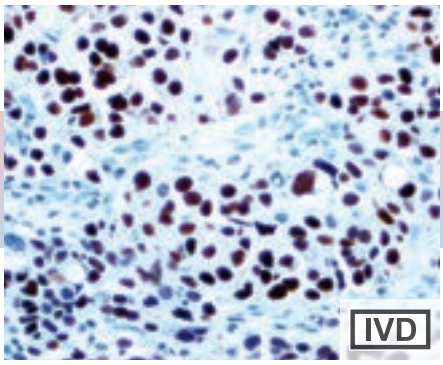
PAX-7 or Paired Box Gene 7 is a transcription factor coded by a gene on locus 1p36, which can fuse with Forkhead Domain Region (FKHR). PAX-7 protein is involved in developmental pathways in neural tube and mesencephalon formation, muscle cell development, and oxidative stress sensitivity. PAX-7 regulates neural cell adhesion molecules and is expressed in proliferating myoblasts, but it is down-regulated after playing its role in cell differentiation toward muscle-derived specification.

PAX-7 is restricted to muscle satellite and myogenic precursor cells in adults, although it is upregulated in embryonal (ERMS) and alveolar rhabdomyosarcoma (ARMS) and could suggest a de-differentiated cell type when overexpressed in these tumors. Recent studies suggested that PAX-7 is a novel marker, because it was expressed consistently in Ewing sarcoma, in addition to rhabdomyosarcoma and synovial sarcoma. PAX7 was found expressed in 90% of Ewing sarcomas (90%), mainly in a diffuse and strong manner. Although NKX2-2 showed similar sensitivity, PAX7 showed more extensive and strong reactivity. ARMS differs from ERMS by virtue of its occurrence in older patients, distinctive pseudoalveolar pattern, usual absence of strap cells, and strong myogenin rather than MyoD1 expression. Identification of a PAX3 or PAX7/FKHR fusion gene may be necessary for the confident distinction of ARMS from the most primitive forms of ERMS.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-145*
ISOTYPE: *IgG2a*
CONTROL: *Placenta, Brain, Testis, Prostate, Papillary Thyroid Carcinoma, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3743-3	Tinto Predilute	3.0 ml
BSB-3743-7	Tinto Predilute	7.0 ml
BSB-3743-15	Tinto Predilute	15.0 ml
BSB-3743-01	Concentrate	0.1 ml
BSB-3743-05	Concentrate	0.5 ml
BSB-3743-1	Concentrate	1.0 ml
BSB-3743-CS	Control Slides	5

PAX-8, RMab



IHC of PAX-8 on a FFPE Ovarian Carcinoma Tissue

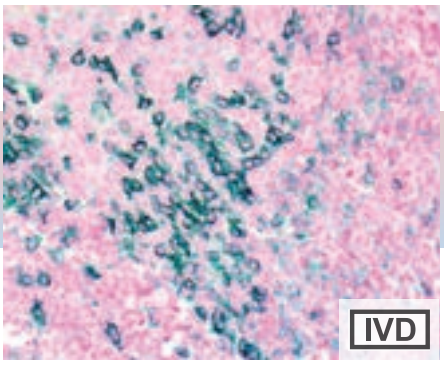
PAX-8 is expressed in the thyroid (and associated carcinomas), non-ciliated mucosal cells of the fallopian tubes and simple ovarian inclusion cysts, but not normal ovarian surface epithelial cells. PAX-8 is expressed in a high percentage of ovarian serous, endometrioid, and clear cell carcinomas, but only rarely in primary ovarian mucinous adenocarcinomas. Studies have also found PAX-8 experession in renal tubules as well as renal carcinoma, nephroblastoma and seminoma. Normal lung and lung carcinomas do not express PAX-8. Similarly, the absence of expression of PAX-8 in breast and other non-GYN carcinomas other than those primary to the thyroid indicates that PAX-8 is an important new marker of ovarian cancer and a useful marker for the differential diagnoses in lung and neck tumors, or tumors at distant sites where primary lung carcinoma or thyroid carcinoma are possibilities.

PAX-8, combined with organ system-specific markers such as uroplakin, mammaglobin, and TTF-1 can be a very useful panel to determine the primary site of invasive micropapillary carcinomas of ovary from bladder, lung, and breast.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *ZR-1*
ISOTYPE: *IgG*
CONTROL: *Ovary, Thyroid*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2098	Tinto Predilute	3.0 ml
BSB 2099	Tinto Predilute	7.0 ml
BSB 2100	Tinto Predilute	15.0 ml
BSB 2101	Concentrate	0.1 ml
BSB 2102	Concentrate	0.5 ml
BSB 2103	Concentrate	1.0 ml
BSB 2104	Control Slides	5

PD-1/CD279, MMab



IHC of PD-1 on a FFPE Tonsil Tissue

Programmed Death 1, (PD-1 or CD279), is a Type I membrane protein comprised of 268 amino acids. PD-1 is a member of the extended CD28/CTLA-4 family of T-cell regulators. PD-1 is expressed on the surface of activated T-cells, B-cells, and macrophages. In comparison to CTLA-4, PD-1 more broadly negatively regulates immune responses.

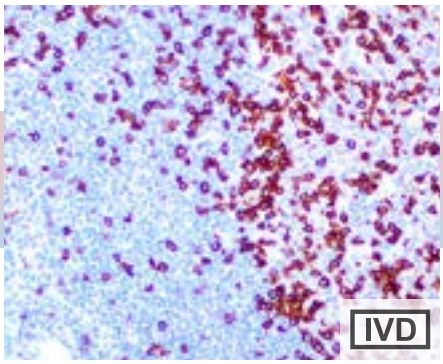
New data suggests that expression of PD-L1 on tumor cells inhibits anti-tumor activity through engagement of PD-1 on effector T-cells. Expression of PD-L1 on tumors is correlated with reduced survival in esophageal, pancreatic and other types of cancers, highlighting the relevance of exploring the PD-1 pathway as a target for immunotherapy. Studies have found that PD-1 is expressed on most T-cells and a small subset of B-cells in the light zone of germinal centers, but not elsewhere in the tonsil. On that basis, it was postulated that PD-1 may play a role in the process of clonal selection of centrocytes, which occurs in this subanatomic site in germinal centers. PD-1 is a new marker of Angioimmunoblastic Lymphoma and suggests a unique cell of origin for this neoplasm. Unlike CD10 and bcl-6, PD-1 is expressed by few B-cells, so it may be a more specific and useful diagnostic marker in Angioimmunoblastic Lymphoma. It also seems to stain a greater percentage of CD3-positive neoplastic cells in Angioimmunoblastic Lymphoma than either CD10 or bcl-6.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *NAT-105*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node, Thymus, Spleen*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6212	Tinto Predilute	3.0 ml
BSB 6213	Tinto Predilute	7.0 ml
BSB 6214	Tinto Predilute	15.0 ml
BSB 6215	Concentrate	0.1 ml
BSB 6216	Concentrate	0.5 ml
BSB 6217	Concentrate	1.0 ml
BSB 6218	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

PD-1/CD279, RMab



IHC of PD1 on a FFPE Tonsil Tissue

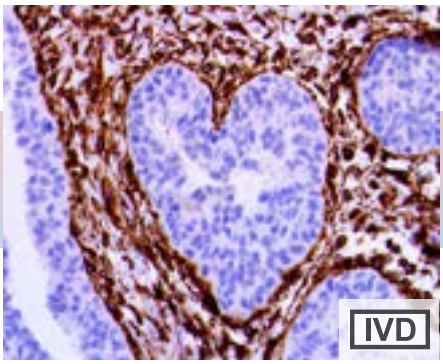
Programmed Death 1 (PD-1 or CD279) is a Type I membrane protein comprised of 268 amino acids. PD-1 is a member of the extended CD28/CTLA-4 family of T-cell regulators. PD-1 is expressed on the surface of activated T-cells, B-cells, and macrophages. In comparison to CTLA-4, PD-1 more broadly negatively regulates immune responses.

New data suggests that expression of PD-L1 on tumor cells inhibits anti-tumor activity through engagement of PD-1 on effector T-cells. Expression of PD-L1 on tumors is correlated with reduced survival in esophageal, pancreatic and other types of cancers, highlighting the relevance of exploring the PD-1 pathway as a target for immunotherapy. Studies have found that PD-1 is expressed on most T-cells and a small subset of B-cells in the light zone of germinal centers, but not elsewhere in the tonsil. On that basis, it was postulated that PD-1 may play a role in the process of clonal selection of centrocytes, which occurs in this subanatomic site in germinal centers. PD-1 is a new marker of Angioimmunoblastic Lymphoma and suggests a unique cell of origin for this neoplasm. Unlike CD10 and bcl-6, PD-1 is expressed by few B-cells, so it may be a more specific and useful diagnostic marker in Angioimmunoblastic Lymphoma. It also seems to stain a greater percentage of CD3-positive neoplastic cells in Angioimmunoblastic Lymphoma than either CD10 or bcl-6.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP239*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Thymus, Spleen*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3148	Tinto Predilute	3.0 ml
BSB 3149	Tinto Predilute	7.0 ml
BSB 3150	Tinto Predilute	15.0 ml
BSB 3151	Concentrate	0.1 ml
BSB 3152	Concentrate	0.5 ml
BSB 3153	Concentrate	1.0 ml
BSB 3154	Control Slides	5

PDGFR-B, RMab



IHC of PDGFR-B on a FFPE Breast Tissue

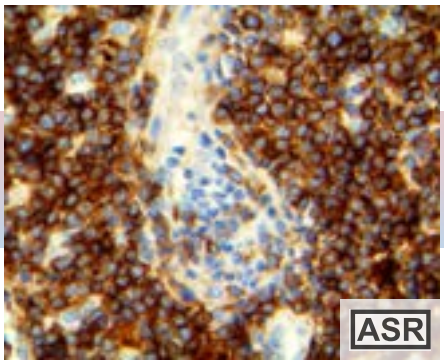
Beta-type Platelet-Derived Growth Factor Receptor is a protein that in humans is encoded by the PDGFRB gene. This gene encodes a cell surface tyrosine kinase receptor for members of the Platelet-Derived Growth Factor family (PDGF), which is a mitogen for mesenchyme- and glia-derived cells. PDGF consists of two chains, A and B, which dimerize to form functionally distinct isoforms, PGDF-AA, PDGF-AB and PDGF-BB.

Translocation of the PDGFR gene with the Tel gene is linked to Chronic Myelomonocytic Leukemia (CMML), a myelodysplastic syndrome, and demonstrates the oncogenic potential of the PDGF receptors. A translocation between chromosomes 5 and 12, that fuses this gene to that of the translocation, ETV6, leukemia gene, results in chronic myeloproliferative disorder with eosinophilia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PDGFRB*
ISOTYPE: *IgG*
CONTROL: *Placenta, Breast, Kidney, Cervix, Skin, Fallopian Tube*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2349	Tinto Predilute	3.0 ml
BSB 2350	Tinto Predilute	7.0 ml
BSB 2351	Tinto Predilute	15.0 ml
BSB 2352	Concentrate	0.1 ml
BSB 2353	Concentrate	0.5 ml
BSB 2354	Concentrate	1.0 ml
BSB 2355	Control Slides	5

PD-L1/CD274, RMab



IHC PD-L1/CD274 on a FFPE CSL/SLL Lymphoma Tissue

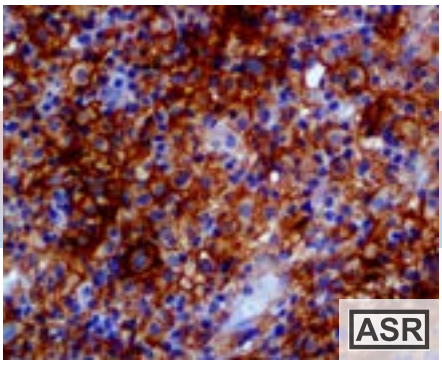
Programmed death-ligand 1 (PD-L1) also known as CD274 or B7 homolog 1 (B7-H1) is a protein that in humans is encoded by the CD274 gene. Programmed death-ligand 1 (PD-L1) is a 40 kDa type 1 transmembrane protein that has been speculated to play a major role in suppressing the immune system during particular events such as pregnancy, tissue allografts, autoimmune disease and other diseases.

The upregulation of PD-L1 may allow cancers to evade the host immune system. An analysis of tumor specimens from patients with renal cell carcinoma found that high tumor expression of PD-L1 was associated with increased tumor aggressiveness and a 4.5-fold increased risk of death. Ovarian cancer patients with higher expression of PD-L1 had a significantly poorer prognosis than those with lower expression. PD-L1 expression correlated inversely with intraepithelial CD8+ T-lymphocyte count, suggesting that PD-L1 on tumor cells may suppress antitumor CD8+ T cells. The PD-1/PD-L1 interaction is implicated in autoimmunity from several lines of evidence. In humans, PD-L1 was found to have altered expression in pediatric patients with Systemic lupus erythematosus. Studying isolated PBMC from healthy children, immature myeloid dendritic cells and monocytes expressed little PD-L1 at initial isolation, but spontaneously up-regulated PD-L1 by 24 hours. In contrast, both mDC and monocytes from patients with active SLE failed to upregulate PD-L1 over a 5 day time course, expressing this protein only during disease remissions.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *28-8*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Placenta, Lymphoblastic Lymphoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-2371-3	Tinto Predilute	3.0 ml
BSB-2371-7	Tinto Predilute	7.0 ml
BSB-2371-15	Tinto Predilute	15.0 ml
BSB-2371-01	Concentrate	0.1 ml
BSB-2371-05	Concentrate	0.5 ml
BSB-2371-1	Concentrate	1.0 ml
BSB-2371-CS	Control Slides	5

PD-L1/CD274, RMab



IHC PD-L1/CD274 on a Hodgkin's Lymphoma Tissue

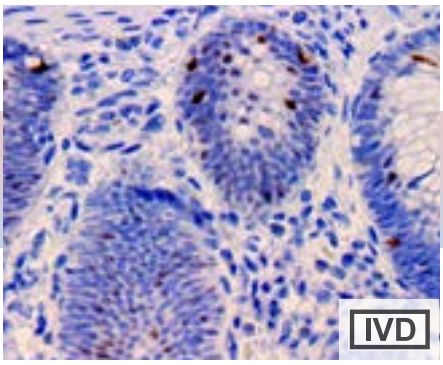
Programmed death-ligand 1 (PD-L1) also known as CD274 or B7 homolog 1 (B7-H1) is a protein that in humans is encoded by the CD274 gene. Programmed death-ligand 1 (PD-L1) is a 40 kDa type 1 transmembrane protein that has been speculated to play a major role in suppressing the immune system during particular events such as pregnancy, tissue allografts, autoimmune disease and other diseases.

The upregulation of PD-L1 may allow cancers to evade the host immune system. An analysis of tumor specimens from patients with renal cell carcinoma found that high tumor expression of PD-L1 was associated with increased tumor aggressiveness and a 4.5-fold increased risk of death. Ovarian cancer patients with higher expression of PD-L1 had a significantly poorer prognosis than those with lower expression. PD-L1 expression correlated inversely with intraepithelial CD8+ T-lymphocyte count, suggesting that PD-L1 on tumor cells may suppress antitumor CD8+ T cells. The PD-1/PD-L1 interaction is implicated in autoimmunity from several lines of evidence. In humans, PD-L1 was found to have altered expression in pediatric patients with Systemic lupus erythematosus. Studying isolated PBMC from healthy children, immature myeloid dendritic cells and monocytes expressed little PD-L1 at initial isolation, but spontaneously up-regulated PD-L1 by 24 hours. In contrast, both mDC and monocytes from patients with active SLE failed to upregulate PD-L1 over a 5 day time course, expressing this protein only during disease remissions.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PDL1*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Placenta, Lymphoblastic Lymphoma, Hodgkin's Lymphoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2649	Tinto Predilute	3.0 ml
BSB 2650	Tinto Predilute	7.0 ml
BSB 2651	Tinto Predilute	15.0 ml
BSB 2652	Concentrate	0.1 ml
BSB-2653	Concentrate	0.5 ml
BSB 2654	Concentrate	1.0 ml
BSB 2655	Control Slides	5

PDX1, RMab



IHC of PDX1 on a FFPE Colon Tissue

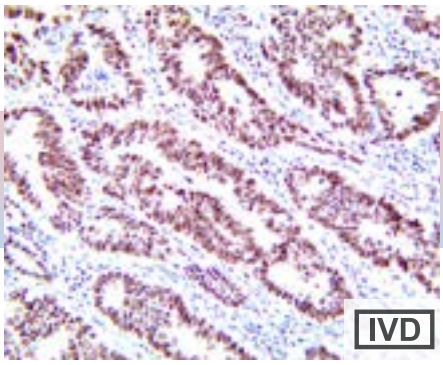
PDX1 (Pancreatic and duodenal homeobox 1), also known as insulin promoter factor 1, is a transcription factor necessary for pancreatic development, including β-cell maturation, and duodenal differentiation. PDX1 appears to also play a role in the fating of endocrine cells, encoding for insulin and somatostatin, two pancreatic endocrine products, while repressing glucagon. PDX1 is required for β-cell survival. Cells with reduced PDX1 expression have an increased rate of apoptotic programmed cell death. Mutations in the PDX1 gene may be involved in several pancreatic pathologies, including diabetes mellitus and pancreatic cancer.

Among normal pancreatic tissues, PDX1 nuclear protein is expressed in islet cells, cells of the centroacinar cell compartment, ductal epithelium and is selectively expressed in adult Brunner's glands of the duodenum and pyloric endocrine cells of the stomach. PDX1 expression has been identified in Pancreatic Ductal Adenocarcinomas and endocrine neoplasms. No expression of PDX1 is seen in non-neoplastic acinar cells. Among pancreatic neoplasms, PDX1 consistently labeled >50% of the tumor cells. PDX1 expression is variable in invasive ductal adenocarcinoma and precursor lesions of ductal adenocarcinomas. Solid pseudopapillary neoplasms do not express PDX1. Besides increased expression of PDX1 in Pancreatic cancer, it also has also been reported in tumors of the colon and prostate, indicating that PDX1 may serve as a biomarker in patients with these malignancies.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP139*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Colon, Liver, Pancreatic Cancer*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3155	Tinto Predilute	3.0 ml
BSB 3156	Tinto Predilute	7.0 ml
BSB 3157	Tinto Predilute	15.0 ml
BSB 3158	Concentrate	0.1 ml
BSB 3159	Concentrate	0.5 ml
BSB 3160	Concentrate	1.0 ml
BSB 3161	Control Slides	5

PELP1, RMab



IHC of PELP1 on a FFPE Colon Adenocarcinoma Tissue

Proline-, glutamic acid- and leucine-rich protein 1 (PELP1) gene expresses PELP1, also known as HMX3 protein, a transcription factor that regulates the expression of many signaling proteins. PELP1 is mainly known as a coactivator for Estrogen Receptor activity, where it participates in complexes that facilitate transcription according to ER-mediated signals. PELP1 interacts with a variety of signaling proto-oncogenes such as Src, HER2, and EGFR, which are known to contribute to tumor formation, and with hormonal pathways that can contribute to hormonal therapy resistance. The wide range of signaling functions makes PELP1 susceptible to expression deregulation in hormone-centered cancers, particularly in Breast, Endometrial, Ovarian, and Prostate Tumors, as well as Ductal and Colorectal Carcinomas.

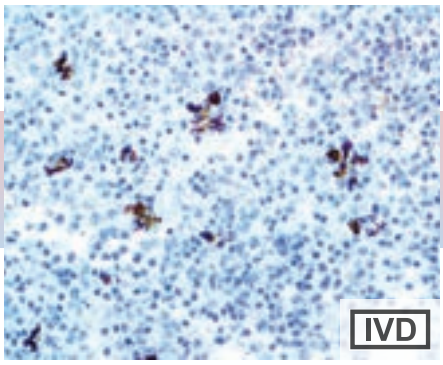
A study has found that PELP1 expression rate was the highest in breast cancers (70.5%) among different cancers. Compared to GATA3, Mammaglobin and GCDFP-15, PELP1 was less sensitive than GATA3 for luminal cancers, but was the most sensitive for non-luminal cancers. PELP1 has low expression rate (< 20%) in Colorectal Cancers, Gastric Cancers and Renal Cell Carcinomas, but higher in Lung Cancers (49.1%) and Ovarian Cancers (42.3%). PELP1 expression was associated with poor outcome in non-luminal cancers and modified the prognostic effects of AR, suggesting the potential significance of NR co-regulator in prognostication.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PELP1*
ISOTYPE: *IgG*
CONTROL: *Placenta, Breast, Colon, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma, Seminoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3744-3	Tinto Predilute	3.0 ml
BSB-3744-7	Tinto Predilute	7.0 ml
BSB-3744-15	Tinto Predilute	15.0 ml
BSB-3744-01	Concentrate	0.1 ml
BSB-3744-05	Concentrate	0.5 ml
BSB-3744-1	Concentrate	1.0 ml
BSB-3744-CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Perforin, MMab



IHC of Perforin on a FFPE Lymphoma Tissue

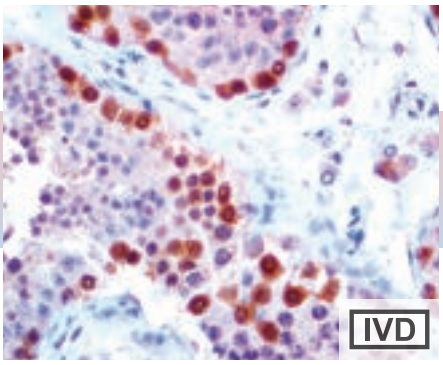
Perforin is a cytolytic protein found in the granules of Cytotoxic T lymphocytes and NK cells. Upon degranulation, perforin inserts itself into the target cell's plasma membrane, forming a pore. It enables granzymes to enter the target cells and activate apoptosis, the cell death program. Although some investigators report a cytolytic potential of CD4+ T cells, it appears more likely that CD8+ T cells are the major effector population in Th1- associated inflammatory skin diseases. The role of perforin-mediated cytotoxicity has been demonstrated in various autoimmune diseases. In vitro and in vivo studies suggest that the cytotoxicity of CTLs may be mediated by cytotoxic granules in certain inflammatory diseases in humans. In addition, it seems that T-cell cytotoxicity against keratinocytes is mediated by perforin in some inflammatory skin diseases.

Other authors suggest that perforin may have a dual role in alloimmune response (organ transplant applications). In one regard, it has a cytolytic function in acute rejection, and, in contrast, it may be responsible for downregulating both CD4- and CD8-mediated alloimmune response.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *5B10*
ISOTYPE: *IgG1*
CONTROL: *Spleen*
LOCALIZATION: *Cytoplasmic, Perinuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2105	Tinto Predilute	3.0 ml
BSB 2106	Tinto Predilute	7.0 ml
BSB 2107	Tinto Predilute	15.0 ml
BSB 2108	Concentrate	0.1 ml
BSB 2109	Concentrate	0.5 ml
BSB 2110	Concentrate	1.0 ml
BSB 2111	Control Slides	5

PGP 9.5, MMab



IHC of PGP 9.5 on a FFPE Testicle Tissue

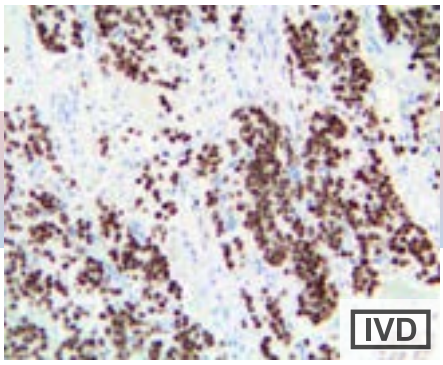
Protein gene product 9.5 (PGP 9.5), also known as ubiquitin carboxyl-terminal hydrolase-1 (UCH-L1), is a 27-kDa protein originally isolated from whole brain extracts (1). Although PGP9.5 expression in normal tissues was originally felt to be strictly confined to neurons and neuroendocrine cells (2), it has been subsequently documented in distal renal tubular epithelium, spermatogonia, Leydig cells, oocytes, melanocytes, prostatic secretory epithelium, ejaculatory duct cells, epididymis, mammary epithelial cells, Merkel cells, and dermal
fibroblasts.

Immunostaining of a plethora of different mesenchymal neoplasms with this antibody has been demonstrated.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-46*
ISOTYPE: *IgG1/K*
CONTROL: *Brain, Testis, Colon, Pituitary, Nerve Tissue, Bowel Wall*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2112	Tinto Predilute	3.0 ml
BSB 2113	Tinto Predilute	7.0 ml
BSB 2114	Tinto Predilute	15.0 ml
BSB 2115	Concentrate	0.1 ml
BSB 2116	Concentrate	0.5 ml
BSB 2117	Concentrate	1.0 ml
BSB 2118	Control Slides	5

PHOX2B, RMab



IHC of PHOX2B on an FFPE Neuroblastoma Tissue

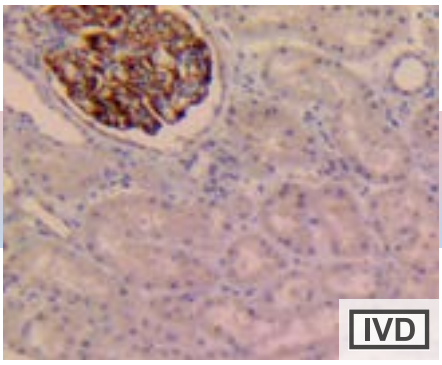
Paired-like homeobox 2b (PHOX2B), also known as neuroblastoma Phox (NBPhox), is a protein that in humans is encoded by the PHOX2B gene located on chromosome 4. It is expressed exclusively in the nervous system, in most neurons that control the viscera (cardiovascular, digestive and respiratory systems). It is also required for neuron differentiation. Mutations in human PHOX2B cause a rare disease of the autonomic nervous system (dysautonomia): congenital central hypoventilation syndrome (associated with respiratory arrests during sleep and, occasionally, wakefulness), Hirschsprung's disease (partial agenesis of the enteric nervous system), ROHHAD, and tumors of the sympathetic ganglia.

PHOX2 gene over-expression in Neuroblastoma (NB) tumors and cell lines suggests these genes may be widely involved in Neuroblastoma development through either a direct mechanism of up-regulation or a failure in maintaining proper transcript levels after embryonic development. The PHOX2B expression has been observed in all peripheral neuroblastic tumors, paragangliomas, and pheochromocytomas tested but in no other pediatric tumors among the 388 cases studied by expression microarray and the 109 cases studied by immunohistochemical analysis. PHOX2B and CD57 have been found to be useful markers of Neuroblastoma. PHOX2B is specific for Neuroblastoma in its differential diagnosis with other small round cell tumors, and its nuclear staining may be helpful for accurate bone marrow tumor quantification.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP312*
ISOTYPE: *IgG*
CONTROL: *Adrenal, Neuroblastoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human,Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 3609	Tinto Predilute	3.0 ml
BSB 3610	Tinto Predilute	7.0 ml
BSB 3611	Tinto Predilute	15.0 ml
BSB 3612	Concentrate	0.1 ml
BSB 3613	Concentrate	0.5 ml
BSB 3614	Concentrate	1.0 ml
BSB 3615	Control Slides	5

PLA2R1, MMab



IHC of PLA2R1 on a FFPE Membranous Glomerulopathy Tissue

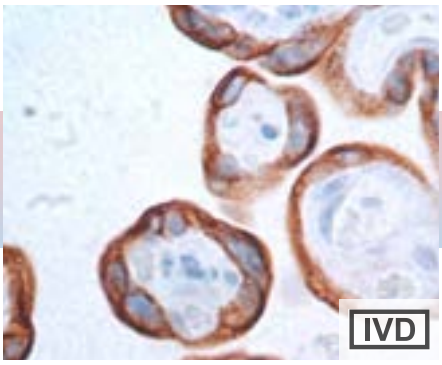
PLA2R1 gene encodes phospholipase A2 receptor 1 protein, a 180 kDa transmembrane glycoproteins expressed by podocyte. Approximately 70% of patients with idiopathic membranous glomerulopathy have autoantibodies directed against podocyte PLA2R1. PLA2R1 also promotes tumor suppressive responses including senescence, apoptosis, and inhibition of transformation. Known oncogenes such as HIF2α and c-Myc repress PLA2R1 expression.

PLA2R1 gain or loss of function experiments in vitro and in vivo shows that this receptor promotes several tumor suppressive responses including senescence, apoptosis and inhibition of transformation. Supporting a tumor suppressive role of PLA2R1, its expression decreases in numerous cancers, and known oncogenes such as HIF2α and c-MYC repress its expression. PLA2R1 promoter methylation, a classical way to repress tumor suppressive gene expression in cancer cells, is observed in leukemia, in kidney and in breast cancer cells. PLA2R1 also promotes accumulation of reactive oxygen species which induce cell death and senescence. This review compiles recent data demonstrating an unexpected tumor suppressive role of PLA2R1 and outlines the future work needed to improve our knowledge of the functions of this gene in cancer

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-129*
ISOTYPE: *IgG1*
CONTROL: *Brain, Testis, Kidney, Salivary Gland, Gastic GIST*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-2372-3	Tinto Predilute	3.0 ml
BSB-2372-7	Tinto Predilute	7.0 ml
BSB-2372-15	Tinto Predilute	15.0 ml
BSB-2372-01	Concentrate	0.1 ml
BSB-2372-05	Concentrate	0.5 ml
BSB-2372-1	Concentrate	1.0 ml
BSB-2372-CS	Control Slides	5

PLAP, MMab



IHC of PLAP on a FFPE Placenta Tissue

Alkaline phosphatase, placental type also known as placental alkaline phosphatase (PLAP) is an allosteric enzyme that in humans is encoded by the ALPP gene. PLAP is found in trophoblast cells of normal mature human placenta, Seminomas of testis and Ovarian Carcinomas. Detection of alkaline phosphatase in serum is a marker for Ovarian and Testicular Cancer.

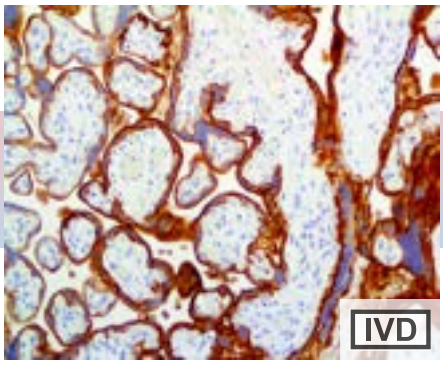
This antibody reacts with a membrane-bound isoenzyme of placental alkaline phosphatase occurring in the placenta during the 3rd trimester of gestation.

This antibody immunoreacts with Germ Cell Tumors and can discriminate between these and other neoplasms. Somatic neoplasms (e.g., breast, gastrointestinal, prostatic and urinary cancers) may also immunoreact with antibodies to PLAP. PLAP positivity, in conjunction with keratin negativity, favors Seminoma over Carcinoma. Germ Cell Tumors are usually keratin positive but they regularly fail to stain with EMA, whereas most Carcinomas stain with anti-EMA. This antibody has shown cross-reaction with human intestinal alkaline phosphatase.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-47*
ISOTYPE: *IgG2b/K*
CONTROL: *Placenta, Testis, Seminomas, Ovarian Carcinomas*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2754	Tinto Predilute	3.0 ml
BSB 2755	Tinto Predilute	7.0 ml
BSB 2756	Tinto Predilute	15.0 ml
BSB 2757	Concentrate	0.1 ml
BSB 2758	Concentrate	0.5 ml
BSB 2759	Concentrate	1.0 ml
BSB 2760	Control Slides	5

PLAP, RMab



IHC of PLAP on a FFPE Placenta Tissue

Placental Alkaline Phosphatase (PLAP) is found in trophoblast cells of normal mature human placenta, Seminomas of testis and Ovarian Carcinomas. Detection of alkaline phosphatase in serum is a marker for Ovarian and Testicular Cancer. This antibody reacts with a membrane-bound isoenzyme of placental alkaline phosphatase occurring in the placenta during the 3rd trimester of gestation.

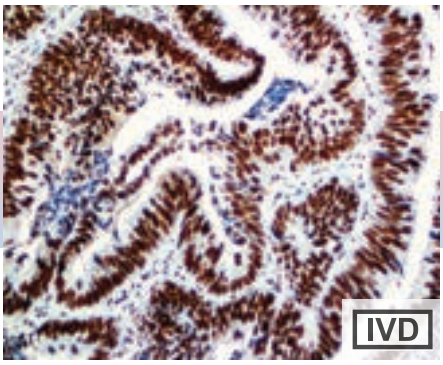
This antibody immunoreacts with Germ Cell Tumors and can discriminate between these and other neoplasms. Somatic neoplasms (e.g., breast, gastrointestinal, prostatic and urinary cancers) may also immunoreact with antibodies to PLAP. PLAP positivity, in conjunction with keratin negativity, favors Seminoma over Carcinoma. Germ Cell Tumors are usually keratin positive but they regularly fail to stain with EMA, whereas most Carcinomas stain with anti-EMA. This antibody has shown cross-reaction with human intestinal alkaline phosphatase.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP194*
ISOTYPE: *IgG*
CONTROL: *Placenta*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5868	Tinto Predilute	3.0 ml
BSB 5869	Tinto Predilute	7.0 ml
BSB 5870	Tinto Predilute	15.0 ml
BSB 5871	Concentrate	0.1 ml
BSB 5872	Concentrate	0.5 ml
BSB 5873	Concentrate	1.0 ml
BSB 5874	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

PMS2, RMab



IHC of PMS2 on a FFPE Colon Carcinoma Tissue

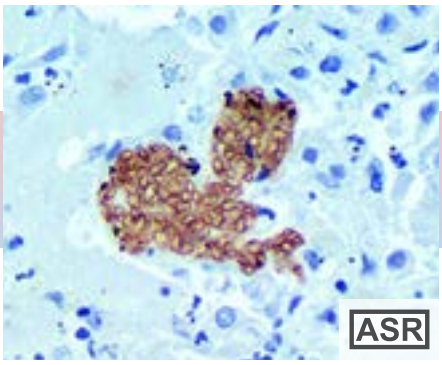
PMS2 is a gene that encodes for DNA repair proteins involved in mismatch repair. Carriers of the mismatch repair gene mutations have a high lifetime risk of developing Hereditary Non-Polyposis Colon Cancer (HNPCC) and several other cancers including endometrial cancer due to microsatellite instability (MSI) caused by accumulation of DNA replication errors in proliferating cells.

Along with MLH1, MSH2 and MSH6, PMS2 is helpful in diagnosing MSI. Tumors with low-level MSI show unfavorable pathological characteristics compared to tumors with none and tumors with high-level MSI.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP51*
ISOTYPE: *IgG*
CONTROL: *Colon Musoca, Colon Carcinoma, Breast, Skin, Cervix, Tonsil, TCC*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2119	Tinto Predilute	3.0 ml
BSB 2120	Tinto Predilute	7.0 ml
BSB 2121	Tinto Predilute	15.0 ml
BSB 2122	Concentrate	0.1 ml
BSB 2123	Concentrate	0.5 ml
BSB 2124	Concentrate	1.0 ml
BSB 2125	Control Slides	5

Pneumocystis jirovecii, MMab



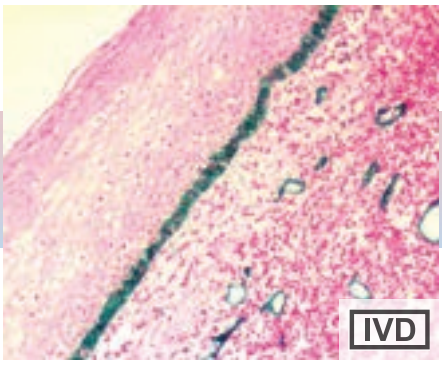
IHC of Pneumocystis on a FFPE Lung Tissue

Anti Pneumocystis carinii antibody reacts with an epitope on the yeast-like fungal microorganism, Pneumocystis carinii. that is resistant to formalin, picric acid, paraffin, as well as alcohol and xylene. No cross-reactivity has been demonstrated with other fungi or parasitic organisms.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *3F6*
ISOTYPE: *IgM/K*
CONTROL: *Pneumoscystis jirovecci Infected Tissue*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5875	Tinto Predilute	3.0 ml
BSB 5876	Tinto Predilute	7.0 ml
BSB 5877	Tinto Predilute	15.0 ml
BSB 5878	Concentrate	0.1 ml
BSB 5879	Concentrate	0.5 ml
BSB 5880	Concentrate	1.0 ml
BSB 5881	Control Slides	5

Podoplanin/D2-40, MMab



IHC of Podoplanin/D2-40 on a FFPE Tonsil Tissue

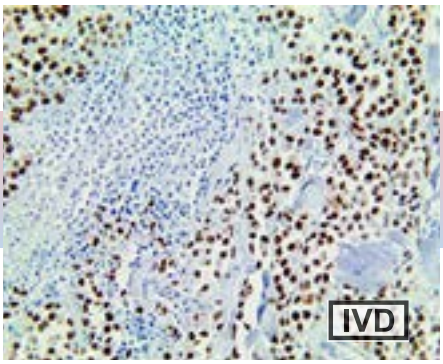
Podoplanin is a transmembrane mucoprotein (38 kDa) recognized by the D2-40 monoclonal antibody. Podoplanin is specifically expressed in the endothelium of lymphatic capillaries but not in the blood vasculature. In normal skin and kidney, podoplanin is co-localized with VEGFR3/FLT4, another marker for lymphatic endothelial cells.

Podoplanin is selectively expressed in lymphatic endothelium as well as Lymphangiomas, Kaposi's Sarcomas and in subset Angiosarcomas with probable lymphatic differentiation. Podoplanin has also been shown to be expressed in Epithelioid Mesotheliomas, Hemangioblastomas and Seminomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *D2-40*
ISOTYPE: *IgG1*
CONTROL: *Placenta, Breast, Lung, Cervix, Tonsil, Lymph Node, Lymphanglioma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6064	Tinto Predilute	3.0 ml
BSB 6065	Tinto Predilute	7.0 ml
BSB 6066	Tinto Predilute	15.0 ml
BSB 6067	Concentrate	0.1 ml
BSB 6068	Concentrate	0.5 ml
BSB 6069	Concentrate	1.0 ml
BSB 6070	Control Slides	5

PRAME, RMab



IHC of PRAME on a FFPE Melanoma Tissue

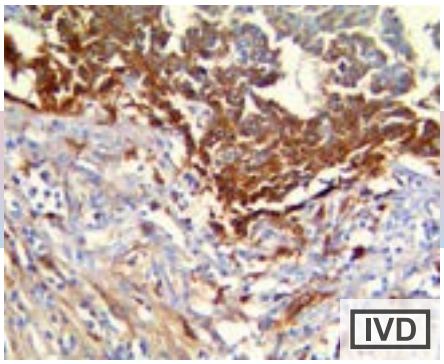
Melanoma antigen preferentially expressed in tumors is a protein that in humans is encoded by the PRAME gene. This gene encodes an antigen that is predominantly expressed in human melanomas and that is recognized by cytolytic T lymphocytes. It is not expressed in normal tissues, except in testis. This expression pattern is like that of other CT antigens, such as MAGE, BAGE and GAGE. However, unlike these other CT antigens, this gene is also expressed in acute leukemias. PRAME overexpression in triple negative breast cancer has also been found to promote cancer cell motility through induction of the epithelial-to-mesenchymal transition.

PRAME mRNA expression is well documented in cutaneous and ocular melanomas. One study concluded that diffuse nuclear immunoreactivity for PRAME was found in 87% of metastatic and 83.2% of primary melanomas. Among melanoma subtypes, PRAME was diffusely expressed in 94.4% of acral melanomas, 92.5% of superficial spreading melanomas, 90% of nodular melanomas, 88.6% of lentigo maligna melanomas, and 35% of desmoplastic melanomas. Most Melanocytic nevi (86.4%), were completely negative for PRAME. Immunoreactivity for PRAME was seen, albeit usually only in a minor subpopulation of lesional melanocytes, in 13.6% of cutaneous nevi, including dysplastic nevi, common acquired nevi, traumatized/recurrent nevi, and Spitz nevi. This study suggests that immunohistochemical analysis for PRAME expression may be useful for diagnostic purposes to support a suspected diagnosis of melanoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PRAME*
ISOTYPE: *IgG*
CONTROL: *Testis, Seminoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-2374-3	Tinto Predilute	3.0 ml
BSB-2374-7	Tinto Predilute	7.0 ml
BSB-2374-15	Tinto Predilute	15.0 ml
BSB-2374-01	Concentrate	0.1 ml
BSB-2374-05	Concentrate	0.5 ml
BSB-2374-1	Concentrate	1.0 ml
BSB-2374-CS	Control Slides	5

Prealbumin/Transthyretin, MMab



IHC of Prealbumin/Transthyretin on a FFPE Hepatocellular Carcinoma Tissue

TTR (TTR, transports thyroxine and retinol, or TBPA) encodes one of the three prealbumins including alpha-1-antitrypsin, transthyretin and orosomucoid. Transthyretin is a carrier protein; it transports thyroid hormones in the plasma and cerebrospinal fluid, and also transports retinol (vitamin A) in the plasma. The liver secretes Transthyretin into the blood, and the choroid plexus secretes TTR into the cerebrospinal fluid.

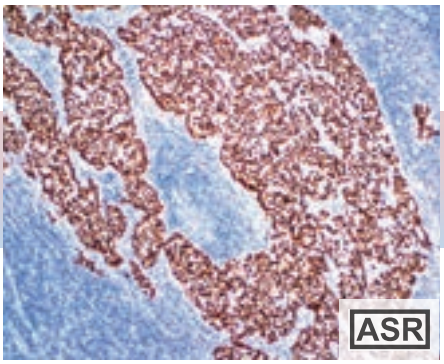
TTR mutations are associated with amyloid deposition, predominantly affecting peripheral nerves or the heart. TTR misfolding and aggregation is known to be associated with the Amyloid Diseases, Senile Systemic Amyloidosis (SSA), Familial Amyloid Polyneuropathy (FAP), and Familial Amyloid Cardiomyopathy (FAC). Transthyretin amyloidosis is a slowly progressive condition characterized by the buildup of abnormal deposits amyloid (Amyloidosis) in the body's organs and tissues.

It has been reported that TTR can be used as an immunohistochemical marker for choroid plexus papillomas, as well as carcinomas. The TTR gene has been found to be suppressed in Hepatic Carcinoma, where the TTR gene was found to be defective in its gene structure, which may have a relevance in its pathogenesis.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-125*
ISOTYPE: *IgG2b/K*
CONTROL: *Liver, Pancreas, Kidney, Leydig Cells, Hepatocellular Carcinoma, Seminoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3616	Tinto Predilute	3.0 ml
BSB 3617	Tinto Predilute	7.0 ml
BSB 3618	Tinto Predilute	15.0 ml
BSB 3619	Concentrate	0.1 ml
BSB 3620	Concentrate	0.5 ml
BSB 3621	Concentrate	1.0 ml
BSB 3622	Control Slides	5

Progesterone Receptor, MMab



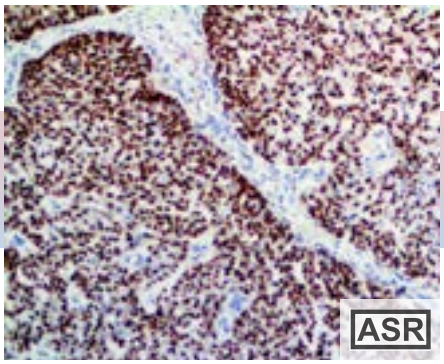
IHC of Progesterone Receptor on a FFPE Breast Carcinoma Tissue

The progesterone receptor (PR) also known as NR3C3 (nuclear receptor subfamily 3, group C, member 3), is an intracellular steroid receptor that specifically binds progesterone. PR is encoded by a single gene PGR residing on chromosome 11q22; it has two main forms, A and B, which differ in their molecular weight. Like all steroid receptors, the progesterone receptor has an amino and a carboxyl terminal, and between them the regulatory domain, a DNA binding domain, the hinge section, and the hormone binding domain.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB2*
ISOTYPE: *IgG1*
CONTROL: *Breast, Myometrium, Cervix, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2126	Tinto Predilute	3.0 ml
BSB 2127	Tinto Predilute	7.0 ml
BSB 2128	Tinto Predilute	15.0 ml
BSB 2129	Concentrate	0.1 ml
BSB 2130	Concentrate	0.5 ml
BSB 2131	Concentrate	1.0 ml
BSB 2132	Control Slides	5

Progesterone Receptor, RMab



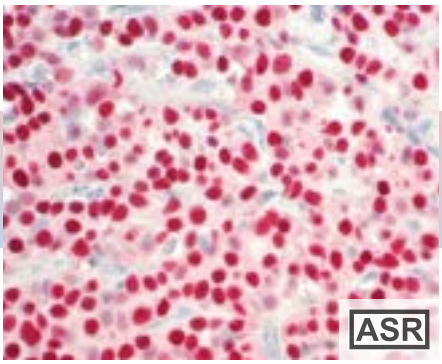
IHC of Progesterone Receptor on a FFPE Breast Carcinoma Tissue

The progesterone receptor (PR) also known as NR3C3 (nuclear receptor subfamily 3, group C, member 3), is an intracellular steroid receptor that specifically binds progesterone. PR is encoded by a single gene PGR residing on chromosome 11q22; it has two main forms, A and B, which differ in their molecular weight. Like all steroid receptors, the progesterone receptor has an amino and a carboxyl terminal, and between them the regulatory domain, a DNA binding domain, the hinge section, and the hormone binding domain.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT22*
ISOTYPE: *IgG*
CONTROL: *Breast, Myometrium, Cervix, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5882	Tinto Predilute	3.0 ml
BSB 5883	Tinto Predilute	7.0 ml
BSB 5884	Tinto Predilute	15.0 ml
BSB 5885	Concentrate	0.1 ml
BSB 5886	Concentrate	0.5 ml
BSB 5887	Concentrate	1.0 ml
BSB 5888	Control Slides	5

Progesterone Receptor, RMab



IHC of Progesterone Receptor on a FFPE Breast Carcinoma Tissue

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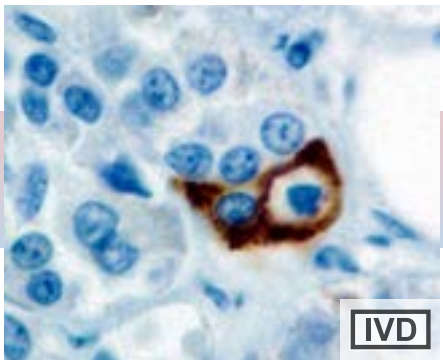
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP2*
ISOTYPE: *IgG*
CONTROL: *Breast, Myometrium, Cervix, Breast Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2573	Tinto Predilute	3.0 ml
BSB 2574	Tinto Predilute	7.0 ml
BSB 2575	Tinto Predilute	15.0 ml
BSB 2576	Concentrate	0.1 ml
BSB 2577	Concentrate	0.5 ml
BSB 2578	Concentrate	1.0 ml
BSB 2579	Control Slides	5

Prolactin, MMab



IHC of Prolactin on a FFPE Pituitary Tissue

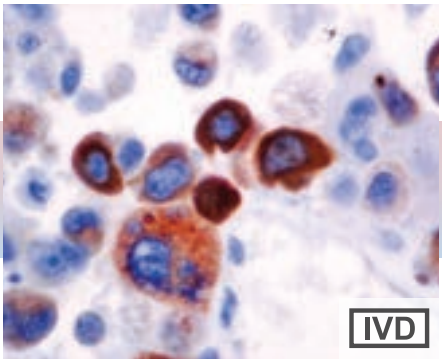
Prolactin is a peptide hormone primarily associated with lactation. It is synthesized and secreted by lactotrope cells in the adenohypophysis (anterior pituitary gland). It is also produced in other tissues including the breast and the decidua. Pituitary prolactin secretion is regulated by neuroendocrine neurons in the hypothalamus, most importantly by neurosecretory dopamine neurons of the arcuate nucleus, which inhibit prolactin secretion.

Prolactin is a useful marker in classification of pituitary tumors and the study of pituitary disease. It reacts with lactotrope cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *PRL02*
ISOTYPE: *IgG1/K*
CONTROL: *Normal Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5889	Tinto Predilute	3.0 ml
BSB 5890	Tinto Predilute	7.0 ml
BSB 5891	Tinto Predilute	15.0 ml
BSB 5892	Concentrate	0.1 ml
BSB 5893	Concentrate	0.5 ml
BSB 5894	Concentrate	1.0 ml
BSB 5895	Control Slides	5

Prolactin, RMab



IHC of Prolactin on a FFPE Pituitary Tissue

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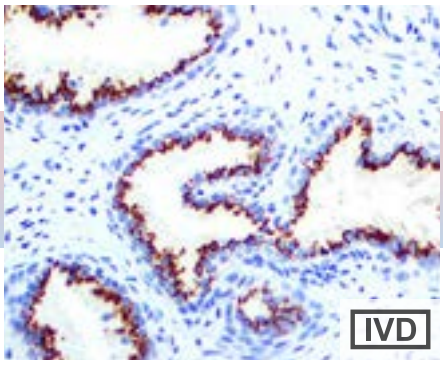
Prolactin is a useful marker in classification of pituitary tumors and the study of pituitary disease. It reacts with lactotrope cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP193*
ISOTYPE: *IgG*
CONTROL: *Normal Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2133	Tinto Predilute	3.0 ml
BSB 2134	Tinto Predilute	7.0 ml
BSB 2135	Tinto Predilute	15.0 ml
BSB 2136	Concentrate	0.1 ml
BSB 2137	Concentrate	0.5 ml
BSB 2138	Concentrate	1.0 ml
BSB 2139	Control Slides	5

Prostein/P501S, RMab



IHC of Prostein-P501S on a FFPE Prostate Tissue

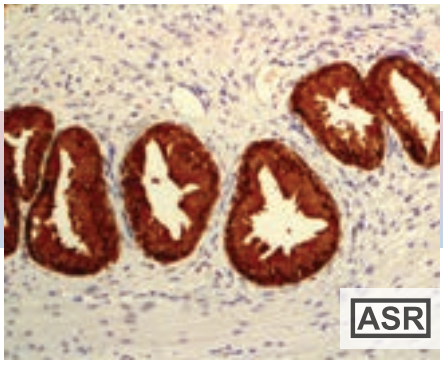
Prostein/ P501S also known as Solute Carrier Family 45 member 3 (SLC45A3) and prostate cancer-associated protein 6, is a protein that in humans is encoded by the SLC45A3 gene. Prostein is expressed in prostate-specific normal tissues and at a significantly lower level in prostate tumor cell lines, but not in any other normal or malignant tissue examined to date. Prostein is considered to be a good marker to demonstrate prostatic origin in metastatic prostate cancer.

Prostein/P501S stain yields a perinuclear cytoplasmic (Golgi) distribution even in poorly differentiated tumors and metastases. The Immunohistochemistry for P501S is a sensitive and highly specific marker for identifying prostate metastases. The large majority of metastatic prostatic adenocarcinomas are Prostein/P501S positive (99%). A small subset of metastatic prostatic adenocarcinoma shows significant differences in staining intensity and extent for PSA and Prostein/P501S and, therefore, the combined use of these markers may result in increased sensitivity for detecting prostatic origin.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP381*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3162	Tinto Predilute	3.0 ml
BSB 3163	Tinto Predilute	7.0 ml
BSB 3164	Tinto Predilute	15.0 ml
BSB 3165	Concentrate	0.1 ml
BSB 3166	Concentrate	0.5 ml
BSB 3167	Concentrate	1.0 ml
BSB 3168	Control Slides	5

PSA, MMab



IHC of Prostate-Specific Antigen on a FFPE Prostatic Adenocarcinoma Tissue

Prostate-specific antigen (PSA) is a protein produced by the cells of the prostate gland. PSA is present in small quantities in the serum of normal men, and is often elevated in the presence of prostate cancer and in other prostate disorders. Higher than normal levels of PSA are associated with both localized and metastatic prostate cancer.

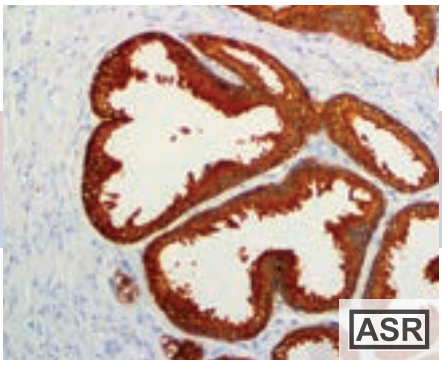
The PSA antibody recognizes primary and metastatic prostatic neoplasms but not tumors of nonprostatic origin. The antigen is a 33-34 kDa glycoprotein that is restricted to cells of prostatic origin. An immunohistochemical study showed more than 95% of prostatic carcinomas stained with PSA. PSA is demonstrable in the cytoplasm of acinar and ductal cells of normal or malignant prostate tissue.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-7*
ISOTYPE: *IgG1/K*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5896	Tinto Predilute	3.0 ml
BSB 5897	Tinto Predilute	7.0 ml
BSB 5898	Tinto Predilute	15.0 ml
BSB 5899	Concentrate	0.1 ml
BSB 5900	Concentrate	0.5 ml
BSB 5901	Concentrate	1.0 ml
BSB 5902	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

PSA, RMab



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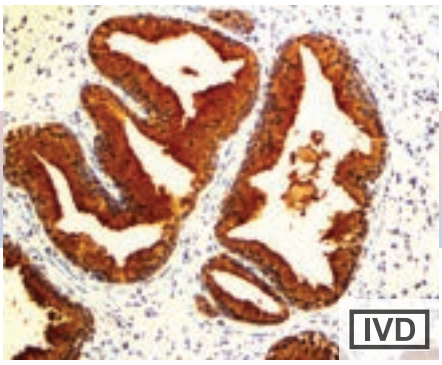
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PSA*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2140	Tinto Predilute	3.0 ml
BSB 2141	Tinto Predilute	7.0 ml
BSB 2142	Tinto Predilute	15.0 ml
BSB 2143	Concentrate	0.1 ml
BSB 2144	Concentrate	0.5 ml
BSB 2145	Concentrate	1.0 ml
BSB 2146	Control Slides	5

PSAP, MMab



IHC of PSAP on a FFPE Prostate Tissue

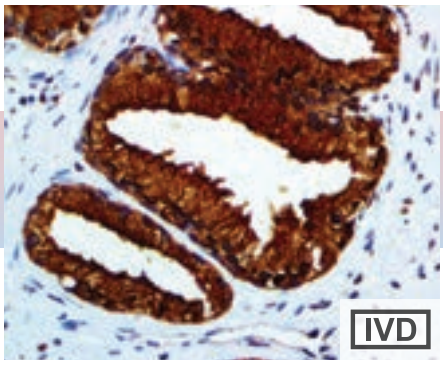
Prostatic specific acid phosphatase (PSAP) is an enzyme produced by the prostate. It may be found in increased amounts in men who have prostate cancer or other diseases. The highest levels of acid phosphatase are found in metastasized prostate cancer. Diseases of the bone, such as Paget's disease or hyperparathyroidism, diseases of blood cells, (such as Sickle-Cell Disease), Multiple Myeloma or Lysosomal Storage Diseases, (such as Gaucher's disease), will show moderately increased levels. Certain medications can cause temporary increases or decreases in acid phosphatase levels. Manipulation of the prostate gland through massage, biopsy or rectal exam before a test may increase the levels of PSAP.

This antibody reacts with prostatic specific acid phosphatase in the glandular epithelium of the normal and Hyperplastic Prostate, Carcinoma of the prostate and metastatic cells of Prostatic Carcinoma. This marker may be helpful in pinpointing the site of origin in cases of Metastatic Carcinoma of the prostate, and is considered a more sensitive marker than PSA. However, it also offers less specificity.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *PASE/4LJ*
ISOTYPE: *IgG1*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5903	Tinto Predilute	3.0 ml
BSB 5904	Tinto Predilute	7.0 ml
BSB 5905	Tinto Predilute	15.0 ml
BSB 5906	Concentrate	0.1 ml
BSB 5907	Concentrate	0.5 ml
BSB 5908	Concentrate	1.0 ml
BSB 5909	Control Slides	5

PSAP, RMab



IHC of PSAP on a FFPE Prostate Tissue

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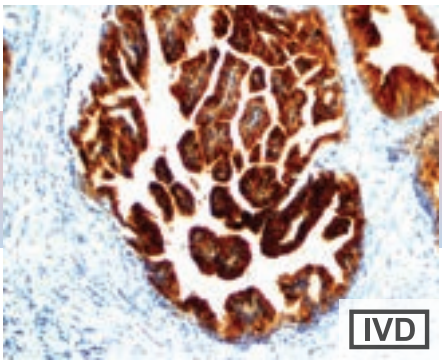
This antibody reacts with prostatic specific acid phosphatase in the glandular epithelium of the normal and Hyperplastic Prostate, Carcinoma of the prostate and metastatic cells of Prostatic Carcinoma. This marker may be helpful in pinpointing the site of origin in cases of Metastatic Carcinoma of the prostate, and is considered a more sensitive marker than PSA. However, it also offers less specificity.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP53*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2147	Tinto Predilute	3.0 ml
BSB 2148	Tinto Predilute	7.0 ml
BSB 2149	Tinto Predilute	15.0 ml
BSB 2150	Concentrate	0.1 ml
BSB 2151	Concentrate	0.5 ml
BSB 2152	Concentrate	1.0 ml
BSB 2153	Control Slides	5

PSMA, RMab



IHC of PSMA on a FFPE Prostate Adenocarcinoma Tissue

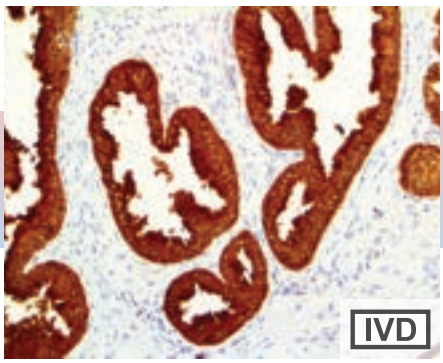
PSMA, prostate specific membrane antigen, is a Type 2 integral membrane glycoprotein found in prostate and a few other tissues. Three functionally-distinct proteins are encoded, including folylpoly-gamma-glutamate carboxypeptidase in the intestine, N-acetylated alpha-linked acidic dipeptidase 1 in the brain and prostate-specific membrane antigen in the prostate. A mutation in the intestinal form may be associated with impaired intestinal absorption of dietary folates, resulting in low blood folate levels and consequent hyperhomocysteinemia. The form expressed in the brain may be involved in a number of pathological conditions associated with glutamate cytotoxicity. The prostate form is up-regulated in cancerous cells and is used as an effective diagnostic and prognostic indicator of prostate cancer. This gene likely arose from a duplication event of a nearby chromosomal region. Alternative splicing gives rise to multiple transcript variants.

Although PSMA expression is highest in the prostate, detectable levels of protein are also found in the small intestine and the brain. PSMA is expressed in prostate cancer cells as a noncovalently associated homodimer. Using a secreted form of the protein, it has been demonstrated that the extracellular domain is sufficient for dimerization and that dimerization is required for enzymatic activity. When used as an immunogen, dimeric (but not monomeric) PSMA is capable of efficiently eliciting antibodies that recognize PSMA-expressing tumor cells. It is a possible therapeutic target for prostate cancer and it is being used (with radioactive antibodies) to image prostate tissue.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP192*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6345	Tinto Predilute	3.0 ml
BSB 6346	Tinto Predilute	7.0 ml
BSB 6347	Tinto Predilute	15.0 ml
BSB 6348	Concentrate	0.1 ml
BSB 6349	Concentrate	0.5 ml
BSB 6350	Concentrate	1.0 ml
BSB 6351	Control Slides	5

PSP94/MSMB, RMab



IHC of PSP94/MSMB on a FFPE Prostate Tissue

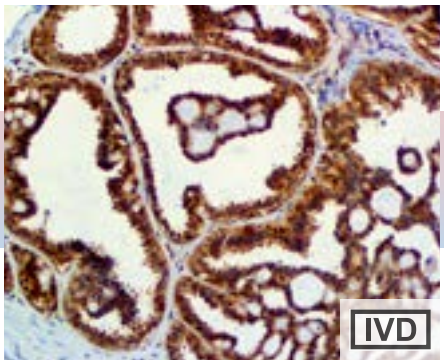
Beta-microseminoprotein (MSMB) also called prostate secretory protein of 94 amino acids (PSP94), is one of the three predominant proteins secreted by the prostate gland and found in human seminal fluid along with prostate-specfic antigen and prostatic specific acid phosphatase. Using exogenous MSMB, in vitro and in vivo studies indicate that MSMB may have several anti-tumor effects on prostate tumor cells.

MSMB expression is high in normal prostate epithelial cells, but is decreased in prostate cancer cells. Studies have shown that MSMB is a strong independent factor indicating favorable outcome after radical prostatectomy for localized prostate cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP203*
ISOTYPE: *IgG*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2419	Tinto Predilute	3.0 ml
BSB 2420	Tinto Predilute	7.0 ml
BSB 2421	Tinto Predilute	15.0 ml
BSB 2422	Concentrate	0.1 ml
BSB 2423	Concentrate	0.5 ml
BSB 2424	Concentrate	1.0 ml
BSB 2425	Control Slides	5

PTEN, RMab



IHC of PTEN on a FFPE Breast Carcinoma Tissue

Phosphatase and tensin homolog (PTEN) is a protein that, in humans, is encoded by the PTEN gene. Unlike most of the protein tyrosine phosphatases, this protein preferentially dephosphorylates phosphoinositide substrates. It negatively regulates intracellular levels of phosphatidylinositol-3,4,5-trisphosphate in cells and functions as a tumor suppressor by negatively regulating Akt/PKB signaling pathway.

PTEN is one of the most commonly lost tumor suppressors in human cancer; in fact, up to 70% of men with prostate cancer are estimated to have lost a copy of the PTEN gene at the time of diagnosis. During tumor development, mutations and deletions of PTEN occur that inactivate its enzymatic activity leading to increased cell proliferation and reduced cell death. Frequent genetic inactivation of PTEN occurs in glioblastoma, endometrial cancer, and prostate cancer; and reduced expression is found in many other tumor types such as lung and breast cancer. In breast and prostate cancer, loss of PTEN expression has been shown to correlate positively with advanced stage. Furthermore, PTEN mutation also causes a variety of inherited predispositions to cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PTEN*
ISOTYPE: *IgG*
CONTROL: *Breast, Prostate, Breast & Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2643	Tinto Predilute	3.0 ml
BSB 2644	Tinto Predilute	7.0 ml
BSB 2645	Tinto Predilute	15.0 ml
BSB 2646	Concentrate	0.1 ml
BSB 2647	Concentrate	0.5 ml
BSB 2648	Concentrate	1.0 ml
BSB 2649	Control Slides	5

Bio SB
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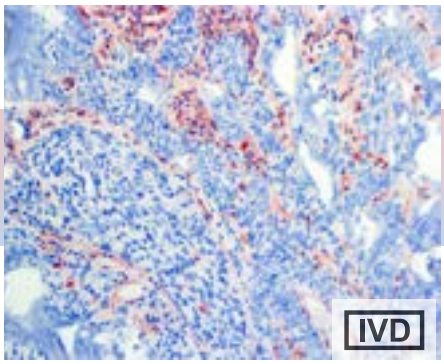
PTEN, RMab



IHC of PTEN on FPPE Prostate Adenocarsinoma Tissue

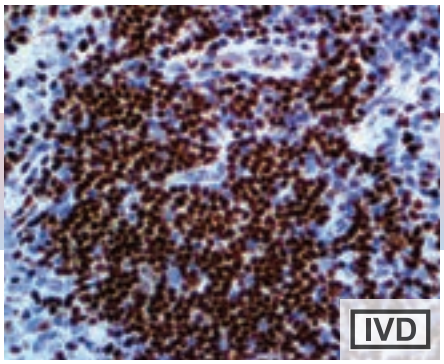
Phosphatase and tensin homolog (PTEN) is a protein that, in humans, is encoded by the PTEN gene. Unlike most of the protein tyrosine phosphatases, this protein preferentially dephosphorylates phosphoinositide substrates. It negatively regulates intracellular levels of phosphatidylinositol-3,4,5-trisphosphate in cells and functions as a tumor suppressor by negatively regulating Akt/PKB signaling pathway.

PTEN is one of the most commonly lost tumor suppressors in human cancer; in fact, up to 70% of men with prostate cancer are estimated to have lost a copy of the PTEN gene at the time of diagnosis. During tumor development, mutations and deletions of PTEN occur that inactivate its enzymatic activity leading to increased cell proliferation and reduced cell death. Frequent genetic inactivation of PTEN occurs in glioblastoma, endometrial cancer, and prostate cancer; and reduced expression is found in many other tumor types such as lung and breast cancer. In breast and prostate cancer, loss of PTEN expression has been shown to correlate positively with advanced stage. Furthermore, PTEN mutation also causes a variety of inherited predispositions to cancer.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM265*
ISOTYPE: *IgG*
CONTROL: *Colon, Thymus, Skin, Kidney, Breast, Prostate, Breast Carcinoma, Prostatic Carcinoma*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3769-3	Tinto Predilute	3.0 ml
BSB-3769-7	Tinto Predilute	7.0 ml
BSB-3769-15	Tinto Predilute	15.0 ml
BSB-3769-01	Concentrate	0.1 ml
BSB-3769-05	Concentrate	0.5 ml
BSB-3769-1	Concentrate	1.0 ml
BSB-3769-CS	Control Slides	5

PU.1, RMab



IHC of PU.1 on a FFPE Lymphoma Tissue

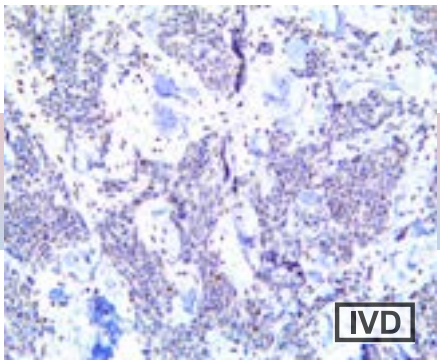
PU.1 is a member of the Ets family of transcription factors and is required for the development of multiple hematopoietic lineages. It plays a pivotal role in normal myeloid differentiation and regulates the expression of immunoglobulin and other genes that are important for B-cell development. It is expressed in the myeloid lineage and in immature as well as mature B lymphocytes, with the exception of plasma cells.

PU.1 is expressed in germinal center B-cells and mantle B-cells. The antibody is positive in various lymphomas including B-Chronic Lymphocytic Leukemia, Mantle Cell Lymphoma, Follicular Lymphoma, Marginal Zone Lymphoma, Burkitt Lymphoma, Diffuse Large Cell Lymphoma, Diffuse Large B-cell Lymphoma, T-cell rich B-cell Lymphoma, Nodular Lymphocyte Predominant Hodgkin Lymphoma. It has been demonstrated that a high level of expression of GC antigens (including PU.1) has a positive association with longer overall survival and progression free survival in the case of Follicular Lymphoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP18*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2154	Tinto Predilute	3.0 ml
BSB 2155	Tinto Predilute	7.0 ml
BSB 2156	Tinto Predilute	15.0 ml
BSB 2157	Concentrate	0.1 ml
BSB 2158	Concentrate	0.5 ml
BSB 2159	Concentrate	1.0 ml
BSB 2160	Control Slides	5

Pygopus 2/Pygo 2, MMab



IHC of Pygopus 2/Pygo 2 on a FFPE Lung Neuroendocrine Tissue

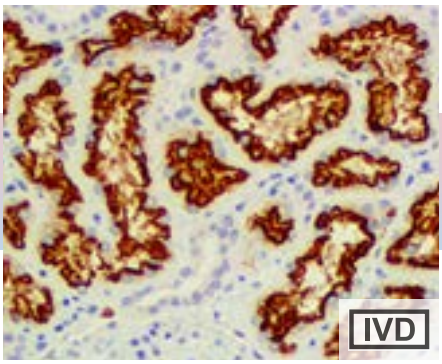
Pygopus Family PHD Finger 2 (PYGO2) is a protein-coding gene associated with G-protein coupled receptor (GPCR) and Wnt signaling pathways, chromatin binding and histone acetyltransferase regulator activity. Pygo2 as a Wnt signaling pathway component has been detected in multiple cancer types. One study found that abnormal Pygo2 expression was associated with poor differentiation and a high tumor, node, and metastases stage and poor prognosis in non-small cell lung cancer (NSCLC) patients, therefore abnormal Pygo2 protein expression may be a marker for advanced NSCLC. Another study found that 59% of the patient tumor specimens exhibited positive Pygo2 immunohistochemistry staining and increased intensity with the grade of malignancy, especially for WHO grade III and IV.

High-level expression has been reported in gliomas compared with normal brain tissues, which suggest an important role of Pygo2 in brain tumor progression. In a Colorectal Cancer study, the expression pattern of Pygo2 was evaluated by immunohistochemistry in tumor tissues and their normal margins, and found the expression of Pygo2 protein was detected in all tumor tissues. Furthermore, this expression was significantly higher in Colorectal Cancer samples than in normal tissues. Pygo2 is also associated with Oligospermia.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-156*
ISOTYPE: *IgG2a*
CONTROL: *Fallopian Tube, Adrenal Gland, Kidney, Transitional Cell Carcinoma, Lung Adenocarcinoma, Lung Neuroendocrine Cancer, Papillary Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3745-3	Tinto Predilute	3.0 ml
BSB-3745-7	Tinto Predilute	7.0 ml
BSB-3745-15	Tinto Predilute	15.0 ml
BSB-3745-01	Concentrate	0.1 ml
BSB-3745-05	Concentrate	0.5 ml
BSB-3745-1	Concentrate	1.0 ml
BSB-3745-CS	Control Slides	5

Renal Cell Carcinoma, MMab



IHC of Renal Cell Carcinoma on a FFPE Kidney Tissue

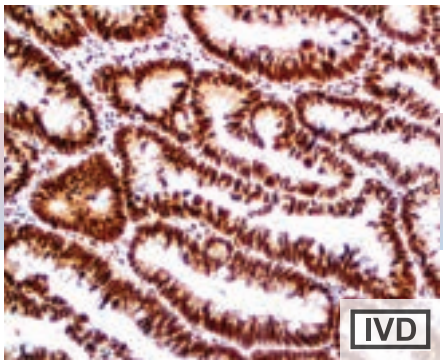
Renal Cell Carcinoma, also known as a Gurnistical Tumor, is the most common form of kidney cancer arising from the renal tubule. It is also the most common type of kidney cancer in adults. Initial treatment is surgery because it is notoriously resistant to radiation therapy and chemotherapy, although some cases respond to immunotherapy.

Renal Cell Carcinoma antibody recognizes a 200 kDa glycoprotein localized in the brush border of the proximal renal tubule. This antibody immunoreacts with approximately 90% of Primary Renal Cell Carcinomas and approximately 85% of Metastatic Renal Cell Carcinomas. Other tumors that may react with this antibody are Parathyroid Adenoma, an occasional Breast Carcinoma. Nephroblastoma, Oncocytoma, Mesoblastic Nephroma, Transitional Cell Carcinoma, and Angiomyolipoma are not labeled with this antibody.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *PN-15*
ISOTYPE: *IgG1/K*
CONTROL: *Kidney, Breast, Thyroid, Renal Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5910	Tinto Predilute	3.0 ml
BSB 5911	Tinto Predilute	7.0 ml
BSB 5912	Tinto Predilute	15.0 ml
BSB 5913	Concentrate	0.1 ml
BSB 5914	Concentrate	0.5 ml
BSB 5915	Concentrate	1.0 ml
BSB 5916	Control Slides	5

Retinoblastoma/Rb, MMab



IHC of Retinoblastoma on a FFPE Colon Carcinoma Tissue

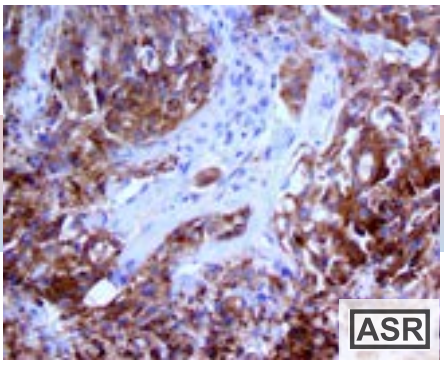
The retinoblastoma protein (Rb) is a tumor-suppressor protein that is dysfunctional in many types of cancer. One highly studied function of Rb is to prevent excessive cell growth by inhibiting cell-cycle progression until a cell is ready to divide. Rb prevents the cell from replicating damaged DNA by preventing its progression along the cell cycle through G1 into S.

Should an oncogenic protein (such as that produced by cells infected with high-risk types of human papillomaviruses, SV40 or Adenoviruses) bind and inactivate Rb, this can lead to cancer. Rb protein may act by regulating transcription; loss of its function leads to uncontrolled cell growth. Aberrations in the Rb gene have been implicated in cancers of breast, colon, prostate, kidney, nasopharynx, and Leukemia.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *1F8*
ISOTYPE: *IgG1*
CONTROL: *Colon, Breast, Skin, Fallopian Tube, Tonsil, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6127	Tinto Predilute	3.0 ml
BSB 6128	Tinto Predilute	7.0 ml
BSB 6129	Tinto Predilute	15.0 ml
BSB 6130	Concentrate	0.1 ml
BSB 6131	Concentrate	0.5 ml
BSB 6132	Concentrate	1.0 ml
BSB 6133	Control Slides	5

ROS-1, RMab



IHC of ROS-1 on a FFPE Non -Small Cell Lung Cancer Tissue

Repressor of Silencing 1 (ROS1) is a receptor tyrosine kinase that undergoes genetic rearrangements in various human cancers and in humans is encoded by the ROS1 gene. The protein encoded by this gene is a type I integral membrane protein with tyrosine kinase activity with structural similarity to the anaplastic lymphoma kinase (ALK) protein. The protein may function as a growth or differentiation factor receptor. ROS1 expression is limited in normal tissues to occasional staining cerebellum, stomach, small intestine, colon and kidney.

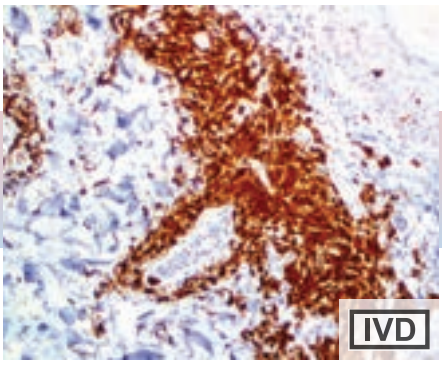
Gene rearrangements involving the ROS1 gene were first detected in glioblastoma tumors and cell lines. ROS1 fusion partners include CD74, SLC34A2 and SDC4, leading to oncogenic transformation. ROS1 rearrangement was identified in a cell line derived from a lung adenocarcinoma patient and multiple studies have demonstrated its incidence in lung cancers. While ROS1 is undetectable in the normal lung, studies have described ROS1 rearrangements in 1-2% of NSCLC by FISH. Recent reports have demonstrated strong correlation between ROS1 IHC with FISH positivity. ROS1 fusions have been detected in multiple other tumors, including glioblastoma, non-small cell lung cancer (NSCLC), cholangiocarcinoma, ovarian cancer, gastric adenocarcinoma, colorectal cancer, inflammatory myofibroblastic tumor, angiosarcoma, and epithelioid hemangioendothelioma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP282*
ISOTYPE: *IgG*
CONTROL: *Placenta, Lung, SiHa Cells, NSCL ROS1 +*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3623	Tinto Predilute	3.0 ml
BSB 3624	Tinto Predilute	7.0 ml
BSB 3625	Tinto Predilute	15.0 ml
BSB 3626	Concentrate	0.1 ml
BSB 3627	Concentrate	0.5 ml
BSB 3628	Concentrate	1.0 ml
BSB 3629	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

S-100, MMab



IHC of S-100 on a FFPE Malignant Melanoma Tissue

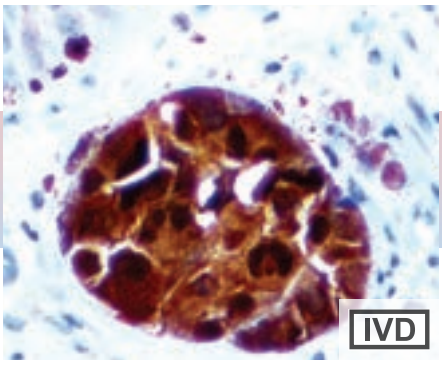
S-100 protein is a type of low-molecular weight protein found in vertebrates, characterized by two calcium-binding sites of the helix-loop-helix conformation. S-100 is normally present in cells derived from the neural crest (Schwann cells, melanocytes and glial cells), chondrocytes, adipocytes, myoepithelial cells, macrophages, Langerhans cells, dendritic cells, and keratinocytes. It may be present in some breast epithelial cells. Several members of the S-100 protein family are useful as markers for certain tumors and epidermal differentiation. The S-100 protein can be found in melanomas, 50% of Malignant Peripheral Nerve Sheath Tumors, and Clear Cell Sarcomas.

Almost all Malignant Melanomas and cases of Histiocytosis X are positive for S-100 protein. Despite the fact that S-100 protein is a ubiquitous substance, its demonstration is of great value in the identification of several neoplasms, particularly Melanomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *4C4.9*
ISOTYPE: *IgG2a*
CONTROL: *Melanoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Dog, Cat, Mouse, Rat, Cattle*

CAT. #	PRESENTATION	VOL/QTY
BSB 5917	Tinto Predilute	3.0 ml
BSB 5918	Tinto Predilute	7.0 ml
BSB 5919	Tinto Predilute	15.0 ml
BSB 5920	Concentrate	0.1 ml
BSB 5921	Concentrate	0.5 ml
BSB 5922	Concentrate	1.0 ml
BSB 5923	Control Slides	5

S100A1, RMab



IHC of S100A1 on a FFPE Melanoma Tissue

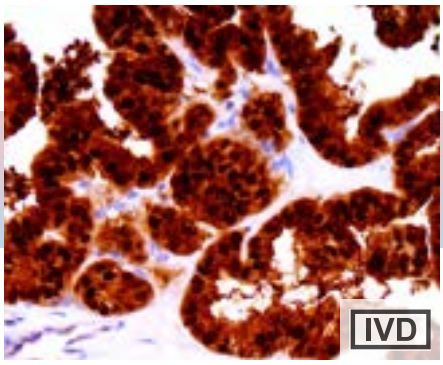
The S100A1 protein is a member of the S100 family of proteins containing 4 EF-hand calcium-binding motifs in its dimerized form. S100 protiens are localized in the cytoplasm and/or nucleus of a wide range of cells, and involved in the regulation of a number of cellular processes such as cell cycle progression and differentation. S100A1 may function in stimulation of Ca2+-induced Ca2+ release, inhibition of microtubule assembly and inhibition of protein kinase C-mediated phosphorylation.

In normal tissues, anti-S100A1 is expressed in cardiac muscle, skeletal muscle and neuronal cells. Reduced expression of S100A1 has been implicated in carciomyopathies. It can also be useful in distinguishing between Renal Oncocytomas and Clear Cell Renal Cell Carcinomas (positive) and Papillary Renal Cell Carcinomas (positive) from Chromophobe Renal Cell Carcinomas (negative). It is a specific and sensitive marker for Nephrogenic Adenoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP184*
ISOTYPE: *IgG*
CONTROL: *Brain, Breast, Thyroid, Tonsil, Pancreas, Salivary Gland, Renal Onocytomas, Clear Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2161	Tinto Predilute	3.0 ml
BSB 2162	Tinto Predilute	7.0 ml
BSB 2163	Tinto Predilute	15.0 ml
BSB 2164	Concentrate	0.1 ml
BSB 2165	Concentrate	0.5 ml
BSB 2166	Concentrate	1.0 ml
BSB 2167	Control Slides	5

S100A6, RMab



IHC of S100A6 on a FFPE Ovarian Carcinoma Tissue

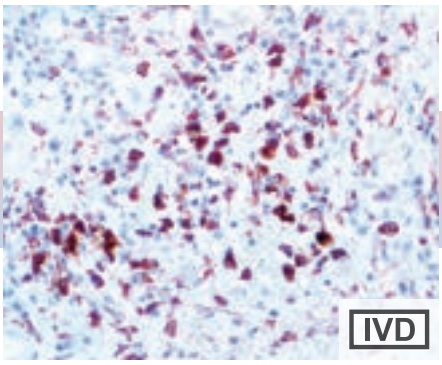
S100 calcium-binding protein A6 (S100A6) is a protein that in humans is encoded by the S100A6 gene. The protein encoded by this gene is a member of the S100 family of proteins containing 2 EF-hand calcium-binding motifs. S100 proteins are localized in the cytoplasm and/or nucleus of a wide range of cells, and involved in the regulation of a number of cellular processes such as cell cycle progression and differentiation. S100 genes include at least 13 members which are located as a cluster on chromosome 1q21. This protein may function in stimulation of Ca2+-dependent insulin release, stimulation of prolactin secretion, and exocytosis. Chromosomal rearrangements and altered expression of this gene have been implicated in melanoma.

S100A6 is a cytoplasmic and nuclear protein abundantly expressed in fibroblasts and epithelial cells. It is also detected in some neurons, glial cells, smooth muscle, myocytes, and lymphocytes. In pancreatic cancer, elevation of S100A6 RNA and protein has been observed in malignant cells. Nuclear S100A6 expression is associated with reduced survival time in pancreatic cancer patients. S100A6 expression is also significantly correlated with melanoma metastases and survival times. It has been shown to be upregulated in 50% of gastric cancers, and highly expressed at the invasive margins of colorectal carcinoma. S100A6 has also been reported as possible diagnostic marker of papillary thyroid carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP313*
ISOTYPE: *IgG*
CONTROL: *Testis, Kidney, Breast, Tonsil, Colon, Carcinomas*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3176	Tinto Predilute	3.0 ml
BSB 3177	Tinto Predilute	7.0 ml
BSB 3178	Tinto Predilute	15.0 ml
BSB 3179	Concentrate	0.1 ml
BSB 3180	Concentrate	0.5 ml
BSB 3181	Concentrate	1.0 ml
BSB 3182	Control Slides	5

S100A8/MRP8, RMab



IHC of S100A8/MPR8 on a FFPE Kidney Transpant Tissue

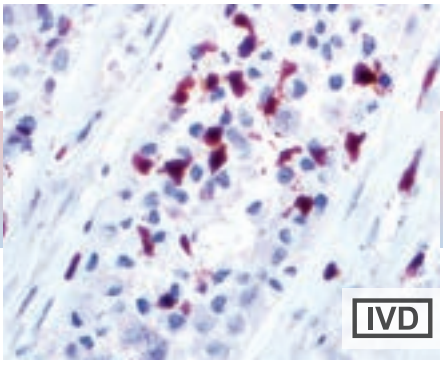
Myeloid Related Protein 8 (MRP8), also known as S100A8, is a calcium binding protein that belongs to the S100 family. By a Ca2+ dependent manner, S100A8/A9 forms Calprotectin, a heterodimeric inflammatory mediator of inflammation found in the cytoplasm of neutrophils and expressed on the membrane of monocytes. S100A8 is expressed during myeloid differentiation and chronic inflammations, and it is expressed constitutively or induced in epithelial cells during dermatose.

S100A8 is expressed in cells with myeloid origin, including granulocytes, monocytes and macrophages, and it is observed in blood granulocytes and monocytes. It is also expressed in infiltrate macrophages during inflammatory reactions, but not in normal tissue macrophages. S100A8 also reacts with activated microglial cells in human cerebral malaria. In tumors, positive staining of S100A8 has been observed in various cancers including pancreatic cancer, and it has been linked to inflammation-associated cancers.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP90*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Breast, Liver Fallopian Tube, Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 2356	Tinto Predilute	3.0 ml
BSB 2357	Tinto Predilute	7.0 ml
BSB 2358	Tinto Predilute	15.0 ml
BSB 2359	Concentrate	0.1 ml
BSB 2360	Concentrate	0.5 ml
BSB 2361	Concentrate	1.0 ml
BSB 2362	Control Slides	5

S100A9, RMab



IHC of S100A9 on a FFPE Melanoma Tissue

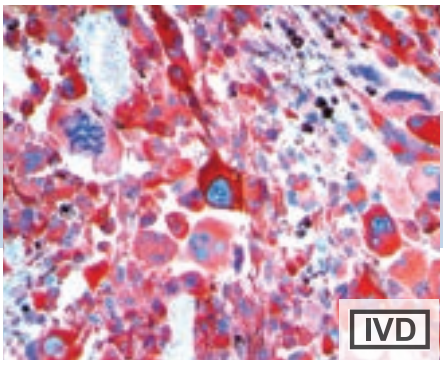
S100A9, also known as migration inhibitory factor-related protein 14 (MRP-14) or calgranulin-B is a member of the S100 family of proteins containing 2 EF hand calcium-binding motifs. S100 proteins are localized in the cytoplasm and/or nucleus of a wide range of cells, and involved in the regulation of a number of cellular processes such as cell cycle progression and differentation. S100A9 forms a heterodimer, Calprotectin, with S100A8 in a calcium-dependent manner. S100A9 may function in the inhibition of casein kinase.

S100A9 is expressed in granulocytes, monocytes in peripheral blood and in infiltrating macrophages in inflammatory sites, but not in normal tissue macrophages. Elevated plasma levels of S100A9 has been observed in inflammatory disorders such as chronic bronchitis, cystic fibrosis and rheumatoid arthritis. S100A9 is also detected in tumor cells in carcinomas of the liver, lung, breast and thyroid. It is correlated with tumor differentiation.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP185*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Liver, Lung, Breast, Cervix, Bone Marrow, Bladder TCC, Thyroid Carcinomas*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2168	Tinto Predilute	3.0 ml
BSB 2169	Tinto Predilute	7.0 ml
BSB 2170	Tinto Predilute	15.0 ml
BSB 2171	Concentrate	0.1 ml
BSB 2172	Concentrate	0.5 ml
BSB 2173	Concentrate	1.0 ml
BSB 2174	Control Slides	5

S100 Beta, RMab



IHC of S100 Beta on a FFPE Melanoma Tissue

S100 calcium binding protein B or S100 Beta is a member of the S100 family. S100 proteins are localized in the cytoplasm and nucleus of a wide range of cells, and involved in the regulation of a number of cellular processes such as cell cycle progression and differentation. S100 Beta is abundant in glial cells of the central and peripheral nervous system, in melanocytes, chondrocytes, and adipocytes.

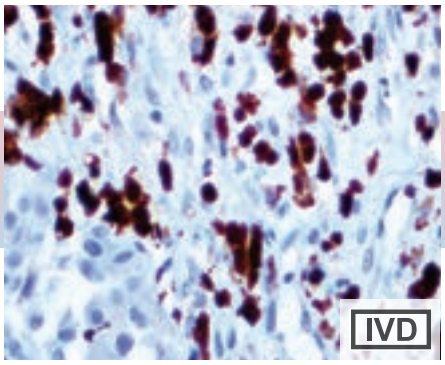
Anti-S100 Beta labels langerhans cells, histiocytes, epithelial, myoepithelial cells and integrating reticular cells of lymphoid tissue, and tumors originated from these cells. It is a useful marker for diagnosis of melanoma and tumors of the nervous system.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP32*
ISOTYPE: *IgG*
CONTROL: *Melanoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: ***predicted*** *Human,* ***predicted*** *Mouse,* ***predicted*** *Rat,* ***predicted*** *Goat,* ***predicted*** *Zebrafish,* ***predicted*** *Macaque Monkey*

CAT. #	PRESENTATION	VOL/QTY
BSB 2175	Tinto Predilute	3.0 ml
BSB 2176	Tinto Predilute	7.0 ml
BSB 2177	Tinto Predilute	15.0 ml
BSB 2178	Concentrate	0.1 ml
BSB 2179	Concentrate	0.5 ml
BSB 2180	Concentrate	1.0 ml
BSB 2181	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

S100P, RMab



IHC of S100P on a FFPE Melanoma Tissue

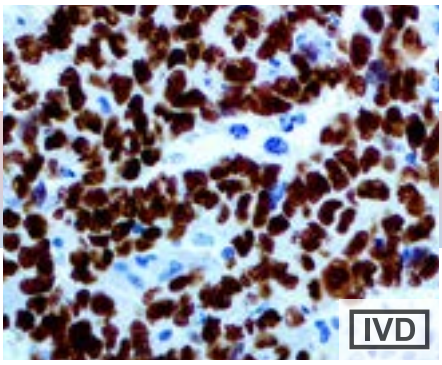
S100P is a member of the S100 family of proteins containing 2 EF-hand calcium binding motifs. S100 proteins are localized in the cytoplasm and/or nucleus of a wide range of cells, and involved in the regulation of a number of cellular processes such as cell cycle progression and differentation. S100P is expressed in various normal tissues including placenta, bladder, spleen, gastric and intenstinal mucosa. Overexpression of S100P has been detected in several cancers such as colon, prostate, pancreatic and lung carcinomas. It has been functionally implicated in carcinogenic processes.

S100P is an early development marker of pancreatic carcinogenesis and can be used as a marker for pancreatic ductal adenocarcinoma. It may also serve as a predictor of distant metastasis and poor survival in non-small cell lung carcinomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP186*
ISOTYPE: *IgG*
CONTROL: *Colon, Prostate, Pancreatic and Lung Carcinomas*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2182	Tinto Predilute	3.0 ml
BSB 2183	Tinto Predilute	7.0 ml
BSB 2184	Tinto Predilute	15.0 ml
BSB 2185	Concentrate	0.1 ml
BSB 2186	Concentrate	0.5 ml
BSB 2187	Concentrate	1.0 ml
BSB 2188	Control Slides	5

SALL4, MMab



IHC of SALL4 on a FFPE Testicular Cancer Metastasis to Liver Tissue

Sal-like protein 4 (SALL4) is a transcription factor encoded by a member of the Spalt-like (SALL) gene family, SALL4. SALL4 is reactivated and misregulated in various cancer, such as acute myeloid leukemia (AML), B-cell acute lymphocytic leukemia (B-ALL), germ cell tumors, gastric cancer, breast cancer, hepatocellular carcinoma (HCC), lung cancer, and glioma. In many of these cancers, SALL4 expression has been compared in tumor cells to the normal tissue counterpart, e.g. it is expressed in nearly half of primary human endometrial cancer samples, but not in normal or hyperplastic endometrial tissue samples.

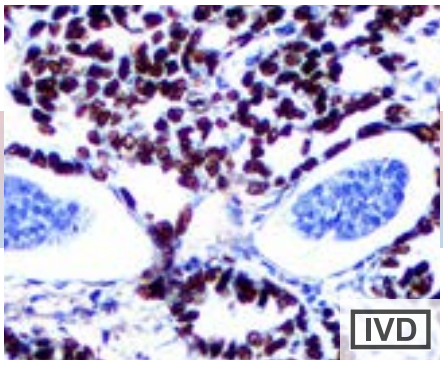
Often, SALL4 expression is correlated with worse survival and poor prognosis such as in HCC, or with metastasis such as in endometrial cancer, colorectal carcinoma, and esophageal squamous cell carcinoma. In solid tumors such as germ cell tumors, SALL4 protein expression has become a standard diagnostic biomarker.

SALL4 demonstrates 100% sensitivity and stains more than 90% tumor cells in all intratubular germ cell neoplasia, seminomas, dysgerminomas, embryonal carcinomas, and yolk sac tumor (YST) (both pediatric and postpubertal). SALL4 is also positive in most cases of teratoma and the mononucleated trophoblastic cells in choriocarcinomas. Most non-testicular tumors from various organs and sites are negative for SALL4, though an occasional carcinoma or sarcoma may show weak SALL4 staining in less than 25% of tumor cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *6E3*
ISOTYPE: *IgG1/K*
CONTROL: *Testis, Seminoma, Yolk Sac Tumor*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB 3183	Tinto Predilute	3.0 ml
BSB 3184	Tinto Predilute	7.0 ml
BSB 3185	Tinto Predilute	15.0 ml
BSB 3186	Concentrate	0.1 ml
BSB 3187	Concentrate	0.5 ml
BSB 3188	Concentrate	1.0 ml
BSB 3189	Control Slides	5

SALL4, RMab



IHC of SALL4 on a FFPE Testicular Cancer Metastasis to Liver Tissue

Sal-like protein 4 (SALL4) is a transcription factor encoded by a member of the Spalt-like (SALL) gene family, SALL4. SALL4 is reactivated and misregulated in various cancer, such as acute myeloid leukemia (AML), B-cell acute lymphocytic leukemia (B-ALL), germ cell tumors, gastric cancer, breast cancer, hepatocellular carcinoma (HCC), lung cancer, and glioma. In many of these cancers, SALL4 expression has been compared in tumor cells to the normal tissue counterpart, e.g. it is expressed in nearly half of primary human endometrial cancer samples, but not in normal or hyperplastic endometrial tissue samples.

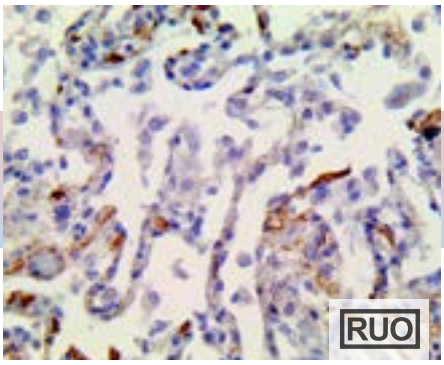
Often, SALL4 expression is correlated with worse survival and poor prognosis such as in HCC, or with metastasis such as in endometrial cancer, colorectal carcinoma, and esophageal squamous cell carcinoma. In solid tumors such as germ cell tumors, SALL4 protein expression has become a standard diagnostic biomarker.

SALL4 demonstrates 100% sensitivity and stains more than 90% tumor cells in all intratubular germ cell neoplasia, seminomas, dysgerminomas, embryonal carcinomas, and yolk sac tumor (YST) (both pediatric and postpubertal). SALL4 is also positive in most cases of teratoma and the mononucleated trophoblastic cells in choriocarcinomas. Most non-testicular tumors from various organs and sites are negative for SALL4, though an occasional carcinoma or sarcoma may show weak SALL4 staining in less than 25% of tumor cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP299*
ISOTYPE: *IgG1/K*
CONTROL: *Testis, Seminoma, Yolk Sac Tumor*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3190	Tinto Predilute	3.0 ml
BSB 3191	Tinto Predilute	7.0 ml
BSB 3192	Tinto Predilute	15.0 ml
BSB 3193	Concentrate	0.1 ml
BSB 3194	Concentrate	0.5 ml
BSB 3195	Concentrate	1.0 ml
BSB 3196	Control Slides	5

SARS-CoV-2, MMab



IHC of SARS-CoV-2 on a FFPE Infected Lung Tissue

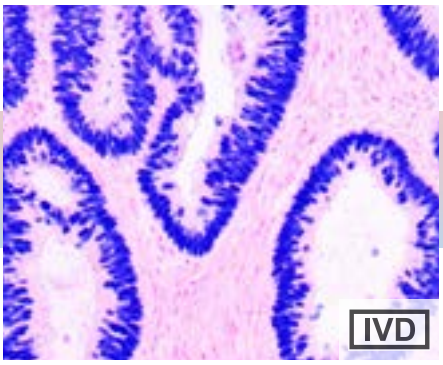
The Severe Acute Respiratory Syndrome 2 virus (SARS-CoV-2) is a betacoronavirus first isolated in Wuhan, China, in late 2019. The virus has a 29.8 kbp genome, encoding the membrane, envelope, nucleocapsid, and spike glycoprotein. The spike proteins are cleaved by TMPRSS2 serine protease, then the Receptor Binding Domain of the spike protein binds with ACE2 or CD147 to enter the cell.

The SARS-CoV-2 virus has been shown to infect the tracheal and lung epithelium, GI tract, and olfactory neuron, brain, bone marrow and possibly other organs. Cough, fever, and trouble breathing are the main symptoms, although GI distress, fatigue, and neurological distress are also common. Severe symptoms are more likely to appear in patients with advanced age and/or preexisting cardiovascular disease or diabetes. The virus has a 2-11 day incubation period and mortality rate around 2.5%. Severe symptoms include diffuse alveolar damage in the lungs, hyaline membrane formation, microthrombi in the lungs, heart, and brain, and extreme inflammation as "cytokine storms" that flood the body with cytokines (elevated 1L1, IL-6, IL-8, and TNFa among others) and immune cells (especially CD4+ and CD8+ T cells and CD68+ and CD163+ Macrophages). This antibody cross-reacts with SARS-CoV nucleocapsid protein, but not with MERS, 229E, or OC43 coronaviruses.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-134*
ISOTYPE: *IgG2b*
CONTROL: *SARS-CoV-2 Infected Tissues*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3701-3	Tinto Predilute	3.0 ml
BSB-3701-7	Tinto Predilute	7.0 ml
BSB-3701-15	Tinto Predilute	15.0 ml
BSB-3701-01	Concentrate	0.1 ml
BSB-3701-05	Concentrate	0.5 ml
BSB-3701-1	Concentrate	1.0 ml
BSB-3701-CS	Control Slides	5

SATB2, RMab



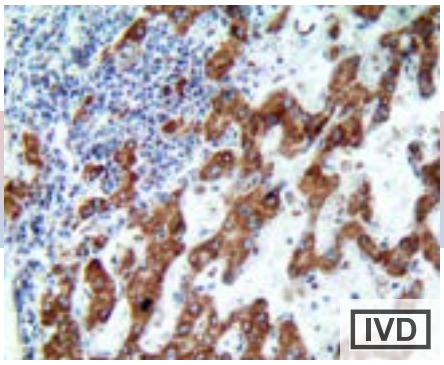
IHC of SATB2 on a FFPE Colon Carcinoma Tissue

Special AT-rich sequence-binding protein 2 (SATB2) also known as DNA-binding protein SATB2 is a protein that in humans is encoded by the SATB2 gene. SATB2 specifically binds nuclear matrix attachment regions and is involved in transcriptional regulation and chromatin remodeling. SATB2 has been implicated as causative in the cleft or high palate of individuals with 2q32q33 microdeletion syndrome.
SATB2 has been identified as a tissue-specific protein when screening protein expression patterns in human and cancerous tissues, with expression restricted to the lower gastrointestinal tract. SATB2 in combination with CK20 and Cadherin 17 could identify almost all colorectal carcinomas, including poorly differentiated colorectal carcinomas. Upper gastrointestinal (GI) carcinomas and pancreatic ductal carcinomas are usually negative for SATB2, and ovarian carcinomas, lung adenocarcinomas, and adenocarcinomas from other origin are rarely positive for SATB2. Therefore, SATB2 is a good marker for identifying a carcinoma of colorectal origin when working on a tumor of unknown primary. Another potential utility of SATB2 is to identify neuroendocrine neoplasms/carcinomas of the colon and rectum because SATB2 is usually negative in other neuroendocrine neoplasms of the GI tract, pancreas, and lung. STAB2 has been also shown to be a sensitive marker of osteoblastic differentiation in benign and malignant mesenchymal tumors.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP281*
ISOTYPE: *IgG*
CONTROL: *Colon, Brain, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3197	Tinto Predilute	3.0 ml
BSB 3198	Tinto Predilute	7.0 ml
BSB 3199	Tinto Predilute	15.0 ml
BSB 3200	Concentrate	0.1 ml
BSB 3201	Concentrate	0.5 ml
BSB 3202	Concentrate	1.0 ml
BSB 3203	Control Slides	5

SDHB, MMab



IHC SDHB on a FFPE Hepatocellular Carcinoma Tissue

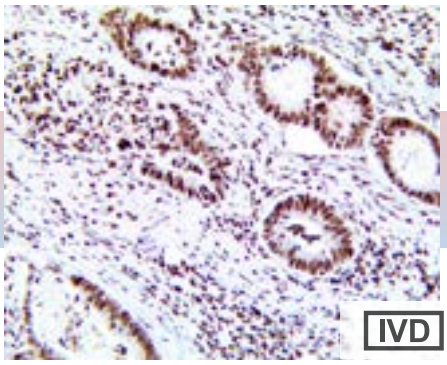
Mutations in the tumor suppressor genes SDHB, SDHC, and SDHD (or collectively SDHx) cause the inherited paraganglioma syndromes, characterized by pheochromocytomas and paragangliomas. The IHC for SDHB is negative in all SDH mutated paragangliomas regardless of whether the B, C or D subunit is involved. However, other tumors have been associated with SDHx mutations, such as Gastrointestinal Stromal Tumors, specifically in the context of Carney-Stratakis syndrome. It has been shown that SDHB immunohistochemistry is a reliable technique for the identification of pheochromocytomas and paragangliomas caused by SDHx mutations. It's been shown that Carney-Stratakis syndrome- and Carney-triad-associated GISTs are negative by immunohistochemistry for SDHB in contrast to KIT- or PDGFRA-mutated GISTs and a majority of sporadic GISTs, and it has been suggested that GISTs of epithelioid cell morphology are tested for SDHB immunohistochemically.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-131*
ISOTYPE: *IgG1/K*
CONTROL: *Breast, Adrenal, Prostate, Kidney, Spleen, Tonsil, Breast Carcinoma, Hepatocellular Carcinoma, Lung Adeno Carcinoma, Prostate Carcinoma, Papillary Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-2375-3	Tinto Predilute	3.0 ml
BSB-2375-7	Tinto Predilute	7.0 ml
BSB-2375-15	Tinto Predilute	15.0 ml
BSB-2375-01	Concentrate	0.1 ml
BSB-2375-05	Concentrate	0.5 ml
BSB-2375-1	Concentrate	1.0 ml
BSB 2375- CS	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

SF-1/Steroidogenic Factor 1, MMab



IHC of SF-1/Steroidogenic Factor 1 on a FFPE Colon Adenocarcinoma Tissue

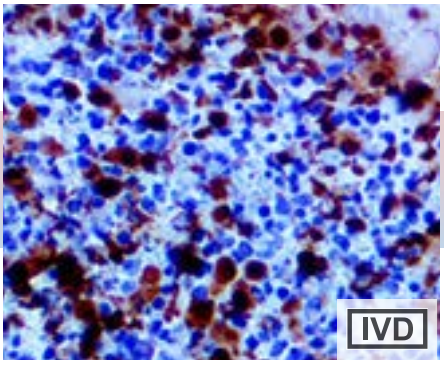
The Steroidogenic Factor 1 (SF-1) protein is a transcription factor involved in sex determination by controlling activity of genes related to the reproductive glands or gonads and adrenal glands. This protein is encoded by the NR5A1 gene. SF-1 expression is localized to adult steroidogenic tissues correlating with known expression profiles of steroid hydroxylases. Using in situ hybridization with SF-1 cRNA-specific probes detected gene transcripts in adrenocortical cells, Leydig cells, and ovarian theca and granulosa cells. SF-1 specific antibody studies confirmed the expression profile of SF-1 in rats and humans corresponding to sites of transcript detection.

SF-1 has been found to be a highly valuable IHC marker to determine the adrenocortical origin of an adrenal mass with high sensitivity and specificity. In addition, SF-1 expression is of stage-independent prognostic value in patients with adrenocortical carcinoma. Other SF-1 pathologies include adrenal failure (mutations in the SF-1 DNA-binding interface), adrenal or ovarian insufficiency and gonadal dysgenesis (heterozygous mutations), endometriosis (promoter hypomethylation), and male infertility (mutations in the hinge region of the protein). For the differential diagnosis with endometrioid tumors and carcinoid of the ovary, SF-1 is a sensitive and specific IHC marker for Sertoli cell tumor and that SF-1 is diagnostically comparable with other good sex cord-stromal markers.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-149*
ISOTYPE: *IgG2a*
CONTROL: *Breast, Fallopian Tube, Colon, Bone Marrow, Testis, Transitional Cell Carcinoma, Lung Adenocarcinoma, Papillary Thyroid Carcinoma, Prostate Adenocarcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3746-3	Tinto Predilute	3.0 ml
BSB-3746-7	Tinto Predilute	7.0 ml
BSB-3746-15	Tinto Predilute	15.0 ml
BSB-3746-01	Concentrate	0.1 ml
BSB-3746-05	Concentrate	0.5 ml
BSB-3746-1	Concentrate	1.0 ml
BSB-3746-CS	Control Slides	5

SMAD4/DPC4, MMab



SMAD4 / DPC4 on a FFPE Pancreatic Cancer

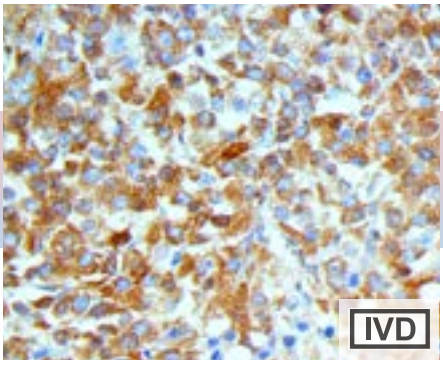
SMAD 4, also known as DPC4 or SMAD family member n°4, is a protein involved in cell signaling in mammals. SMAD 4 forms with SMAD 3 a complex which can bind to DNA and modify the expression of several genes related to cellular activities such as proliferation or differentiation. The abbreviation coin co-SMAD stands for common mediator. SMAD 4 is also defined as a signal transducer.

SMAD4, is often found mutated in many cancers. The mutation can be inherited or acquired during an individual's lifetime. If inherited, the mutation affects both somatic and sexual cells. The protein is present in skin, pancreatic, colon, uterus and epithelial cells. It is also produced by fibroblasts. The functional SMAD 4 participates in the regulation of the TGF-β signal transduction pathway, which negatively regulates growth of epithelial cells and the extracellular matrix (ECM). When the structure of SMAD 4 is altered, expression of the genes involved in cell growth is no longer regulated and cell proliferation can go on without any inhibition. The important number of cell divisions leads to the forming of tumors and then to multiploid colorectal cancer and pancreatic carcinoma. It is found inactivated in at least 50% of pancreatic cancers. SMAD 4 is also found mutated in the autosomal dominant disease juvenile polyposis syndrome (JPS). JPS is characterized by hamartomatous polyps in the gastrointestinal (GI) tract.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-63*
ISOTYPE: *IgG1*
CONTROL: *Pancreas, Thyroid, Placenta, Cervix, Trasitional Cell Carcinoma, Lymphoblastic Lymphoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3204	Tinto Predilute	3.0 ml
BSB 3205	Tinto Predilute	7.0 ml
BSB 3206	Tinto Predilute	15.0 ml
BSB 3207	Concentrate	0.1 ml
BSB 3208	Concentrate	0.5 ml
BSB 3209	Concentrate	1.0 ml
BSB 3210	Control Slides	5

SMAD4/DPC4, RMab



IHC of SMAD4 / DPC4 on a FFPE Pancreatic Cancer

SMAD 4, also known as DPC4 or SMAD family member n°4, is a protein involved in cell signaling in mammals. SMAD 4 forms with SMAD 3 a complex which can bind to DNA and modify the expression of several genes related to cellular activities such as proliferation or differentiation. The abbreviation coin co-SMAD stands for common mediator. SMAD 4 is also defined as a signal transducer.

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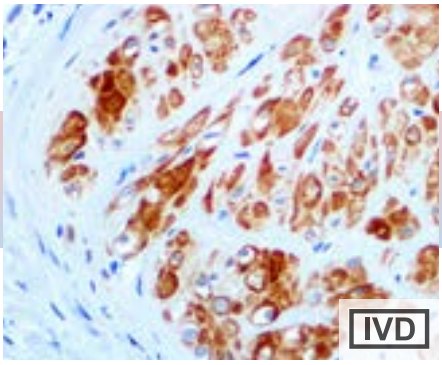
ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-SMAD4*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Testis, Breast, Bone Marrow, Colon*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3399	Tinto Predilute	3.0 ml
BSB 3400	Tinto Predilute	7.0 ml
BSB 3401	Tinto Predilute	15.0 ml
BSB 3402	Concentrate	0.1 ml
BSB 3403	Concentrate	0.5 ml
BSB 3404	Concentrate	1.0 ml
BSB 3405	Control Slides	5

Smoothelin, MMab



IHC of Smoothelin on a FFPE Uterus Tissue

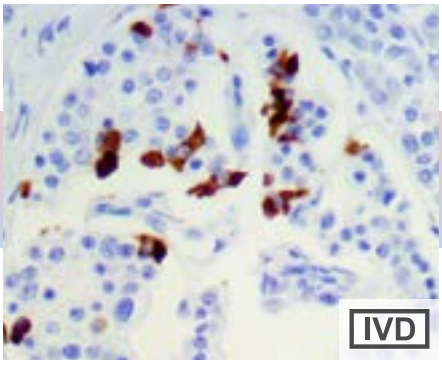
Smoothelin is a constituent of the smooth muscle cell cytoskeleton protein exclusively found in differentiated smooth muscle cells (SMC). Cells with SMC-like characteristics, such as myofibroblasts and myoepithelial cells, as well as skeletal and cardiac muscle do not contain smoothelin. To distinguish bladder muscularis mucosae (MM) from muscularis propria (MP) muscle bundles is crucial for accurate staging of bladder carcinoma.

Strong smoothelin expression is nearly exclusively observed in muscularis propria. Therefore, the staining pattern of MP (strongly positive) and MM (negative or weakly positive) makes this technique an attractive diagnostic tool for the sometimes difficult task of staging bladder urothelial carcinoma such as in transurethral resection specimens of urinary bladder tumrors. Anti-Smoothelin can also be useful in differentiationg between benign (+) and malignant smooth muscle tumors (-).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *R4A*
ISOTYPE: *IgG1*
CONTROL: *Leiomyoma, Bladder, Prostate, Myometrium, Fallopian Tube, Colon, Trantision Cell Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2189	Tinto Predilute	3.0 ml
BSB 2190	Tinto Predilute	7.0 ml
BSB 2191	Tinto Predilute	15.0 ml
BSB 2192	Concentrate	0.1 ml
BSB 2193	Concentrate	0.5 ml
BSB 2194	Concentrate	1.0 ml
BSB 2195	Control Slides	5

Somatostarin, MMab



IHC of Somatostatin on a FFPE Pancreas Tissue

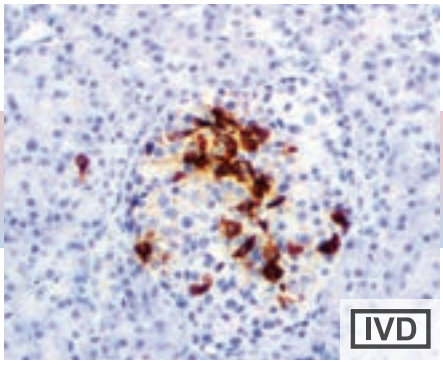
Somatostatin is a peptide hormone that regulates the endocrine system and affects neurotransmission and cell proliferation via interaction with G-protein-coupled somatostatin receptors and by inhibition of the release of numerous secondary hormones. Somatostatin has two active forms produced by alternative cleavage of a single preproprotein: one of 14 amino acids; the other of 28 amino acids. Somatostatin is secreted not only by cells of the hypothalamus but also by the stomach, intestine, and delta cells of the pancreas. It binds to somatostatin receptors.

Somatostatin is a useful marker of D-cells of pancreatic islet cells. D-cells are used to identify hyperplasia of the pancreatic islets. Most of these tumors are malignant, giving rise to Somatostatinomas. Somatostatin suppresses gastric acid secretion, gallbladder contractions and pancreatic enzyme secretion.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-113*
ISOTYPE: *IgG2a/K*
CONTROL: *Pancreas, Colon, Adrenal, Brain*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3413	Tinto Predilute	3.0 ml
BSB 3414	Tinto Predilute	7.0 ml
BSB 3415	Tinto Predilute	15.0 ml
BSB 3416	Concentrate	0.1 ml
BSB 3417	Concentrate	0.5 ml
BSB 3418	Concentrate	1.0 ml
BSB 3419	Control Slides	5

Somatostain, RMab



IHC of Somatostatin on a FFPE Pancreas Tissue

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Somatostatin is a useful marker of D-cells of pancreatic islet cells. D-cells are used to identify hyperplasia of the pancreatic islets. Most of these tumors are malignant, giving rise to Somatostatinomas. Somatostatin suppresses gastric acid secretion, gallbladder contractions and pancreatic enzyme secretion.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP130*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Brain, Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2196	Tinto Predilute	3.0 ml
BSB 2197	Tinto Predilute	7.0 ml
BSB 2198	Tinto Predilute	15.0 ml
BSB 2199	Concentrate	0.1 ml
BSB 2200	Concentrate	0.5 ml
BSB 2201	Concentrate	1.0 ml
BSB 5937	Control Slides	5

Bio SB
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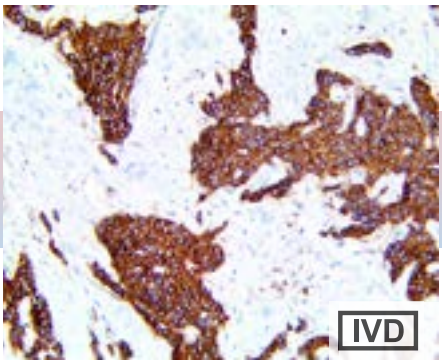
Somatostatin Receptor 2/ SSTR2, RMab



IHC of Somatostatin Receptor 2/SSTR2 on a FFPE Lung Neuroendocrine Carcinoma Tissue

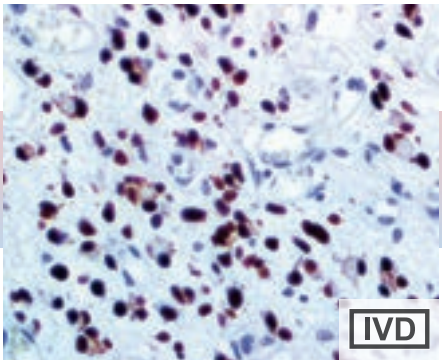
Somatostatin Receptor 2 (SSTR2) is one of five subtypes of the somatostatin receptors, which belong to the superfamily of G protein-coupled receptors (GPCRs). Somatostatin receptor 2 is encoded by the SSTR2 gene, located on chromosome 17q25.1. SSTR2. SSTR2 becomes activated by the hormone somatostatin (SST), which is an inhibitor of hormone secretion and gastrointestinal function. SST and its receptor subtypes also prevent angiogenesis and have anti-proliferative effects on healthy and cancerous cells.

Somatostatin Receptors have been reported to be highly expressed in a wide variety of human tumors. High SSTR2 expression was found via IHC in neuroblastomas, medulloblastomas, paragangliomas, small cell lung cancers, meningiomas, and breast cancers. One study reported a highly specific and increased expression of SSTR2 in a large series of neural and neuroendocrine tumors. Another study investigating patients with gastroenteropancreatic neuroendocrine neoplasm (GEP-NEN) demonstrated the correlation between decreased immunohistochemical staining and advanced stage of tumors. Additionally, an improved survival of patients with high SSTR2 expression was found, indicating the usefulness of SSTR2 as a potential prognostic marker for GEP-NEN.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP149*
ISOTYPE: *IgG*
CONTROL: *Placenta, Brain, Testis, Prostate, Papillary Thyroid Carcinoma, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Rat, Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3748-3	Tinto Predilute	3.0 ml
BSB-3748-7	Tinto Predilute	7.0 ml
BSB-3748-15	Tinto Predilute	15.0 ml
BSB-3748-01	Concentrate	0.1 ml
BSB-3748-05	Concentrate	0.5 ml
BSB-3748-1	Concentrate	1.0 ml
BSB-3748-CS	Control Slides	5

SOX-2, RMab



IHC of SOX-2 on a FFPE Brain Tissue

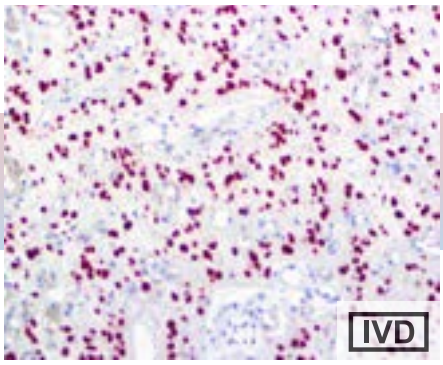
SRY (sex determining region Y)-box 2, also known as SOX2, is a transcription factor that is essential for maintaining self-renewal, or pluripotency, of undifferentiated embryonic stem cells. It is required for stem cell maintenance in the central nervous system, and it also regulates gene expression in the stomach.

SOX2 is expressed in fetal brain and is used as a marker for multipotential neural stem cells. In tumors, SOX2 expression is observed in teratoma of the central nervous system, melanoma, testicular germ cell tumor, cervical carcinoma, lung cancer, breast cancer with basal cell phenotype, and squamous cell carcinoma of the gastrointestinal tract. SOX2 may be useful in the identification of embryonal carcinoma. In stage I lung adenocarcinomas, SOX2 seems to be an independent predictor of poor outcome and may help stratify patients at increased risk for recurrence.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP103*
ISOTYPE: *IgG*
CONTROL: *Brain, Oligodendroglioma, Squamous Cell Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2202	Tinto Predilute	3.0 ml
BSB 2203	Tinto Predilute	7.0 ml
BSB 2204	Tinto Predilute	15.0 ml
BSB 2205	Concentrate	0.1 ml
BSB 2206	Concentrate	0.5 ml
BSB 2207	Concentrate	1.0 ml
BSB 2208	Control Slides	5

SOX-2, RMab



IHC of SOX-2 on FPPE Brain Tissue

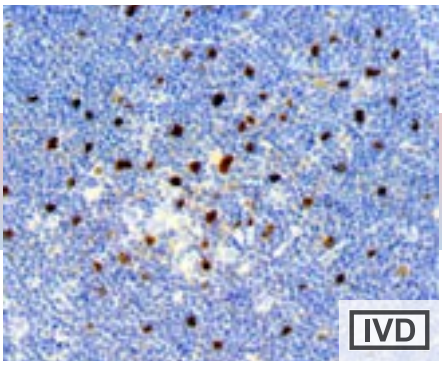
SRY (sex determining region Y)-box 2, also known as SOX2, is a transcription factor that is essential for maintaining self-renewal, or pluripotency, of undifferentiated embryonic stem cells. It is required for stem cell maintenance in the central nervous system, and it also regulates gene expression in the stomach.

SOX2 is expressed in fetal brain and is used as a marker for multipotential neural stem cells. In tumors, SOX2 expression is observed in teratoma of the central nervous system, melanoma, testicular germ cell tumor, cervical carcinoma, lung cancer, breast cancer with basal cell phenotype, and squamous cell carcinoma of the gastrointestinal tract. SOX2 may be useful in the identification of embryonal carcinoma. In stage I lung adenocarcinomas, SOX2 seems to be an independent predictor of poor outcome and may help stratify patients at increased risk for recurrence.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM427*
ISOTYPE: *IgG*
CONTROL: *Brain, Oligodendroglioma, Squamous Cell Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Predicted: Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB-3770-3	Tinto Predilute	3.0 ml
BSB-3770-7	Tinto Predilute	7.0 ml
BSB-3770-15	Tinto Predilute	15.0 ml
BSB-3770-01	Concentrate	0.1 ml
BSB-3770-05	Concentrate	0.5 ml
BSB-3770-1	Concentrate	1.0 ml
BSB-3770-CS	Control Slides	5

SOX-9, RMab



IHC of SOX-9 on a FFPE Lymph Node Tissue

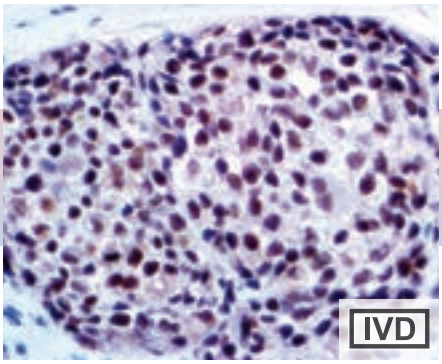
Transcription factor SOX-9 is a protein that in humans is encoded by the SOX9 gene. SOX9 acts during chondrocyte differentiation and regulates transcription of the anti-Müllerian hormone (AMH) gene. It is expressed during embryogenesis, in the cartilage, neural crest, kidney, and pancreas. SOX-9 plays a pivotal role in male sexual development, interacts with a few other genes to promote the development of male sexual organs and its activity is also required for development, differentiation, and lineage commitment in various tissues including the intestinal epithelium.

SOX9 exhibits several pro-oncogenic properties, including the ability to promote proliferation, inhibit senescence, and collaborate with other oncogenes in neoplastic transformation. In normal colorectal mucosa, SOX9 expression is found predominantly to the lower part of crypts, the proliferative compartment and putative site of stem cells, suggesting SOX9 as a putative stem or progenitor cell biomarker. Although staining is predominantly nuclear, cytoplasmic SOX9 may serve as a valuable prognostic marker for Invasive Ductal Carcinomas and Metastatic Breast Cancer. Additionally, SOX9 upregulation has been associated with higher tumor stage and grade, and overexpression has been recognized as an independent prognostic marker for decreased survival in Colorectal Cancer, NSCLC and HCC patients. In Pancreatic Cancer, SOX9 has been found to regulate the EGFR pathway throughout pancreatic tumorigenesis.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP317*
ISOTYPE: *IgG*
CONTROL: *Colon, Prostate, Skin, Breast, Tonsil, Lymph Node, Colon Carcinoma,SCC*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human predicted, predicted Mouse, predicted Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3211	Tinto Predilute	3.0 ml
BSB 3212	Tinto Predilute	7.0 ml
BSB 3213	Tinto Predilute	15.0 ml
BSB 3214	Concentrate	0.1 ml
BSB 3215	Concentrate	0.5 ml
BSB 3216	Concentrate	1.0 ml
BSB 3217	Control Slides	5

SOX-10, MMab



IHC of Cytokeratin SOX-10 on a FFPE Melanoma Tissue

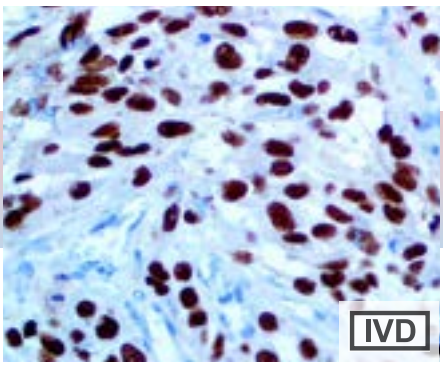
Transcription factor SOX-10 is a member of the SOX (SRY-related HMG-box) family of transcription factors involved in the regulation of embryonic development and in the determination of the cell fate. The encoded protein may act as a transcriptional activator after forming a protein complex with other proteins. This protein acts as a nucleocytoplasmic shuttle protein and is important for neural crest and peripheral nervous system development. Mutations in this gene are associated with Waardenburg-Shah and Waardenburg-Hirschsprung disease. Anti-SOX-10 has been recently shown to be a sensitive marker of melanoma, including conventional, spindled, and desmoplastic subtypes.

SOX-10 is expressed by metastatic melanomas and nodal capsular nevus in sentinel lymph nodes, but not by other lymph node components such as dendritic cells which usually express S100 protein. In scar specimens, immature fibroblasts, epithelioid granulomas, and histiocytic proliferations can histopathologically mimic residual melanoma and even be positive for MiTF and S100. However, SOX-10 is less likely to be expressed by fibroblasts or histiocytes, especially compared to MiTF and S100. Anti-SOX-10 produces a nuclear stain that provides a clean signal that is much sharper and darker in staining quality when compared to the use of antibodies against MiTF and S100.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-62*
ISOTYPE: *IgG2b/K*
CONTROL: *Skin, Salivary Gland, Breast, Melanoma, Schwannoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2209	Tinto Predilute	3.0 ml
BSB 2210	Tinto Predilute	7.0 ml
BSB 2211	Tinto Predilute	15.0 ml
BSB 2212	Concentrate	0.1 ml
BSB 2213	Concentrate	0.5 ml
BSB 2214	Concentrate	1.0 ml
BSB 2215	Control Slides	5

SOX10, RMab



IHC of SOX-10 on a FFPE Melanoma Tissue

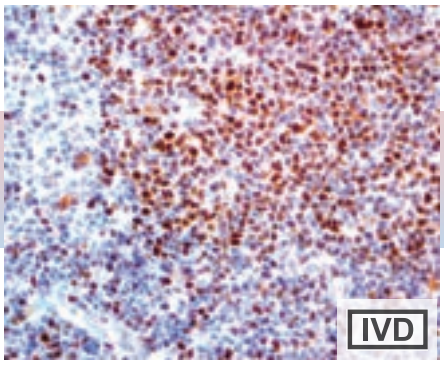
Transcription factor SOX-10 is a member of the SOX (SRY-related HMG-box) family of transcription factors involved in the regulation of embryonic development and in the determination of the cell fate. The encoded protein may act as a transcriptional activator after forming a protein complex with other proteins. This protein acts as a nucleocytoplasmic shuttle protein and is important for neural crest and peripheral nervous system development. Mutations in this gene are associated with Waardenburg-Shah and Waardenburg-Hirschsprung disease. Anti-SOX-10 has been recently shown to be a sensitive marker of melanoma, including conventional, spindled, and desmoplastic subtypes.

SOX-10 is expressed by metastatic melanomas and nodal capsular nevus in sentinel lymph nodes, but not by other lymph node components such as dendritic cells which usually express S100 protein. In scar specimens, immature fibroblasts, epithelioid granulomas, and histiocytic proliferations can histopathologically mimic
residual melanoma and even be positive for MiTF and S100. However, SOX-10 is less likely to be expressed by fibroblasts or histiocytes, especially compared to MiTF and S100. Anti-SOX-10 produces a nuclear stain that provides a clean signal that is much sharper and darker in staining quality when compared to the use of antibodies against MiTF and S100.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP268*
ISOTYPE: *IgG*
CONTROL: *Skin, Salivary Gland, Breast, Melanoma, Schwannoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human predicted, predicted Mouse. predicted Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 2580	Tinto Predilute	3.0 ml
BSB 2581	Tinto Predilute	7.0 ml
BSB 2582	Tinto Predilute	15.0 ml
BSB 2583	Concentrate	0.1 ml
BSB 2584	Concentrate	0.5 ml
BSB 2585	Concentrate	1.0 ml
BSB 2586	Control Slides	5

SOX-11, MMab



IHC of SOX-11 on a FFPE Mantle Cell Lymphoma Tissue

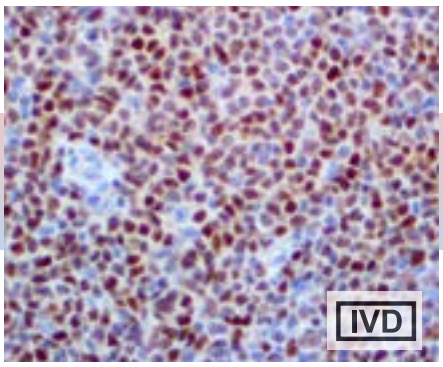
Transcription factor SOX-11 is a member of the group C SOX (SRY-related HMG-box) transcription factor family involved in the regulation of embryonic development and in the determination of the cell fate. The encoded protein may act as a transcriptional regulator after forming a protein complex with other proteins. The protein may function in the developing nervous system and play a role in tumorigenesis and adult neurogenesis. SOX-11 is normally expressed in the developing human central nervous system, Medulloblastoma, and Glioma.

Anti-SOX-11 nuclear protein expression is highly associated with both Cyclin D1-positive and negative Mantle Cell Lymphomas, with a stronger and more homogeneous Immunohistochemistry staining than Cyclin D1.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CL0142*
ISOTYPE: *IgG2a*
CONTROL: *Mantle Cell Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2216	Tinto Predilute	3.0 ml
BSB 2217	Tinto Predilute	7.0 ml
BSB 2218	Tinto Predilute	15.0 ml
BSB 2219	Concentrate	0.1 ml
BSB 2220	Concentrate	0.5 ml
BSB 2221	Concentrate	1.0 ml
BSB 2222	Control Slides	5

SOX-11, MMab



IHC of SOX-11 on a FFPE Mantle Cell Lymphoma Tissue

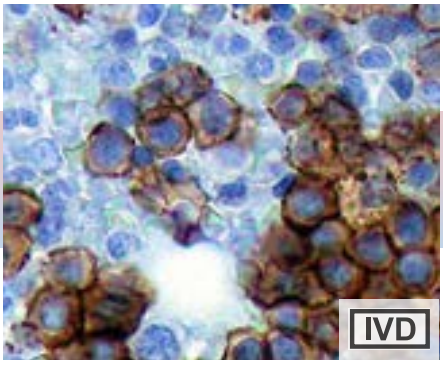
Transcription factor SOX-11 is a member of the group C SOX (SRY-related HMG-box) transcription factor family involved in the regulation of embryonic development and in the determination of cell fate. The encoded protein may act as a transcriptional regulator after forming a protein complex with other proteins. The protein may function in the developing nervous system and plays a role in tumorigenesis and adult neurogenesis. SOX-11 is normally expressed in the developing human central nervous system, medulloblastoma, and glioma.

SOX-11 nuclear protein expression is highly associated with both cyclin D1- positive and negative mantle cell lymphomas, with a stronger and more homogeneous Immunostain than cyclin D1. Absence of SOX-11 expression in mantle cell lymphoma (MCL) may be a characteristic of indolent MCL. Sensitivity and specificity for combined SOX-11 and cyclin D1 immunohistostaining in the diagnosis of cutaneous mantle cell lymphoma are both 100%. SOX-11 has also been detected in rare cases of Burkitt lymphoma, lymphoblastic lymphoma and T cell prolymphocytic leukemia and overexpression can be seen in malignant gliomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-167*
ISOTYPE: *IgG1*
CONTROL: *Mantle Cell Lymphoma, Lung Neuroendocrine Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3783-3	Tinto Predilute	3.0 ml
BSB-3783-7	Tinto Predilute	7.0 ml
BSB-3783-15	Tinto Predilute	15.0 ml
BSB-3783-01	Concentrate	0.1 ml
BSB-3783-05	Concentrate	0.5 ml
BSB-3783-1	Concentrate	1.0 ml
BSB-3783-CS	Control Slides	5

Spectrin, MMab



IHC of Spectrin on a FFPE Bone Marrow Tissue

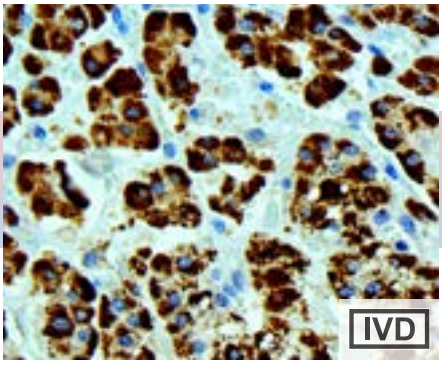
Spectrin is a cytoskeletal protein that lines the intracellular side of the plasma membrane of many cell types in pentagonal or hexagonal arrangements, forming scaffolds and playing an important role in maintenance of plasma-membrane integrity and cytoskeletal structure. The hexagonal arrangements are formed by tetramers of spectrin associating with short actin filaments at either end of the tetramer. These short actin filaments act as junctional complexes, allowing the formation of the hexagonal mesh.

Spectrin is found in the intracellular side of the plasma membrane of many cell types found in muscles, red blood cells and red cell precursors. Anti-Spectrin antibody is useful in the diagnosis of Erythroid Leukemias.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *RBC2/3D5*
ISOTYPE: *IgG2b/K*
CONTROL: *Bone Marrow, Spleen*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5938	Tinto Predilute	3.0 ml
BSB 5939	Tinto Predilute	7.0 ml
BSB 5940	Tinto Predilute	15.0 ml
BSB 5941	Concentrate	0.1 ml
BSB 5942	Concentrate	0.5 ml
BSB 5943	Concentrate	1.0 ml
BSB 5944	Control Slides	5

STAR, RMab



IHC of STAR on a FFPE Adrenal Tissue

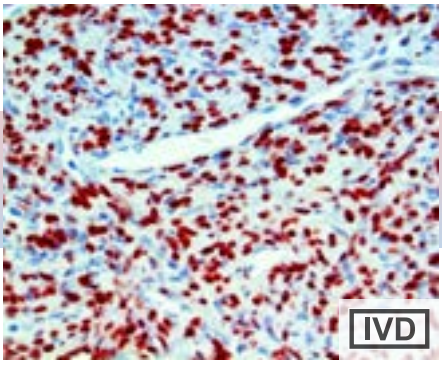
Steroidogenic acute regulatory protein (STAR) is a protein that in humans is encoded by the STAR gene. The protein encoded by this gene plays a key role in the acute regulation of steroid hormone synthesis by enhancing the conversion of cholesterol into pregnenolone. This protein permits the cleavage of cholesterol into pregnenolone by mediating the transport of cholesterol from the outer mitochondrial membrane to the inner mitochondrial membrane.

STAR is primarily present in steroid-producing cells, including Leydig cells in the testis, theca cells and luteal cells in the ovary and adrenal cells in the adrenal cortex. Low level of STAR expression in other tissues that produce steroid hormones for local use have been reported. STAR is a sensitive and specific marker for Leydig cell tumor. It is useful for differential diagnosis of sex-cord stromal tumor (SCST). Mutations in this gene are a cause of congenital lipoid adrenal hyperplasia (CLAH), also called lipoid CAH.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP226*
ISOTYPE: *IgG*
CONTROL: *Leydig Cells of Testis, Adrenal & Leydig Cell Tumors*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3630	Tinto Predilute	3.0 ml
BSB 3631	Tinto Predilute	7.0 ml
BSB 3632	Tinto Predilute	15.0 ml
BSB 3633	Concentrate	0.1 ml
BSB 3634	Concentrate	0.5 ml
BSB 3635	Concentrate	1.0 ml
BSB 3636	Control Slides	5

STAT6, RMab



IHC of STAT-6 on a FFPE Solitary Fibrous Tumor Tissue

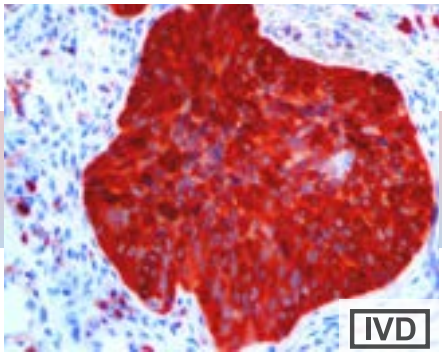
STAT6 is a human gene. The protein encoded by this gene is a member of the STAT family of transcription factors. In response to cytokines and growth factors, STAT family members are phosphorylated by the receptor associated kinases, and then form homo- or heterodimers that translocate to the cell nucleus where they act as transcription activators. This protein plays a central role in exerting IL4 mediated biological responses. It is found to induce the expression of BCL2L1/BCL-X(L), which is responsible for the anti-apoptotic activity of IL4. STAT6 protein expression can be identified by IHC in the cytoplasm and nucleus of several tissues.

Recurrent somatic fusions of the NGFI-A–binding protein 2 (NAB2) gene and STAT6 gene, located at chromosomal region 12q13, have been identified in Solitary Fibrous Tumors (SFT). STAT6 is a highly sensitive and specific immunohistochemical marker for SFT and can be helpful to distinguish this tumor type from histologic mimics. STAT6 is amplified in a subset of dedifferentiated Liposarcoma, resulting in STAT6 protein expression that can be detected by immunohistochemistry and may be a potential pitfall in the differential diagnosis of dedifferentiated Liposarcoma and Solitary Fibrous Tumor. These findings suggest a role for STAT6-mediated transcriptional activity in some cases of dedifferentiated Liposarcoma and highlight the genomic complexity and heterogeneity of dedifferentiated Liposarcomas.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP325*
ISOTYPE: *IgG*
CONTROL: *Solitary Fibrous Tumor*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3420	Tinto Predilute	3.0 ml
BSB 3421	Tinto Predilute	7.0 ml
BSB 3422	Tinto Predilute	15.0 ml
BSB 3423	Concentrate	0.1 ml
BSB 3424	Concentrate	0.5 ml
BSB 3425	Concentrate	1.0 ml
BSB 3426	Control Slides	5

Stathmin, RMab



IHC of Stathmin on a FFPE Anal Carcinoma Tissue

Stathmin 1/oncoprotein 18, also known as STMN1, is a highly conserved 17 kDa protein. Stathmin performs an important function in regulating rapid microtubule remodeling of the cytoskeleton in response to the cell's needs. Regulation of stathmin is cell cycle dependent and controlled by the cell's protein kinases in response to specific cell signals. Stathmin can cause uncontrolled cell proliferation when mutated and not functioning properly.

Overexpression of Stathmin has been associated with tumor progression in endometrial carcinomas, ovarian cancer and oral squamous-cell carcinoma . Stathmin has been found to be positive in 29% of CINs with differential expression based on the grade of the lesion as 9% being CIN1, 45% CIN2, and 93% CIN3; whereas, p16 staining of the same cases was positive in 80% of CINs with 71% CIN1, 100% CIN2, and 94% CIN3. Stathmin shows similar sensitivity for CIN3 to anti-p16 (93% vs 94%) although it drops off for CIN2 (73% vs 96%). The specificity of anit-stathmin for both CIN2-3 (94%) and CIN3 (89%) is higher than that of anti-p16 (44% and 39%, respectively). Therefore, Stathmin has major potential as a diagnostic marker in CIN classification over anti-p16 and it is valuable to distinguish CIN3 from the majority of low-grade precursors and negative/reactive cervical biopsies.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP247*
ISOTYPE: *IgG*
CONTROL: *Testis, Tonsil, HSIL Cervical Carcinoma, Lymphoblastic Lymphoma, Bladder TCC*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human predicted, Mouse predicted, Rat predicted*

CAT. #	PRESENTATION	VOL/QTY
BSB 2594	Tinto Predilute	3.0 ml
BSB 2595	Tinto Predilute	7.0 ml
BSB 2596	Tinto Predilute	15.0 ml
BSB 2597	Concentrate	0.1 ml
BSB 2598	Concentrate	0.5 ml
BSB 2599	Concentrate	1.0 ml
BSB 2600	Control Slides	5

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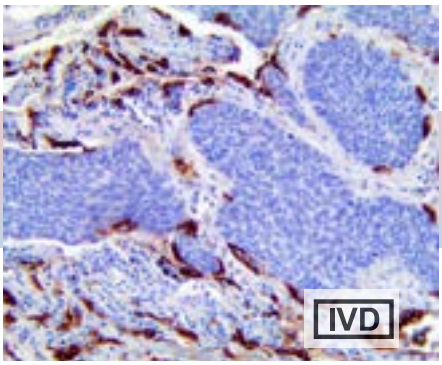
Surfactant protein D/SP-D, MMab



IHC of Surfactant protein D/SP-D on a FFPE Lung Squamous Cell Carcinoma Tissue

Surfactant protein D, also known as SFTPD or SP-D, is a protein encoded by the SFTPD gene. Pulmonary surfactants are essential to proper respiratory structure and function, consisting of ~90% lipids (mostly phospholipids) and 8–10% surfactant-associated proteins. SP-D is a pattern-recognition molecule in the collectin (collagen-containing C-type lectin) family. In the lungs, it is an opsonin that can agglutinate a range of microbes and enhance their clearance via phagocytosis and super-oxidative burst. It can interfere with allergen–IgE interaction and suppress basophil and mast cell activation.

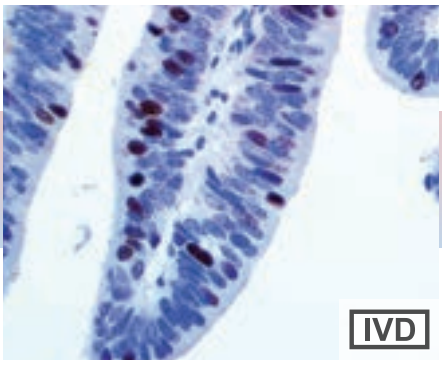
Other surfactant proteins like SP-B and SP-C showed strong immunohistochemical expression in Lung Hyperplasias and Adenomas, suggesting that SP-B and SP-C are related to lung tumorigenesis. SP-D is likely an innate immune surveillance molecule against tumor development. SP-D may induce apoptosis in Pancreatic Adenocarcinoma via Fas-mediated pathway in a p53-independent manner. Studies Have found low expression of SP-D in Lung, Gastric, and Breast cancers and high expression in different stages and grades of Ovarian cancer.

The purified Spike protein of SARS-CoV-2 bound to Vero but not 293T cells and was itself recognized by SP-D, in the lung alveoli. It suggests that SARS-CoV interacts with innate immune mechanisms in the lung through its S-protein and regulates pulmonary inflammation.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-162*
ISOTYPE: *IgG1*
CONTROL: *Placenta, Lung, Pancreas, Adrenal Gland, Lung Squamous Cell Carcinoma, Lung Adenocarcinoma, Gastric GIST*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3747-3	Tinto Predilute	3.0 ml
BSB-3747-7	Tinto Predilute	7.0 ml
BSB-3747-15	Tinto Predilute	15.0 ml
BSB-3747-01	Concentrate	0.1 ml
BSB-3747-05	Concentrate	0.5 ml
BSB-3747-1	Concentrate	1.0 ml
BSB-3747-CS	Control Slides	5

Survivin, RMab



IHC of Survivin on a FFPE Colon Tissue

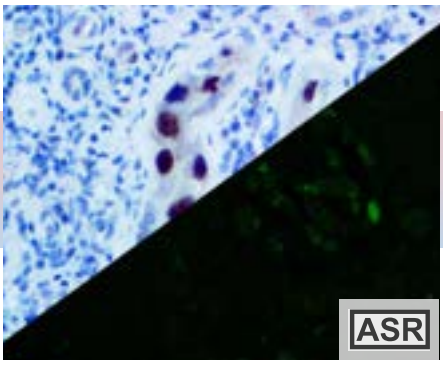
Survivin, also called baculoviral inhibitor of apoptosis repeat-containing 5 or BIRC5, is a member of the inhibitor of apoptosis (IAP) family. The survivin protein functions to inhibit caspase activation, thereby leading to negative regulation of apoptosis or programmed cell death. The survivin protein is expressed highly in most human tumors and fetal tissue, but is completely absent in terminally differentiated cells. Survivin expression is also highly regulated by the cell cycle and is only expressed in the G2-M phase. It is known that survivin localizes to the mitotic spindle by interaction with tubulin during mitosis and may play a contributing role in regulating mitosis.

The association of survivin expression with tumor progression, but not overall patient survival, has been observed in a variety of malignancies including renal cell carcinoma, ovary carcinoma, hepatocellular carcinoma, prostate carcinoma and breast carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP119*
ISOTYPE: *IgG*
CONTROL: *Colon, Placenta, Testis, Tonsil, Bone Marrow, Colon Carcinoma, Lymphoblastic Lymphoma, Bladder TCC*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2223	Tinto Predilute	3.0 ml
BSB 2224	Tinto Predilute	7.0 ml
BSB 2225	Tinto Predilute	15.0 ml
BSB 2226	Concentrate	0.1 ml
BSB 2227	Concentrate	0.5 ml
BSB 2228	Concentrate	1.0 ml
BSB 2229	Control Slides	5

SV40, MMab



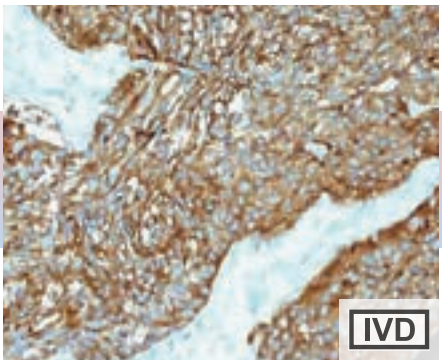
IHC and IF of SV40 on a FFPE Infected Kidney Tissue

SV40 is an abbreviation for Simian vacuolating virus 40 or Simian virus 40, a polyomavirus that is found in both monkeys and humans. Like other polyomaviruses, SV40 is a DNA virus that has the potential to cause tumors, but most often persists as a latent infection.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Pab101*
ISOTYPE: *IgG2a*
CONTROL: *SV40 Infected Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2230	Tinto Predilute	3.0 ml
BSB 2231	Tinto Predilute	7.0 ml
BSB 2232	Tinto Predilute	15.0 ml
BSB 2233	Concentrate	0.1 ml
BSB 2234	Concentrate	0.5 ml
BSB 2235	Concentrate	1.0 ml
BSB 2236	Control Slides	5

Synaptophysin, RPab



IHC of Synaptophysin on a FFPE Neuroendocrine Tumor

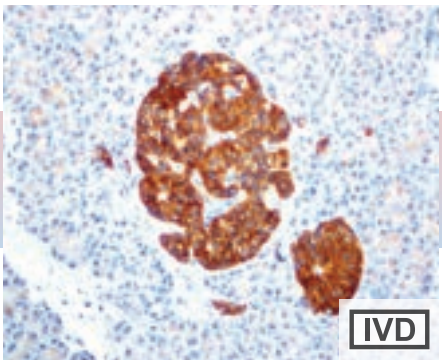
Synaptophysin is a synaptic vesicle glycoprotein weighing 38 kDa. It is present in endocrine cells, the brain, spinal cord, and adrenal glands. It acts as a marker for neuroendocrine cells.

Synaptophysin reacts with neuroendocrine cells of human adrenal medulla, carotid body, skin, pituitary, thyroid, lung, pancreas and gastrointestinal mucosa. Positive staining is seen in neurons of the brain, spinal cord, retina, and Paneth's cells in the gastrointestinal tract and gastric parietal cells. This antibody identifies normal neuroendocrine cells and neuroendocrine neoplasms. Diffuse, finely-granular cytoplasmic staining is observed and probably correlates with the distribution of the antigen within neurosecretory vesicles. The expression of Synaptophysin is independent of the presence of NSE or other neuroendocrine markers. Synaptophysin is an independent broad-range marker of neural and neuroendocrine differentiation.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Brain, Pituitary, Adrenal, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5945	Tinto Predilute	3.0 ml
BSB 5946	Tinto Predilute	7.0 ml
BSB 5947	Tinto Predilute	15.0 ml
BSB 5948	Concentrate	0.1 ml
BSB 5949	Concentrate	0.5 ml
BSB 5950	Concentrate	1.0 ml
BSB 5951	Control Slides	5

Synaptophysin, RMab



IHC of Synaptophysin on a FFPE Pancreas Tissue

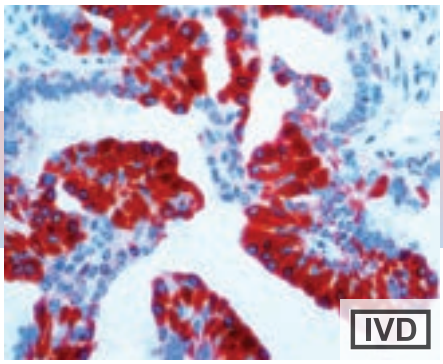
Synaptophysin is a synaptic vesicle glycoprotein weighing 38 kDa. It is present in endocrine cells, the brain, spinal cord, and adrenal glands. It acts as a marker for neuroendocrine cells.

Synaptophysin reacts with neuroendocrine cells of human adrenal medulla, carotid body, skin, pituitary, thyroid, lung, pancreas and gastrointestinal mucosa. Positive staining is seen in neurons of the brain, spinal cord, retina, and Paneth's cells in the gastrointestinal tract and gastric parietal cells. This antibody identifies normal neuroendocrine cells and neuroendocrine neoplasms. Diffuse, finely-granular cytoplasmic staining is observed and probably correlates with the distribution of the antigen within neurosecretory vesicles. The expression of Synaptophysin is independent of the presence of NSE or other neuroendocrine markers. Synaptophysin is an independent broad-range marker of neural and neuroendocrine differentiation.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP158*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Brain, Pituitary, Adrenal. Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat, Donkey*

CAT. #	PRESENTATION	VOL/QTY
BSB 2237	Tinto Predilute	3.0 ml
BSB 2238	Tinto Predilute	7.0 ml
BSB 2239	Tinto Predilute	15.0 ml
BSB 2240	Concentrate	0.1 ml
BSB 2241	Concentrate	0.5 ml
BSB 2242	Concentrate	1.0 ml
BSB 2243	Control Slides	5

TAG-72, MMab



IHC of TAG-72 on a FFPE Breast Tissue

Tumor-associated glycoprotein (TAG-72) has been shown to be expressed in a wide variety of epithelial malignant tissues. TAG-72 antigen is a high molecular glycoprotein found on the surface of many cancer cells, including breast, colon and pancreatic cells. It is present in human Adenocarcinomas and in lesser amounts, non-neoplastic tissues. The majority of human Adenocarcinomas including Colorectal, Pancreatic, Gastric, Ovarian, Endometrial, Mammary, and Non-Small Cell Lung Cancer display some cell populations that are positive for TAG-72.

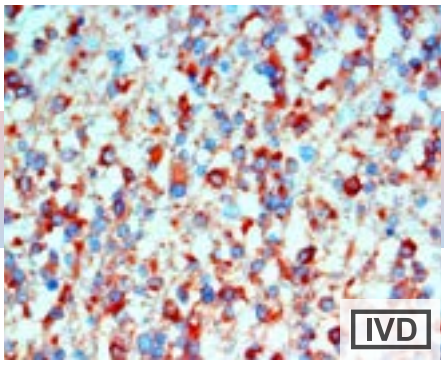
TAG-72 has also been found to be useful for the distinction between Mesothelioma and Adenocarcinoma; however, false positive reactions can occur so results must be interpreted with the utmost caution.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-21*
ISOTYPE: *IgG1/K*
CONTROL: *Breast Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5952	Tinto Predilute	3.0 ml
BSB 5953	Tinto Predilute	7.0 ml
BSB 5954	Tinto Predilute	15.0 ml
BSB 5955	Concentrate	0.1 ml
BSB 5956	Concentrate	0.5 ml
BSB 5957	Concentrate	1.0 ml
BSB 5958	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Tau, MMab



IHC of Tau on a FFPE Astrocytoma Tissue

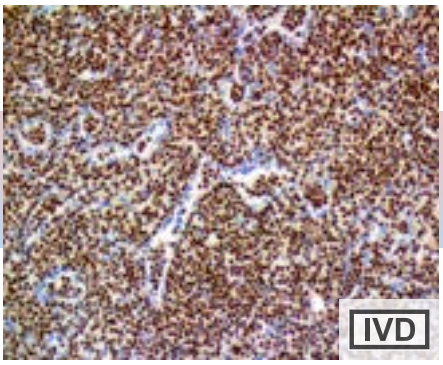
The tau proteins are the product of alternative splicing from a single gene that in humans is designated MAPT (microtubule-associated protein tau) and is located on chromosome 17. In humans, these proteins are found mostly in neurons compared to non-neuronal cells. One of tau's main functions is to modulate the stability of axonal microtubules. Tau proteins interact with tubulin to stabilize microtubules and promote tubulin assembly into microtubules. Through its isoforms and phosphorylation tau protein interacts with tubulin to stabilize microtubule assembly.

Hyperphosphorylation of the tau protein (tau inclusions, pTau) can result in the self-assembly of tangles of paired helical filaments and straight filaments, which are involved in the pathogenesis of Alzheimer's disease, frontotemporal dementia, and other tauopathies. When misfolded, this otherwise very soluble protein can form extremely insoluble aggregates that contribute to a number of neurodegenerative diseases. Mutations that alter function and isoform expression of tau lead to hyperphosphorylation, which in turn disassembles microtubules and sequesters normal tau, MAP 1, MAP 2, and ubiquitin into neurofibrillary tangles, which are composed of paired helical filaments (PHF).These insoluble structures damage cytoplasmic functions and interferes with axonal transport, which can lead to cell death.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-115*
ISOTYPE: *IgG1/K*
CONTROL: *Brain, Kidney, Pituitary, Pancreas, Cervix, Skin, Salivary Gland, Astrocytoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 3427	Tinto Predilute	3.0 ml
BSB 3428	Tinto Predilute	7.0 ml
BSB 3429	Tinto Predilute	15.0 ml
BSB 3430	Concentrate	0.1 ml
BSB 3431	Concentrate	0.5 ml
BSB 3432	Concentrate	1.0 ml
BSB 3433	Control Slides	5

T-Bet/TBX-2, RMab



IHC of T-bet on a FFPE Hairy Cell Leukemia Tissue

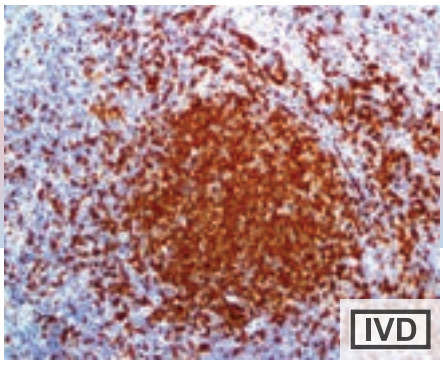
T-box transcription factor TBX21, also known as T-bet , is a T-box transcription factor, is expressed in CD4+ T-lymphocytes committed to T-helper (Th)1 T-cell development from naïve T-helper precursor cells (Thp) and redirects Th2 T cells to Th1 development.

T-bet is expressed in CD4+ T lymphocytes in normal tissues. In lymphoid malignancies, TBX21 has been found in a subset of T-cell lymphomas with Th1 T cell differentiation, a subset of B-cell or Tcells, non-Hodgkin's lymphomas, majority of Hodgkin's lymphomas and precursor B-cell lymphoblastic leukemia/lymphoblastic lymphomas. However, B-cell neoplasms derived from pregerminal center or germinal center B-cells, including mantle cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, and Burkitt lymphoma are negative for T-bet. Therefore, anti-T-bet should serve as a useful marker for the diagnosis and subtyping of B-cell and T-cell lymphoproliferative disorders. T-bet is a useful marker for Hodgkin's lymphoma and also helpful in identification of hairy cell leukemia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP263*
ISOTYPE: *IgG*
CONTROL: *Spleen, Tonsil, Cervix, Liver, Breast, Hairy Cell Leukemia & Histiocytic, Lymphoblastic Lymphoma Bladder TCC*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2601	Tinto Predilute	3.0 ml
BSB 2602	Tinto Predilute	7.0 ml
BSB 2603	Tinto Predilute	15.0 ml
BSB 2604	Concentrate	0.1 ml
BSB 2605	Concentrate	0.5 ml
BSB 2606	Concentrate	1.0 ml
BSB 2607	Control Slides	5

TCL1, RMab



IHC of TCL1 on a FFPE Lymphoma Tissue

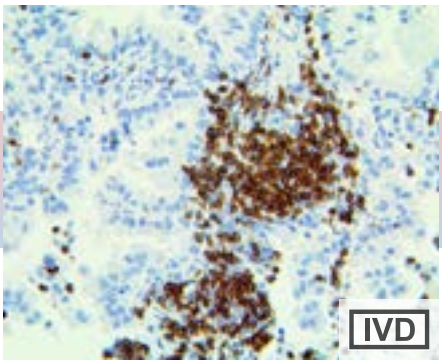
T-cell leukemia/lymphoma protein 1 (TCL1, TCL1A, p14TCL1) is involved in T-cell prolymphocytic leukemia (T-PLL) and is normally found in the nucleus and cytoplasm of lymphoid lineage cells during early embryogenesis. Chromosomal translocations may lead to overexpression of TCL1, resulting in T-cell leukemia and B-cell lymphoma. TCL1 is expressed in more differentiated B-cells, under both reactive and neoplastic conditions, from antigen committed B-cells and in germinal center B-cells. TCL1 is down-regulated in the latest stage of B-cell differentiation.

TCL1 is overexpressed in Burkitt Lymphoma, the majority of AIDS-related non-Hodgkin's Lymphoma-designated Immunoblastic Plasmacytoid Lymphoma, Lymphoblastic Lymphoma, Chronic Lymphocytic Leukemia, Mantle Cell Lymphoma, Follicular Lymphoma, Diffuse Large B-cell Lymphoma, and Primary Cutaneous B-cell Lymphoma. Therefore, the most useful application of anti-TCL1 is the discrimination of B-cell lymphomas from T-cell lymphomas, CD30+ Anaplastic Large Cell Lymphomas, Multiple Myeloma, and Marginal Zone B-cell Lymphoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP105*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2251	Tinto Predilute	3.0 ml
BSB 2252	Tinto Predilute	7.0 ml
BSB 2253	Tinto Predilute	15.0 ml
BSB 2254	Concentrate	0.1 ml
BSB 2255	Concentrate	0.5 ml
BSB 2256	Concentrate	1.0 ml
BSB 2257	Control Slides	5

TCR Alpha, MMab



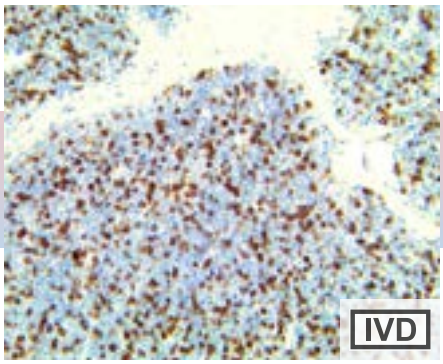
IHC of TCR Alpha on a FFPE Lung Adenocarcinoma Tissue

T-cell receptor alpha locus is a protein that in humans is encoded by the TRA gene, also known as TCRA or TRAα; It contributes the alpha chain to the larger TCR protein (T-cell receptor). The T cell receptor or TCR is a molecule found on the surface of T lymphocytes (or T cells) that is responsible for recognizing antigens bound to major histocompatibility complex (MHC) molecules. The TCR is composed of two different protein chains (that is, it is a heterodimer). In 95% of T cells, this consists of an alpha (α) and beta (β) chain, whereas in 5% of T cells this consists of gamma and delta (γ/δ) chains. This ratio changes during ontogeny and in cancers, such as Leukemia.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-126*
ISOTYPE: *IgG2A/k*
CONTROL: *Thymus, Tonsil, Lymph Node, Spleen, Hodgkin's Lymphoma & BDCM & CCRF-CEM Cell Lines*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3637	Tinto Predilute	3.0 ml
BSB 3638	Tinto Predilute	7.0 ml
BSB 3639	Tinto Predilute	15.0 ml
BSB 3640	Concentrate	0.1 ml
BSB 3641	Concentrate	0.5 ml
BSB 3642	Concentrate	1.0 ml
BSB 3643	Control Slides	5

TCR Beta, MMab



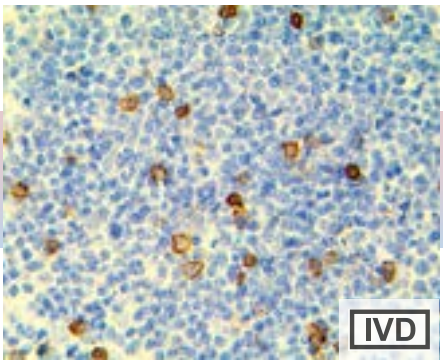
IHC of TCR Beta on a FFPE Thymus Tissue

The T cell receptor or TCR is a molecule found on the surface of T lymphocytes (or T cells) that is responsible for recognizing antigens bound to major histocompatibility complex (MHC) molecules. The TCR is composed of two different protein chains (that is, it is a heterodimer). In 95% of T cells, this consists of an alpha (α) and beta (β) chain, whereas in 5% of T cells this consists of gamma and delta (γ/δ) chains. TCR Beta is a member of the immunoglobin super family and a component of the CD3/TCR complex (along with TCR Alpha).
TCR Beta is expressed by thymocytes and a majority of peripheral (α-β TCR-bearing) T-cells. TCR recognition of self-peptides has been linked to autoimmune disease. Mutant self-peptides have been associated with tumors.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-117*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2258	Tinto Predilute	3.0 ml
BSB 2259	Tinto Predilute	7.0 ml
BSB 2260	Tinto Predilute	15.0 ml
BSB 2261	Concentrate	0.1 ml
BSB 2262	Concentrate	0.5 ml
BSB 2263	Concentrate	1.0 ml
BSB 2264	Control Slides	5

TCR Delta, MMab



IHC of TCR Delta on a FFPE Thyrmus Tissue

T cell receptor delta locus (symbol TRD), also known as TCRD, is a protein that in humans is encoded by the TRD gene. It contributes the delta (δ) chain to the larger TCR protein (T-cell receptor). The T cell receptor or TCR is a molecule found on the surface of T lymphocytes (or T cells) that is responsible for recognizing antigens bound to major histocompatibility complex (MHC) molecules.

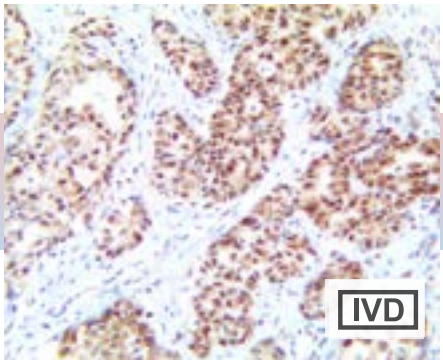
Deletions and mutations of the TRG and TRD gene have been implicated in a variety of cancers. Specifically, γδ T cells may contribute to the immune response against several tumor types (lymphoma, myeloma, breast, colon, lung, ovary, and others). They act directly through mediation of cytotoxic activity and indirectly through the regulation of other cell types responsible for the anti-tumor response. The presence of γδ T cells in the tumor microenvironment has been associated with poor prognosis in some cancers. While γδ T cells have been implicated in T cell lymphomas, there is also a specific subtype known as γδ T-cell lymphoma, characterized by the proliferation of those cells exclusively. This lymphoma can be quite aggressive with ulcerative plaques and subcutaneous nodules. Apart from carcinomas, TRG has also been correlated with heptatis B virus (HBV). Specifically, Vδ2+ T cell levels and TCR γδ T cell cytotoxicity were significantly lower was in patients with chronic HBV infections.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-127*
ISOTYPE: *IgG1/K*
CONTROL: *Thymus, Tonsil, Lymph Node, Spleen*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3644	Tinto Predilute	3.0 ml
BSB 3645	Tinto Predilute	7.0 ml
BSB 3646	Tinto Predilute	15.0 ml
BSB 3647	Concentrate	0.1 ml
BSB 3648	Concentrate	0.5 ml
BSB 3649	Concentrate	1.0 ml
BSB 3650	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

TDP-43/TARDBP, MMab



IHC of TDP-43/TARDBP on a FFPE Lung Adenocarcinoma Tissue

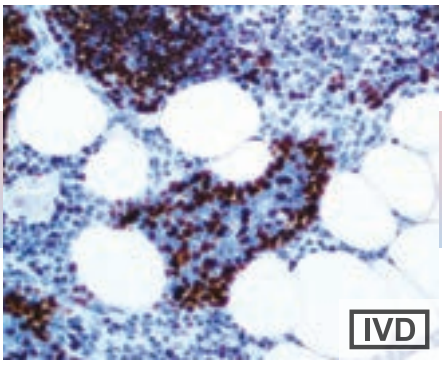
Transactive Response DNA binding protein 43 (TPD-43 or TARDBP) is an RNA and DNA binding protein in the heterogeneous nuclear ribonucleoprotein (hnRNP) family, where it regulates RNA associated with glucose and lipid metabolism.

TDP-43/TARDBP is associated with several neurodegenerative conditions amyotrophic lateral sclerosis (ALS) and frontotemporal lobar degeneration (FTLD) and metabolic regulation in cancer cells. TDP-43/TARDBP regulation of miRNAs has both tumor supporting and suppressive roles. Upregulation of TDP-43/TARDBP can lead to continued autophagy for survival and suppression of apoptosis pathways, promoting cancer cell survival under conditions of nutrient stress, as was seen in a study of glioblastomas. TDP-43/TARDBP and its targeted miRNAs have been associated with increased cell growth and migration in hepatocellular and lung cancers, but also with tumor inhibition in rhabdomyosarcomas through miRNA miR-500a-3p. TDP-43/TARDBP may also influence the function and targets of MiR-152, and miRNA associated with hepatocellular carcinoma, endometrial, gastric, and ovarian cancers. TDP-43/TARDBP has been found to be a novel oncogene in melanoma and regulates melanoma proliferation and metastasis potentially through modulation of glucose metabolism. TDP43, has been found to promote triple-negative breast cancer (TNBC) progression.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-166*
ISOTYPE: *IgG2a*
CONTROL: *Breast, Fallopian Tube, Testis, Skin, Transitional Cell Carcinoma, Glioblastoma*
LOCALIZATION: *Nuclear, Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat, reactive with Horse, Dog, Bovine*

CAT. #	PRESENTATION	VOL/QTY
BSB-3776-3	Tinto Predilute	3.0 ml
BSB-3776-7	Tinto Predilute	7.0 ml
BSB-3776-15	Tinto Predilute	15.0 ml
BSB-3776-01	Concentrate	0.1 ml
BSB-3776-05	Concentrate	0.5 ml
BSB-3776-1	Concentrate	1.0 ml
BSB-3776-CS	Control Slides	5

TdT, RPab



IHC of TdT on a FFPE Thymus Tissue

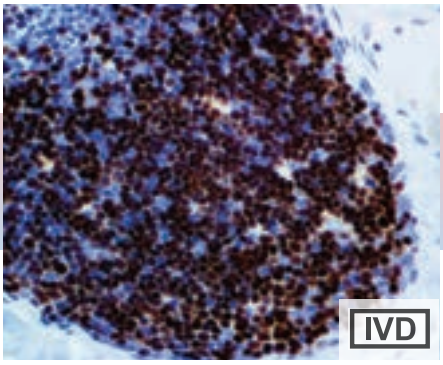
Terminal Deoxynucleotidyl Transferase (also known as TdT and terminal transferase) is a specialized DNA polymerase expressed in immature, pre-B, pre-T lymphoid cells and acute Lymphoblastic Leukemia/Lymphoma cells. TdT catalyzes the addition of nucleotides to the 3' terminus of a DNA molecule. Unlike most DNA polymerases, it does not require a template. The preferred substrate of this enzyme is a protruding 3' overhang, but it can also add nucleotides to blunt or recessed 3' ends.

TdT is normally found in cortical thymocytes and primitive lymphocytes. TdT antibody detects its antigen found in the nucleus of normal hematopoietic cells, normal cortical thymocytes and in the cytoplasm of megakaryocytes of the bone marrow. TdT expression is seen in over 90% of Acute Lymphocytic Leukemia cases with the exception of pre-B-Cell ALL, and normal mature T- or B-lymphocytes. TdT is positive for approximately one third of all cases of Chronic Myeloid Leukemia, making it a good indicator of better response to chemotherapy.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Thymus, Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5966	Tinto Predilute	3.0 ml
BSB 5967	Tinto Predilute	7.0 ml
BSB 5968	Tinto Predilute	15.0 ml
BSB 5969	Concentrate	0.1 ml
BSB 5970	Concentrate	0.5 ml
BSB 5971	Concentrate	1.0 ml
BSB 5972	Control Slides	5

TdT, RMab



IHC of TdT on a FFPE Thymus Tissue

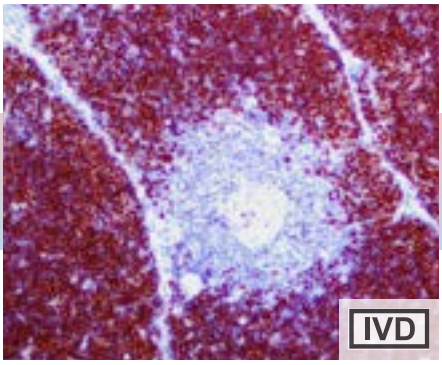
Terminal Deoxynucleotidyl Transferase (also known as TdT and terminal transferase) is a specialized DNA polymerase expressed in immature, pre-B, pre-T lymphoid cells and acute Lymphoblastic Leukemia/ Lymphoma cells. TdT catalyzes the addition of nucleotides to the 3' terminus of a DNA molecule. Unlike most DNA polymerases, it does not require a template. The preferred substrate of this enzyme is a protruding 3' overhang, but it can also add nucleotides to blunt or recessed 3' ends.

TdT is normally found in cortical thymocytes and primitive lymphocytes. TdT antibody detects its antigen found in the nucleus of normal hematopoietic cells, normal cortical thymocytes and in the cytoplasm of megakaryocytes of the bone marrow. TdT expression is seen in over 90% of Acute Lymphocytic Leukemia cases with the exception of pre-B-Cell ALL, and normal mature T- or B-lymphocytes. TdT is positive for approximately one third of all cases of Chronic Myeloid Leukemia, making it a good indicator of better response to chemotherapy.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-TdT*
ISOTYPE: *IgG*
CONTROL: *Thymus, Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2265	Tinto Predilute	3.0 ml
BSB 2266	Tinto Predilute	7.0 ml
BSB 2267	Tinto Predilute	15.0 ml
BSB 2268	Concentrate	0.1 ml
BSB 2269	Concentrate	0.5 ml
BSB 2270	Concentrate	1.0 ml
BSB 2271	Control Slides	5

TdT, RMab



IHC of TdT on a FFPE Lymphoblastic Lymphoma Tissue

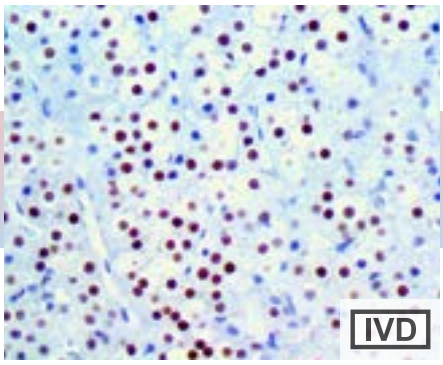
Terminal Deoxynucleotidyl Transferase (also known as TdT and terminal transferase) is a specialized DNA polymerase expressed in immature, pre-B, pre-T lymphoid cells and acute Lymphoblastic Leukemia/Lymphoma cells. TdT catalyzes the addition of nucleotides to the 3′ terminus of a DNA molecule. Unlike most DNA polymerases, it does not require a template. The preferred substrate of this enzyme is a protruding 3′ overhang, but it can also add nucleotides to blunt or recessed 3′ ends.

TdT is normally found in cortical thymocytes and primitive lymphocytes. TdT antibody detects its antigen found in the nucleus of normal hematopoietic cells, normal cortical thymocytes and in the cytoplasm of megakaryocytes of the bone marrow. TdT expression is seen in over 90% of Acute Lymphocytic Leukemia cases with the exception of pre-B-Cell ALL, and normal mature T- or B-lymphocytes. TdT is positive for approximately one third of all cases of Chronic Myeloid Leukemia, making it a good indicator of better response to chemotherapy.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP266*
ISOTYPE: *IgG*
CONTROL: *Thymus, Lymphoblastic Lymphoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2608	Tinto Predilute	3.0 ml
BSB 2609	Tinto Predilute	7.0 ml
BSB 2610	Tinto Predilute	15.0 ml
BSB 2611	Concentrate	0.1 ml
BSB 2612	Concentrate	0.5 ml
BSB 2613	Concentrate	1.0 ml
BSB 2614	Control Slides	5

TFE3, RMab



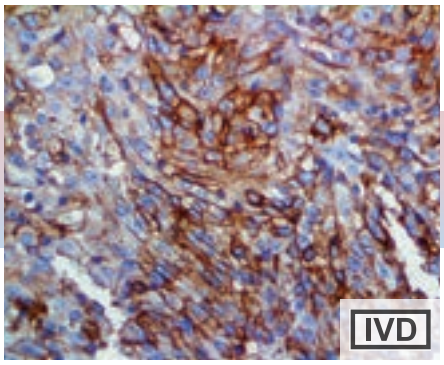
IHC of TFE3 on a FFPE Testicular Cancer Tissue

Transcription factor E3 is a protein that in humans is encoded by the TFE3 gene. TFE3, a member of the helix-loop-helix family of transcription factors, binds to the mu-E3 motif of the immunoglobulin heavy-chain enhancer and is expressed in many cell types. A proportion of renal cell carcinomas (RCC) that occur in young patients are associated with translocations involving the TFE3 gene, which results in gene fusions. Subsets of papillary renal cell carcinomas, a t(X;1)(p11;q21) chromosome translocation has been repeatedly reported and is thought to be the cause of this cancer. As a result of the translocation, the transcription factor TFE3 on the X chromosome becomes fused to this gene on chromosome 1. The fused gene results in the fusion of N-terminal proline-rich region of the protein encoded by this gene to the entire TFE3 protein.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP285*
ISOTYPE: *IgG*
CONTROL: *Testis, Adrenal, Kidney, Testicular Cancer, RCC with Xp11.2 translocation, Alveolar Soft Part Sarcoma & Soft Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3225	Tinto Predilute	3.0 ml
BSB 3226	Tinto Predilute	7.0 ml
BSB 3227	Tinto Predilute	15.0 ml
BSB 3228	Concentrate	0.1 ml
BSB 3229	Concentrate	0.5 ml
BSB 3230	Concentrate	1.0 ml
BSB 3231	Control Slides	5

Thrombomodulin/CD141, RMab



IHC of Thrombomodulin on a FFPE Mesothelioma Tissue

Thrombomodulin, also known as CD141, is an endothelial-specific type 1 membrane receptor that binds thrombin, resulting in the activation of protein C. This causes the degradation of clotting factors Va and VIIIa and reduces the amount of thrombin generated. Defect in Thrombomodulin is a cause of thromboembolic disease, also known as inherited thrombophilia.

Thrombomodulin was initially identified in endothelial cells, but is also found in extra-vascular sites, such as synctiotrophoblasts in the placenta, epithelial tissues in the gingiva, in skin and in the synovial lining cells. In tumors, Thrombomodulin is expressed in vascular tumors and squamous cell carcinoma in a variety of tissues, including oral mucosa, esophagus, and skin. Thrombodulin is a useful marker for detecting angiosarcoma, and can also be used to distinguish between mesothelioma (positive) from lung adenocarcinoma (negative).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP175*
ISOTYPE: *IgG*
CONTROL: *Placenta, Liver, Kidney, Tonsil, Cervix, Bladder, Mesothelioma, Transitional Cell Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2279	Tinto Predilute	3.0 ml
BSB 2280	Tinto Predilute	7.0 ml
BSB 2281	Tinto Predilute	15.0 ml
BSB 2282	Concentrate	0.1 ml
BSB 2283	Concentrate	0.5 ml
BSB 2284	Concentrate	1.0 ml
BSB 2285	Control Slides	5

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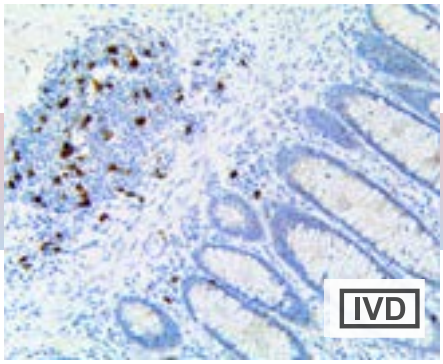
Thymidylate synthase/TS, MMab



IHC of Thymidylate synthase/TS on a FFPE Colon Tissue

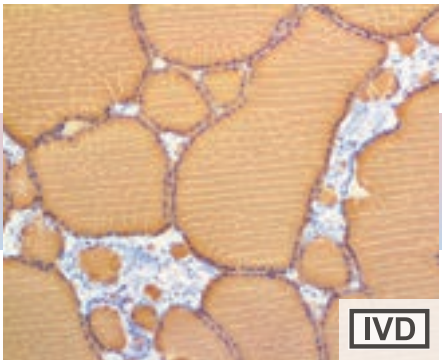
Thymidylate synthase (TS) catalyzes the methylation of deoxyuridine monophosphate to deoxythymidine monophosphate using 5, 10-methylenetetrahydrofolate as a cofactor. This enzyme is critical for DNA repair and replication. TS inhibitors like 5-fluorouracil have been successful in down-regulating tumor progression and increasing immune responses in pancreatic, breast, gastric, ovarian, lung, and head & neck cancer.

A study reported TS protein expression (PE) and gene copy number (GCN) were assayed using IHC and silver in situ hybridization (SISH), respectively, on primary tumors of resected non-small cell lung (NSCLC) patients and concluded that TS PE and GCN vary widely in NSCLC and correlate significantly to each other. TS GCN is higher in SCCs, whereas TS PE does not associate with histological subtypes, clinical features or survival. Variability of TS PE and GCN may indicate potential benefit from pemetrexed therapy in selected SCC patients. A number of studies have investigated the relationship between thymidylate synthase (TS) expression and survival in colorectal cancer (CRC) patients. Most have reported poorer overall and progression-free survival with high TS expression. Another study suggests that immunostaining for TS and p53 protein is useful for pretreatment selection of gastric cancer patients unresponsive to S-1/cisplatin chemotherapy.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-160*
ISOTYPE: *IgG2a*
CONTROL: *Bone Marrow, Colon, Tonsil, Testis, T Cell Lymphoblastic Lymphoma, Ductal Breast Carcinoma*
LOCALIZATION: *Nuclear, Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3750-3	Tinto Predilute	3.0 ml
BSB-3750-7	Tinto Predilute	7.0 ml
BSB-3750-15	Tinto Predilute	15.0 ml
BSB-3750-01	Concentrate	0.1 ml
BSB-3750-05	Concentrate	0.5 ml
BSB-3750-1	Concentrate	1.0 ml
BSB-3750-CS	Control Slides	5

Thyroglobulin, MMab



IHC of Thyroglobulin on a FFPE Thyroid Tissue

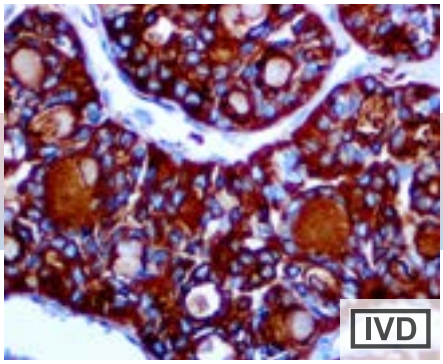
Thyroglobulin (Tg) is a 660 kDa, dimeric protein produced by and used entirely within the thyroid gland. Tg is used by the thyroid gland to produce the thyroid hormones thyroxine (T4) and triiodothyronine (T3). The active form of thyroxine, triiodothyronine, is produced both within the thyroid gland and on the periphery by 5'-deiodinase, which has been referred to as Tetraiodothyronine-5-deiodinase.

This antibody reacts with human thyroglobulin as demonstrated by a single band of immunoblotting in a lysate of human thyroid tissue. The vast majority of follicular carcinomas of the thyroid will give positive immunoreactivity for thyroglobulin, sometimes only focally. Poorly-differentiated Carcinomas of the Thyroid are frequently thyroglobulin negative. Adenocarcinomas of non-thyroid origin do not react with this antibody.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-49*
ISOTYPE: *IgG1*
CONTROL: *Thyroid, Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5973	Tinto Predilute	3.0 ml
BSB 5974	Tinto Predilute	7.0 ml
BSB 5975	Tinto Predilute	15.0 ml
BSB 5976	Concentrate	0.1 ml
BSB 5977	Concentrate	0.5 ml
BSB 5978	Concentrate	1.0 ml
BSB 5979	Control Slides	5

Thyroglobulin, MMab



IHC of Thyroglobulin on a FFPE Papillary Thyroid Carcinoma Tissue

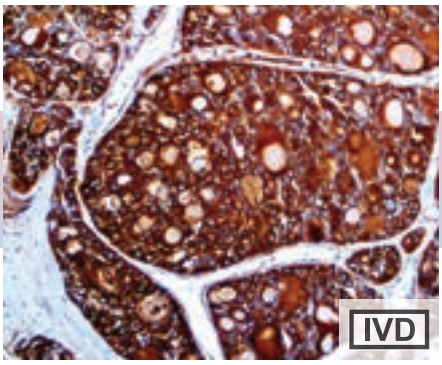
Thyroglobulin (Tg) is a 660 kDa, dimeric protein produced by and used entirely within the thyroid gland. Tg is used by the thyroid gland to produce the thyroid hormones thyroxine (T4) and triiodothyronine (T3). The active form of thyroxine, triiodothyronine, is produced both within the thyroid gland and on the periphery by 5'-deiodinase, which has been referred to as Tetraiodothyronine-5-deiodinase.

This antibody reacts with human thyroglobulin as demonstrated by a single band of immunoblotting in a lysate of human thyroid tissue. The vast majority of follicular carcinomas of the thyroid will give positive immunoreactivity for thyroglobulin, sometimes only focally. Poorly-differentiated Carcinomas of the Thyroid are frequently thyroglobulin negative. Adenocarcinomas of non-thyroid origin do not react with this antibody.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *2H11/6E1*
ISOTYPE: *IgG1&IgG1*
CONTROL: *Thyroid, Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2761	Tinto Predilute	3.0 ml
BSB 2762	Tinto Predilute	7.0 ml
BSB 2763	Tinto Predilute	15.0 ml
BSB 2764	Concentrate	0.1 ml
BSB 2765	Concentrate	0.5 ml
BSB 2766	Concentrate	1.0 ml
BSB 2767	Control Slides	5

Thyroglobulin, RMab



IHC of Thyroglobulin on a FFPE Papillary Thyroid Carcinoma Tissue

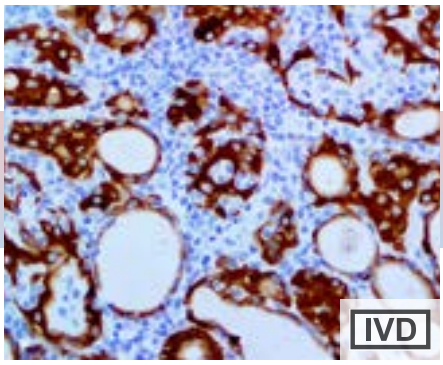
Thyroglobulin (Tg) is a 660 kDa, dimeric protein produced by and used entirely within the thyroid gland. Tg is used by the thyroid gland to produce the thyroid hormones thyroxine (T4) and triiodothyronine (T3). The active form of thyroxine, triiodothyronine, is produced both within the thyroid gland and on the periphery by 5'-deiodinase, which has been referred to as Tetraiodothyronine-5-deiodinase.

This antibody reacts with human thyroglobulin as demonstrated by a single band of immunoblotting in a lysate of human thyroid tissue. The vast majority of follicular carcinomas of the thyroid will give positive immunoreactivity for thyroglobulin, sometimes only focally. Poorly-differentiated Carcinomas of the Thyroid are frequently thyroglobulin negative. Adenocarcinomas of non-thyroid origin do not react with this antibody.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP250*
ISOTYPE: *IgG*
CONTROL: *Thyroid, Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2363	Tinto Predilute	3.0 ml
BSB 2364	Tinto Predilute	7.0 ml
BSB 2365	Tinto Predilute	15.0 ml
BSB 2366	Concentrate	0.1 ml
BSB 2367	Concentrate	0.5 ml
BSB 2368	Concentrate	1.0 ml
BSB 2369	Control Slides	5

Thyroid Peroxidase, RMab



IHC of Thyroid Peroxidase on a FFPE Thyroid Adenoma Tissue

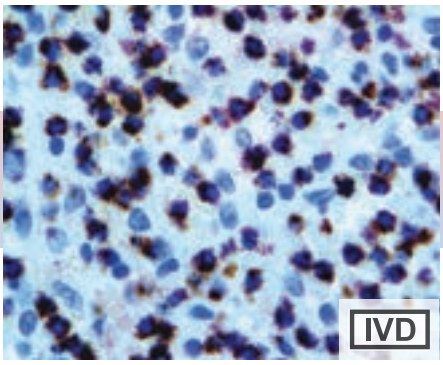
Thyroid Peroxidase (TPO) is an enzyme expressed mainly in the thyroid where it is secreted into colloid. Thyroid peroxidase oxidizes iodide ions to form iodine atoms for addition onto tyrosine residues on thyroglobulin for the production of thyroxine (T4) or triiodothyronine (T3), the thyroid hormones. In humans, thyroperoxidase is encoded by the TPO gene. The TPO gene consists of 17 exons, and is located on the short arm of chromosome 2.

Thyroid Peroxidase gene expression is under the regulation of thyroid stimulating hormone. In normal thyroid, expression of TPO described immunohistochemically is reported to produce a diffuse, fine, granular cytoplasmic stain in all follicular cells. TPO labels normal thyroid epithelial cells and thyroid tumor cells.The expression level in thyroid carcinomas is lower than that of normal and benign thyroid tumors. Decreased TPO immunoreactivity is an early event in follicular tumorigenesis, taking place before development of invasiveness in parallel with an acceleration of cell growth and appearance of cell atypia.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP159*
ISOTYPE: *IgG*
CONTROL: *Thyroid, Thyroid Carcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2615	Tinto Predilute	3.0 ml
BSB 2616	Tinto Predilute	7.0 ml
BSB 2617	Tinto Predilute	15.0 ml
BSB 2618	Concentrate	0.1 ml
BSB 2619	Concentrate	0.5 ml
BSB 2620	Concentrate	1.0 ml
BSB 2621	Control Slides	5

TIA-1, MMab



IHC of TIA-1 on a FFPE Spleen Tissue

TIA-1 (T-cell intracytoplasmic antigen) is a 15 kDa cytoplasmic granule-associated protein, expressed in lymphocytes processing cytolytic potential. TIA-1 is a member of an RNA-binding protein family and possesses nucleolytic activity against cytotoxic lymphocyte (CTL) target cells. It has been suggested that this protein may be involved in the induction of apoptosis as it preferentially recognizes poly(A) homopolymers and induces DNA fragmentation in CTL targets. The major granule-associated species is a 15 kDa protein thought to be derived from the carboxyl terminus of the 40 kDa product by proteolytic processing.

The expression of TIA-1 has been studied in Anaplastic Large Cell Lymphomas (ALCL), NK-cell Lymphomas, Peripheral T-cell Lymphomas, T-cell Lymphocytosis, B-cell Lymphomas and Lymphoblastic Leukemia, Hodgkin's, etc. Studies show that 60 to 70% of Anaplastic Large Cell Lymphomas react with TIA-1. TIA-1 reacts with most Large Granular Lymphocytic Leukemias, Hepatosplenic T-cell Lymphomas, intestinal T-cell Lymphomas, NK-like T-cell Lymphomas, NK-cell Lymphomas, nasal T/NK-cell Lymphomas, subcutaneous T-cell Lymphomas and Pulmonary Angiocentric Lymphomas of T- or NK-phenotype. All B-cell Lymphomas, Hodgkin's and Lymphoblastic Leukemias are negative for TIA-1.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *TIA-1*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Spleen, Anaplastic Large Cell Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6352	Tinto Predilute	3.0 ml
BSB 6353	Tinto Predilute	7.0 ml
BSB 6354	Tinto Predilute	15.0 ml
BSB 6355	Concentrate	0.1 ml
BSB 6356	Concentrate	0.5 ml
BSB 6357	Concentrate	1.0 ml
BSB 6358	Control Slides	5

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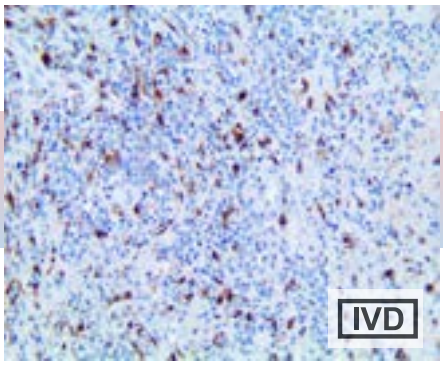
TIA-1, RMab



IHC of TIA-1 on a FFPE CLL/SLL Lymphoma Tissue

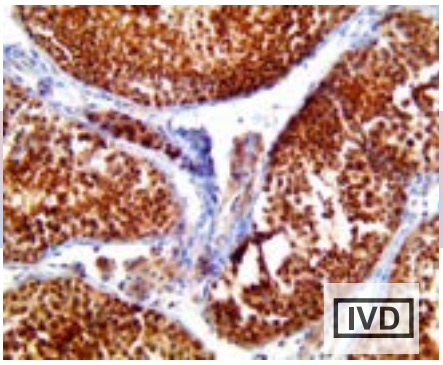
TIA-1 (T-cell intracytoplasmic antigen) is a 15 kDa cytoplasmic granule-associated protein, expressed in lymphocytes processing cytolytic potential. TIA-1 is a member of an RNA-binding protein family and possesses nucleolytic activity against cytotoxic lymphocyte (CTL) target cells. It has been suggested that this protein may be involved in the induction of apoptosis as it preferentially recognizes poly(A) homopolymers and induces DNA fragmentation in CTL targets. The major granule-associated species is a 15 kDa protein thought to be derived from the carboxyl terminus of the 40 kDa product by proteolytic processing.

The expression of TIA-1 has been studied in anaplastic large cell lymphomas (ALCL), NK-cell lymphomas, peripheral T-cell lymphomas, T-cell lymphocytosis, B-cell lymphomas and lymphoblastic leukemia, and Hodgkin's lymphoma, etc. Studies show that 60 to 70% of anaplastic large cell lymphomas react with TIA-1. TIA-1 also reacts with most large granular lymphocytic leukemias, hepatosplenic T-cell lymphomas, intestinal T-cell lymphomas, NK-like T-cell lymphomas, NK-cell lymphomas, nasal T/NK-cell lymphomas, subcutaneous T-cell lymphomas and pulmonary angiocentric lymphomas of T-or NK-phenotype. All B-cell lymphomas, Hodgkin's and lymphoblastic leukemias are negative for TIA-1.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-TIA1*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Anaplastic Large Cell Lymphoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3782-3	Tinto Predilute	3.0 ml
BSB-3782-7	Tinto Predilute	7.0 ml
BSB-3782-15	Tinto Predilute	15.0 ml
BSB-3782-01	Concentrate	0.1 ml
BSB-3782-05	Concentrate	0.5 ml
BSB-3782-1	Concentrate	1.0 ml
BSB-3782-CS	Control Slides	5

TIGIT, MMab



IHC of TIGIT on a FFPE Testis Tissue

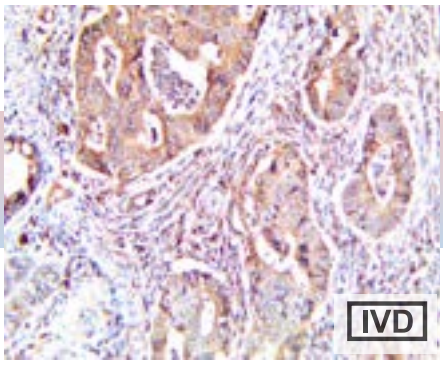
TIGIT (T cell immunoreceptor with Ig and ITIM domains) is an immune receptor present on some T cells and Natural Killer Cells (NK). It is also identified as WUCAM and Vstm3. TIGIT could bind to CD155 (PVR) on dendritic cells (DCs), macrophages, and other immune cells with high affinity, and also to CD112 (PVRL2) with lower affinity. Research has shown that TIGIT-Fc fusion protein could interact with PVR on dendritic cells and increase its IL-10 secretion level/decrease its IL-12 secretion level under LPS stimulation, and also inhibit T cell activation in vivo. TIGIT's inhibition of NK cytotoxicity can be blocked by antibodies against its interaction with PVR, and the activity is directed through its ITIM domain.

TIGIT is expressed on regulatory T cells (Tregs) and on activated CD4+ T, CD8+ T, and NK cells. TIGIT and PD-1 has been shown to be over-expressed on tumor antigen-specific (TA-specific) CD8+ T cells and CD8+ tumor infiltrating lymphocytes (TILs) from individuals with melanoma. Blockade of TIGIT and PD-1 led to increased cell proliferation, cytokine production, and degranulation of TA-specific CD8+ T cells and TIL CD8+ T cells, therefore it can be considered an immune checkpoint. Co-blockade of TIGIT and PD-1 pathways elicits tumor rejection in preclinical murine models.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *BSB-152*
ISOTYPE: *IgG2b*
CONTROL: *Testis, Cervix, Fallopian Tube, Skin, Prostate, Transitional Cell Carcinoma, Papillary Thyroid Carcinoma, Lung Adenocarcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3751-3	Tinto Predilute	3.0 ml
BSB-3751-7	Tinto Predilute	7.0 ml
BSB-3751-15	Tinto Predilute	15.0 ml
BSB-3751-01	Concentrate	0.1 ml
BSB-3751-05	Concentrate	0.5 ml
BSB-3751-1	Concentrate	1.0 ml
BSB-3751-CS	Control Slides	5

TIM-3/HAVCR2/CD366, MMab



IHC of TIM-3/HAVCR2/CD366 on a FFPE Colon Adenocarcinoma Tissue

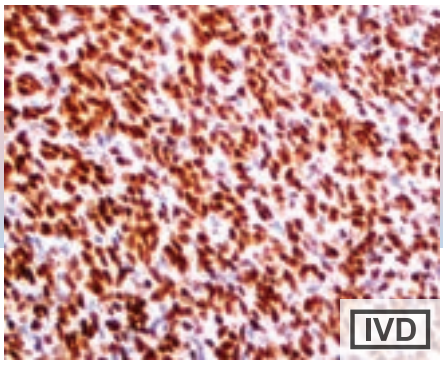
T-cell Immunoglobulin and Mucin-domain Containing-3 (TIM-3), also known as Hepatitis A virus cellular receptor 2 (HAVCR2), is a protein that in humans is encoded by the HAVCR2 gene. TIM-3 is an immune checkpoint and together with other inhibitory receptors including programmed cell death protein 1 (PD-1) and lymphocyte activation gene 3 protein (LAG3) mediate CD8+ T-cell exhaustion. TIM-3 expression is up-regulated in tumor-infiltrating lymphocytes in Lung, Gastric, Head & Neck Cancers, Schwannoma, Melanoma and Follicular B-cell Non-Hodgkin Lymphoma. The TIM-3 pathway may interact with the PD-1 pathway in the dysfunctional CD8+ T cells and Tregs in cancer. TIM-3 is mainly expressed on activated CD8+ T cells and suppresses macrophage activation following PD-1 inhibition.

Upregulation has been observed in tumors progressing after anti-PD-1 therapy. It has been reported that early breast cancer patients with TIM-3+ iTILs have significantly improved breast cancer-specific survival whereas TIM-3+ sTILs did not reach statistical significance and it was concluded that the presence of TIM-3+ iTILs is an independent favorable prognostic factor in the whole cohort as well as among ER negative patients. In myelogenous leukemia (AML), upregulated TIM-3 during AML could reduce cytokine production. Co-expression of PD-1 and TIM-3 was correlated with AML progression. In glioma patients, TIM-3 was correlated with cancer immune escape and might be a potent target.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-163*
ISOTYPE: *IgG2c*
CONTROL: *Colon, Testis, Tonsil, Liver*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3752-3	Tinto Predilute	3.0 ml
BSB-3752-7	Tinto Predilute	7.0 ml
BSB-3752-15	Tinto Predilute	15.0 ml
BSB-3752-01	Concentrate	0.1 ml
BSB-3752-05	Concentrate	0.5 ml
BSB-3752-1	Concentrate	1.0 ml
BSB-3752-CS	Control Slides	5

TLE1, MMab



IHC of TLE1 on a FFPE Synovial Sarcoma Tissue

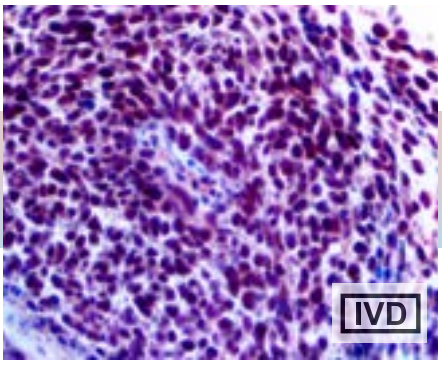
The Notch signaling pathway controls cellular interactions important for the specification of a variety of fates in both invertebrates and vertebrates. Key players in the Notch pathway are the TLE genes. TLEs associate with chromatin in live cells and specifically with Histone H3, but not with other core histones. Expression of the TLE genes, TLE1, TLE2, TLE3 and TLE4, correlate with immature epithelial cells that are progressing toward a terminally differentiated state, suggesting a role during epithelial differentation.

Anti-TLE1 can be used to differentiate synovial sarcoma from other sarcomas, including histologically similar tumors such as malignant peripheral nerve sheath tumor.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *IF5*
ISOTYPE: *IgG1/K*
CONTROL: *Synovial Sarcoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2314	Tinto Predilute	3.0 ml
BSB 2315	Tinto Predilute	7.0 ml
BSB 2316	Tinto Predilute	15.0 ml
BSB 2317	Concentrate	0.1 ml
BSB 2318	Concentrate	0.5 ml
BSB 2319	Concentrate	1.0 ml
BSB 2320	Control Slides	5

TLE1, MMab



IHC of TLE1 on FPPE Synovial Sarcoma Tissue

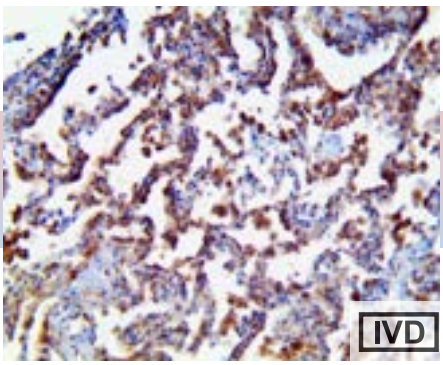
The Notch signaling pathway controls cellular interactions important for the specification of a variety of fates in both invertebrates and vertebrates. Key players in the Notch pathway are the TLE genes. TLEs associate with chromatin in live cells and specifically with Histone H3, but not with other core histones. Expression of the TLE genes, TLE1, TLE2, TLE3 and TLE4, correlate with immature epithelial cells that are progressing toward a terminally differentiated state, suggesting a role during epithelial differentiation.

Anti-TLE1 can be used to differentiate synovial sarcoma from other sarcomas, including histologically similar tumors such as malignant peripheral nerve sheath tumor.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-142*
ISOTYPE: *IgG2a*
CONTROL: *Synovial Sarcoma*
LOCALIZATION: *Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3784-3	Tinto Predilute	3.0 ml
BSB-3784-7	Tinto Predilute	7.0 ml
BSB-3784-15	Tinto Predilute	15.0 ml
BSB-3784-01	Concentrate	0.1 ml
BSB-3784-05	Concentrate	0.5 ml
BSB-3784-1	Concentrate	1.0 ml
BSB-3784-CS	Control Slides	5

TMPRSS2, MMab



IHC of TMPRSS2 on FPPE SARS-CoV-2 Infected Lung Tissue

Transmembrane Serine Protease 2 is part of the serine protease family, which is active in many physiological and pathological pathways. TMPRSS2 is a 492 amino acid protein, containing a type II transmembrane domain, a receptor class A domain, a scavenger receptor cysteine-rich domain, and a protease domain. It is upregulated by androgen hormones particularly in the prostate, where it may contribute to inflammation by activating PAR2 and prostate cancer through somatic rearrangement. TMPRSS2 is also expressed in the GI tract, stomach, kidney and in the lung epithelium, where it may cleave epithelial sodium channels. The TMPRSS2-ERG fusion pair is a common somatic gene rearrangement occurring in about 50% of primary prostate cancers.

TMPRSS2-ERG fusion-positive tumors may be at higher risk for metastasis and influence from hormones, with a different androgen metabolism and higher insulin signaling than negative tumors. The protease domain also proteolytically cleaves and activates viral envelope glycoproteins, facilitating the cellular entry of human influenza and coronaviruses such as SARS-CoV-2.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-136*
ISOTYPE: *IgG1*
CONTROL: *Testis, Colon, Kidney, Brain, Stomach, Pancreas, Prostate*
LOCALIZATION: *Nuclear, Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3703-3	Tinto Predilute	3.0 ml
BSB-3703-7	Tinto Predilute	7.0 ml
BSB-3703-15	Tinto Predilute	15.0 ml
BSB-3703-01	Concentrate	0.1 ml
BSB-3703-05	Concentrate	0.5 ml
BSB-3703-1	Concentrate	1.0 ml
BSB-3703-CS	Control Slides	5

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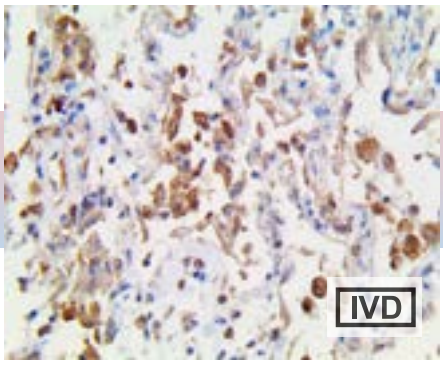
TNFa-IP2, MMab



IHC of TNFa-IP2 on FPPE SARS-CoV-2 infected Lung Tissue

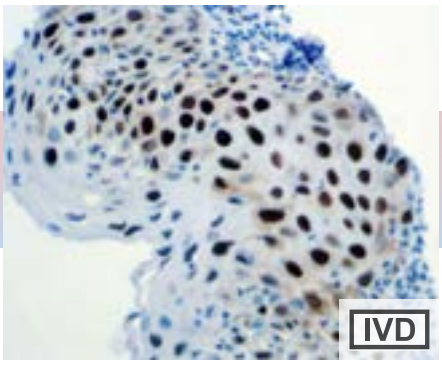
Tumor Necrosis Factor alpha Induced-Protein 2 (also known as B94) is a 73-kDa polypeptide involved in pathways of inflammation, metastasis, tumor vasculature, and angiogenesis. The protein has an exocyst complex, Dsl1 complex, conserved oligomeric Golgi (COG) complex and the Golgi-associated retrograde protein (GARP) complex.

TNFaIP2 is found in epithelial cells, and immune cells exposed to Tumor Necrosis Factor alpha (TNFa), IL-1beta, LPS, interferon-y, Retinoic Acid, Latent Membrane Protein 1 (LMP1), and other pro-inflammatory cytokines. TNFaIP can inhibit NFKB to further reduce inflammation in renal dysfunction and septic shock. and can interact with GTPases to regulate breast cancer and HeLa cell actin cytoskeleton and cell structure. TNFaIP2 also participates in T-cell migration as an inflammatory regulator of chemokine secretion, and promotes metastasis and microvessel formation in nasopharyngeal carcinoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-141*
ISOTYPE: *IgG1*
CONTROL: *Testis, Tonsil, Lung, Kidney*
LOCALIZATION: *Membranous, Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3708-3	Tinto Predilute	3.0 ml
BSB-3708-7	Tinto Predilute	7.0 ml
BSB-3708-15	Tinto Predilute	15.0 ml
BSB-3708-01	Concentrate	0.1 ml
BSB-3708-05	Concentrate	0.5 ml
BSB-3708-1	Concentrate	1.0 ml
BSB-3708-CS	Control Slides	5

Topoisomerase IIa, RMab



IHC of Topoisomerase II alpha on a FFPE HSIL of the Cervix Tissue

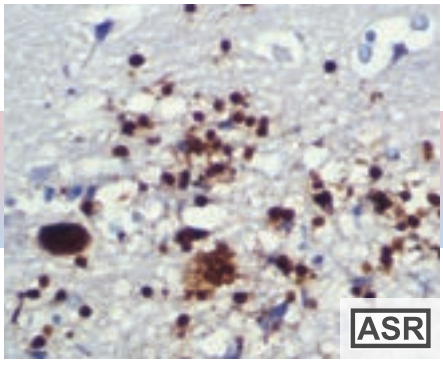
DNA Topoisomerase II alpha (Topo IIa) is a nucleic enzyme that affects the topological structure of DNA by interacting with the double-helix DNA, thus playing an important role in DNA replication, transcription, recombination, condensation, and segregation. Type II topoisomerases cut both strands of the DNA helix simultaneously in order to change the linking number of the molecule. Topo IIa is essential in the separation of daughter strands at the end of replication. Failure to separate these strands leads to cell death. In cancers, the Topo IIa is highly expressed in highly-proliferating cells.

Topo IIa has been identified by DNA microarray and transcriptional profiling as a gene that is overexpressed in Cervical Carcinomas. The TOP2A gene is approximately 30 kb in size and encodes a 170 kDa protein. Topo IIa protein is expressed in proliferating cells and in numerous human malignant tumors, including colon, gastric and breast cancers, Lymphomas and others. In certain cancers, such as Peripheral Nerve Sheath Tumors, high expression of this protein is also associated with poor patient survival. Type II topoisomerases are the targets for anticancer drugs, such as topoisomerase II inhibitor therapies like the anthracyclines (Doxorubicin and Epirubicin).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-topo 2a*
ISOTYPE: *IgG*
CONTROL: *Testis, Skin, Colon, Fallopian Tube, Tonsil, Lymph Node, Spleen, HSIL Cervical Cancer, Breast Cancer, Bladder TCC*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6338	Tinto Predilute	3.0 ml
BSB 6339	Tinto Predilute	7.0 ml
BSB 6340	Tinto Predilute	15.0 ml
BSB 6341	Concentrate	0.1 ml
BSB 6342	Concentrate	0.5 ml
BSB 6343	Concentrate	1.0 ml
BSB 6344	Control Slides	5

Toxoplasma gondii, RPab



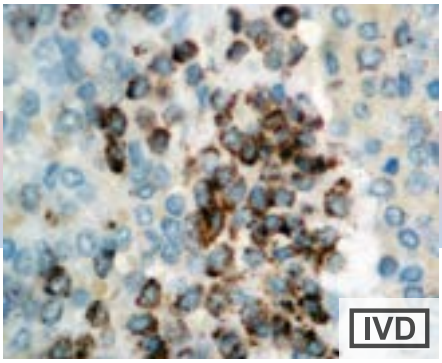
IHC of Toxoplasma gondii on a FFPE Brain Tissue

Toxoplasma gondii is a genus of parasitic protozoa (cats being the definitive host). It can also be carried by the vast majority of warm-blooded animals, including humans. Toxoplasma gondii belongs to the phylum Apicomplexa and is the only known member species of the genus Toxoplasma. The life cycle of T. gondii has two phases. The sexual part of the life cycle (coccidia-like) occurs only in members of the Felidae family (domestic and wild cats), which makes these animals the parasite's primary host. The asexual part of the life cycle can occur in any warm-blooded animal, such as other mammals (including felines) and birds.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Toxoplasma gondii Infected Tissue*
LOCALIZATION: *Cell Wall*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6043	Tinto Predilute	3.0 ml
BSB 6044	Tinto Predilute	7.0 ml
BSB 6045	Tinto Predilute	15.0 ml
BSB 6046	Concentrate	0.1 ml
BSB 6047	Concentrate	0.5 ml
BSB 6048	Concentrate	1.0 ml
BSB 6049	Control Slides	5

TRAcP, MMab



IHC of TRAcP on a FFPE Hairy Cell Leukemia Tissue

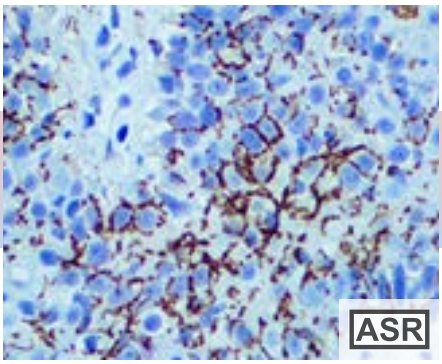
Tartrate-resistant acid phosphatase (TRAcP) is a glycosylated monomeric metallo-enzyme expressed in mammals. It has a molecular weight of approximately 35 kDa, a basic isoelectric point (7.6 - 9.5), and optimal activity in acidic conditions. TRAcP is synthesized as a latent proenzyme and is activated by proteolytic cleavage and reduction. Normally, TRAcP is highly expressed by osteoclasts, activated macrophages, neurons and endometrium during pregnancy. There are also certain pathological conditions whereby expression of TRAcP is increased. These include patients with Leukemic Reticuloendotheliosis (Hairy Cell Leukemia), Gaucher's Disease, HIV-induced Encephalopathy, Osteoclastoma and in osteoporosis and metabolic bone diseases.

Anti-TRAcP antibody labels the cells of Hairy Cell Leukemia (HCL) with a high degree of sensitivity and specificity. Other cells stained with this antibody are tissue macrophages and osteoclasts, which also express abundant TRAcP activity.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *9C5*
ISOTYPE: *IgG2b*
CONTROL: *Tonsil, Spleen, Lymph Node, Hairy cell Leukemia*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5980	Tinto Predilute	3.0 ml
BSB 5981	Tinto Predilute	7.0 ml
BSB 5982	Tinto Predilute	15.0 ml
BSB 5983	Concentrate	0.1 ml
BSB 5984	Concentrate	0.5 ml
BSB 5985	Concentrate	1.0 ml
BSB 5986	Control Slides	5

Treponema Pallidum, RPab



IHC of Treponema Pallidum on a FFPE Infected Skin Tissue

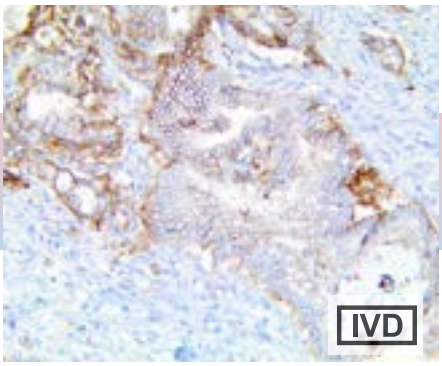
reponema pallidum is a spirochaete bacterium. The treponemes have a cytoplasmic and an outer membrane. The shape of T. pallidum is flat and wavy, unlike the other spirochetes, which are helical. Using light microscopy, treponemes are only visible using dark field illumination. They are Gram negative, but some regard them too thin to be Gram stained. T. pallidum is a motile spirochaete that is generally acquired by close sexual contact, entering the host via breaches in squamous or columnar epithelium. The organism can also be transmitted to a fetus by transplacental passage during the later stages of pregnancy, giving rise to congenital syphilis. The helical structure of T. pallidum allows it to move in a corkscrew motion through a viscous medium such as mucus. It gains access to the host's blood and lymph systems through tissue and mucous membranes.

Detection of Treponema pallidum can be difficult, and the correct diagnosis of secondary syphilis is critical. Diagnosis of syphilis is usually based on clinical presentation, dark-field microscope analysis, and serological tests. T. pallidum can be also evidenced by Immunohistochemistry in up to 90% of the samples with the bacteria located in the epidermis and the upper dermis of formalin-fixed paraffin-embedded tissues.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Treponema Pallidum Infected Tissue*
LOCALIZATION: *Cell Wall*
SPECIES REACTIVITY: *Eubacteria*

CAT. #	PRESENTATION	VOL/QTY
BSB 3232	Tinto Predilute	3.0 ml
BSB 3233	Tinto Predilute	7.0 ml
BSB 3234	Tinto Predilute	15.0 ml
BSB 3235	Concentrate	0.1 ml
BSB 3236	Concentrate	0.5 ml
BSB 3237	Concentrate	1.0 ml
BSB 3238	Control Slides	5

TROP-2/EGP-1, MMab



IHC of TROP-2/EGP-1 on FPPE Pancreatic Adenocarcinoma Tissue

Trop-2 or Tumor-associated calcium signal transducer 2, also known as epithelial glycoprotein-1 antigen (EGP-1), is a protein that in humans is encoded by the TACSTD2 gene. This transmembrane glycoprotein functions in a variety of cell signaling pathways and was first elucidated as a transducer of an intracellular calcium signal. Trop-2 expression has been demonstrated to depend on a large variety of transcription factors. Trop-2 is involved in several cell signaling pathways, of which many are associated with tumorigenesis.

In Thyroid Cancer cell invasion, Trop-2 signal transduction has been seen as a downstream effect of the ERK and JNK pathways, where its signaling enhances stem cell-like properties of cancer cells, as Trop-2 regulates proliferation and self-renewal through beta-catenin signaling. In a study, the majority of Papillary Thyroid Carcinoma (PTC) specimens were positive for Trop-2; however, the pattern of staining differed significantly between the histopathological variants. All Papillary microcarcinomas (mPTC), PTC classic variant (PTC cv), and tall cell variants (PTC tcv) were Trop-2 positive, with mainly diffuse staining. In contrast, less than half of the PTC follicular variant specimens were positive for Trop-2, with only focal immunoreactivity. Trop-2 may play a role in tumor progression given the involvement in several molecular pathways traditionally associated with cancer development.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-148*
ISOTYPE: *IgG1*
CONTROL: *Breast, Prostate, Skin, Transitional Cell Carcinoma, Papillary Thyroid Carcinoma, Pancreatic Carcinoma*
LOCALIZATION: *Membranous*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3754-3	Tinto Predilute	3.0 ml
BSB-3754-7	Tinto Predilute	7.0 ml
BSB-3754-15	Tinto Predilute	15.0 ml
BSB-3754-01	Concentrate	0.1 ml
BSB-3754-05	Concentrate	0.5 ml
BSB-3754-1	Concentrate	1.0 ml
BSB-3754-CS	Control Slides	5

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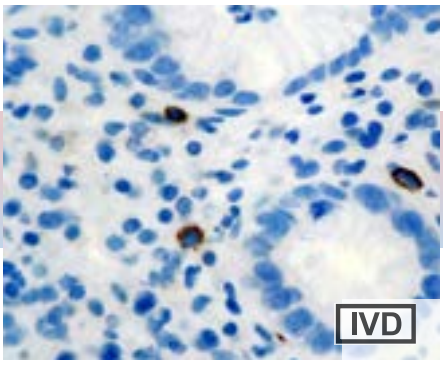
Tryptase, MMab



IHC of Tryptase on a FFPE H. pylori Infected Stomach Tissue

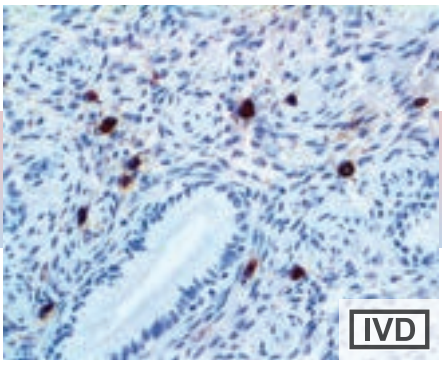
Tryptase is the most abundant secretory granule-derived serine proteinase contained in mast cells and has recently been used as a marker for mast cell activation. It is involved in allergenic response and is suspected to act as a mitogen for fibroblast lines. Elevated levels of serum tryptase occur in both anaphylactic and anaphylactoid reactions, but a negative test does not exclude anaphylaxis. Mast cells contain a number of preformed chemical mediators such as histamine, chymase, carboxypeptidase and proteolytic tryptase.

Human mast cell tryptase is considered to be an important marker of mast cell activation as well as an important mediator of inflammation. Anti-tryptase is a good marker for mast cells, basophils, and their derivatives.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *G3*
ISOTYPE: *IgG1*
CONTROL: *Liver, Kidney, Tonsil, Uterus Cervix, Skin, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5987	Tinto Predilute	3.0 ml
BSB 5988	Tinto Predilute	7.0 ml
BSB 5989	Tinto Predilute	15.0 ml
BSB 5990	Concentrate	0.1 ml
BSB 5991	Concentrate	0.5 ml
BSB 5992	Concentrate	1.0 ml
BSB 5993	Control Slides	5

Tryptase, RMab



IHC of Tryptase on a FFPE Uterus Tissue

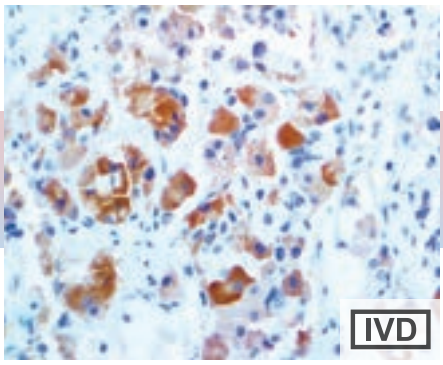
Tryptase is the most abundant secretory granule-derived serine proteinase contained in mast cells and has recently been used as a marker for mast cell activation. It is involved in allergenic response and is suspected to act as a mitogen for fibroblast lines. Elevated levels of serum tryptase occur in both anaphylactic and anaphylactoid reactions, but a negative test does not exclude anaphylaxis. Mast cells contain a number of preformed chemical mediators such as histamine, chymase, carboxypeptidase and proteolytic tryptase.

Human mast cell tryptase is considered to be an important marker of mast cell activation as well as an important mediator of inflammation. Anti-tryptase is a good marker for mast cells, basophils, and their derivatives.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP259*
ISOTYPE: *IgG*
CONTROL: *Liver, Kidney, Tonsil, Uterus, Cervix, Skin, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2377	Tinto Predilute	3.0 ml
BSB 2378	Tinto Predilute	7.0 ml
BSB 2379	Tinto Predilute	15.0 ml
BSB 2380	Concentrate	0.1 ml
BSB 2381	Concentrate	0.5 ml
BSB 2382	Concentrate	1.0 ml
BSB 2383	Control Slides	5

TSH, MMab



IHC of TSH on a FFPE Pituitary Tissue

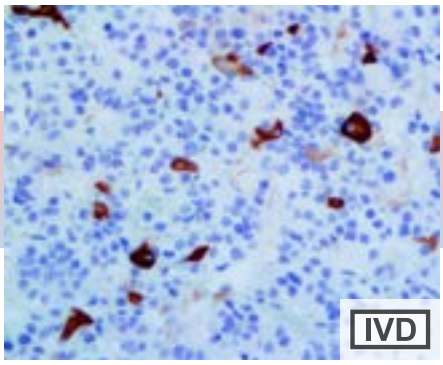
Thyroid-stimulating hormone (TSH or thyrotropin) is a hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland which regulates the endocrine function of the thyroid gland. TSH stimulates the thyroid gland to secrete the hormones thyroxine (T4) and triiodothyronine (T3). TSH production is controlled by a Thyrotropin-Releasing Hormone (TRH), which is manufactured in the hypothalamus and transported to the pituitary gland, where it increases TSH production and release. Somatostatin is also produced by the hypothalamus and has an opposite effect on the pituitary production of TSH, decreasing or inhibiting its release.

TSH is a useful marker in classification of pituitary tumors and the study of pituitary disease. TSH antibody primarily reacts with TSH-producing cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-56*
ISOTYPE: *IgG1/K*
CONTROL: *Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5994	Tinto Predilute	3.0 ml
BSB 5995	Tinto Predilute	7.0 ml
BSB 5996	Tinto Predilute	15.0 ml
BSB 5997	Concentrate	0.1 ml
BSB 5998	Concentrate	0.5 ml
BSB 5999	Concentrate	1.0 ml
BSB 6000	Control Slides	5

TSH, RMab



IHC of TSH on a FFPE Pituitary Tissue

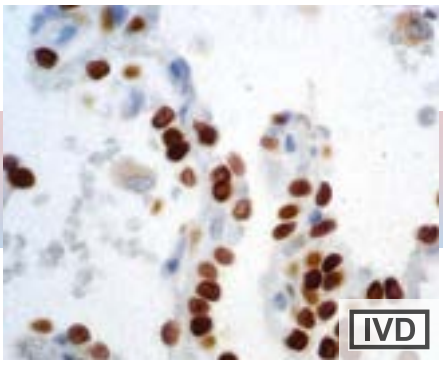
Thyroid-stimulating hormone (TSH or thyrotropin) is a hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland which regulates the endocrine function of the thyroid gland. TSH stimulates the thyroid gland to secrete the hormones thyroxine (T4) and triiodothyronine (T3). TSH production is controlled by a Thyrotropin-Releasing Hormone (TRH), which is manufactured in the hypothalamus and transported to the pituitary gland, where it increases TSH production and release. Somatostatin is also produced by the hypothalamus and has an opposite effect on the pituitary production of TSH, decreasing or inhibiting its release.

TSH is a useful marker in classification of pituitary tumors and the study of pituitary disease. TSH antibody primarily reacts with TSH-producing cells.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP254*
ISOTYPE: *IgG*
CONTROL: *Pituitary*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, predicted Rabbit*

CAT. #	PRESENTATION	VOL/QTY
BSB 2622	Tinto Predilute	3.0 ml
BSB 2623	Tinto Predilute	7.0 ml
BSB 2624	Tinto Predilute	15.0 ml
BSB 2625	Concentrate	0.1 ml
BSB 2626	Concentrate	0.5 ml
BSB 2627	Concentrate	1.0 ml
BSB 2628	Control Slides	5

TTF-1, MMab



IHC of TTF-1 on a FFPE Lung Tissue

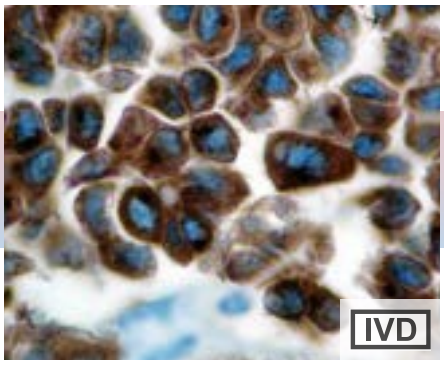
Thyroid transcription factor-1 (TTF-1) is a protein that regulates transcription of genes specific to the thyroid, lung and diencephalon. It is also known as thyroid-specific enhancer binding protein and NKX-2. It is used as a marker to determine if a tumor oringinates in the lung or thyroid. TTF-1 positive cells are found in Type II pneumocytes and Clara cells in the lung. In the thyroid, follicular and parafollicular cells are positive.

TTF-1 is useful in differentiating primary Adenocarcinoma of the Lung from Metastatic Carcinomas of the breast and Malignant Mesothelioma. It can also be used to differentiate Small-Cell Lung Carcinoma from lymphoid infiltrates. For lung cancers, Adenocarcinomas are usually positive, while Squamous Cell Carcinomas and Large Cell Carcinomas are rarely positive. Small-Cell Carcinomas (of any primary site) are usually positive.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *8G7G3/1*
ISOTYPE: *IgG1*
CONTROL: *Lung, Thyroid, Adenocarcinoma of Lung*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB 6001	Tinto Predilute	3.0 ml
BSB 6002	Tinto Predilute	7.0 ml
BSB 6003	Tinto Predilute	15.0 ml
BSB 6004	Concentrate	0.1 ml
BSB 6005	Concentrate	0.5 ml
BSB 6006	Concentrate	1.0 ml
BSB 6007	Control Slides	5

Tyrosinase, MMab



IHC of Tyrosinase on a FFPE Malignant Melanoma Tissue

Tyrosinase is an enzyme that catalyzes the oxidation of phenols (such as tyrosine) and is widespread in plants and animals. Tyrosinase is a copper-containing enzyme present in plant and animal tissues that catalyzes the production of melanin and other pigments from tyrosine by oxidation. The gene for Tyrosinase is regulated by the Microphthalmia-associated transcription factor. A mutation in the tyrosinase gene leads to impaired tyrosinase production resulting in Type I Oculocutaneous Albinism, a hereditary disease that affects 1 in 17,000 people in the U.S.

Anti-Tyrosinase has been found to be quite specific for melanotic lesions such as Malignant Melanoma and Melanotic Neurofibroma. Essentially no carcinomas express this marker.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-6*
ISOTYPE: *IgG2a*
CONTROL: *Skin, Malignant, Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6008	Tinto Predilute	3.0 ml
BSB 6009	Tinto Predilute	7.0 ml
BSB 6010	Tinto Predilute	15.0 ml
BSB 6011	Concentrate	0.1 ml
BSB 6012	Concentrate	0.5 ml
BSB 6013	Concentrate	1.0 ml
BSB 6014	Control Slides	5

Bio SB
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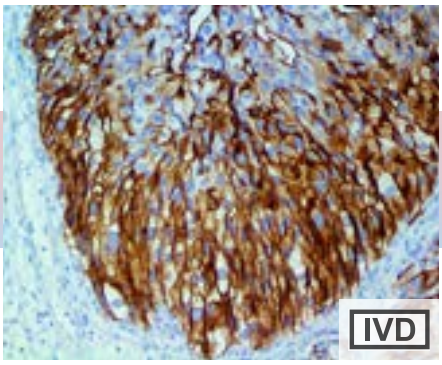
Uroplakin III, RPab



IHC of Uroplakin III on a FFPE Transitional Cell Carcinoma Tissue

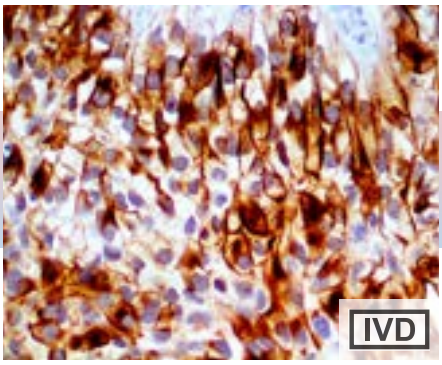
Uroplakins (UPs) are a family of transmembrane proteins (UPs Ia, Ib, II and III) that are specific differentation products of urothelial cells. In non-neoplastic mammalian urothelium, UPs are expressed in the luminal surface plasmalemma of superficial (umbrella) cells, forming complexes of 16-nm crystalline particles. Uroplakin III is expressed in urothelial carcinomas, whereas many non urothelial carcinomas were UPIII-negative. Recent studies have shown that UP expression might reflect the malignant potential of urothelial cancer cells as well as being cytodifferential markers of urothelial cells.

UPIII expression is strongly associated with lower tumor grades and lack of UPIII expression in urothelial tumors of the upper urinary tract is associated with much higher rates of metastases. Five-year specific survival is much worse for UPIII negative tumors (54%) than for UPIII positive tumors (100%). Apparently UPIII expression is a better indicator fo the malignant potential of the tumor than the grade of the tumor.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Bladder, Bladder Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2286	Tinto Predilute	3.0 ml
BSB 2287	Tinto Predilute	7.0 ml
BSB 2288	Tinto Predilute	15.0 ml
BSB 2289	Concentrate	0.1 ml
BSB 2290	Concentrate	0.5 ml
BSB 2291	Concentrate	1.0 ml
BSB 2292	Control Slides	5

Uroplakin III, RMab



IHC of Uroplakin III on a FFPE Bladder TCC Tissue

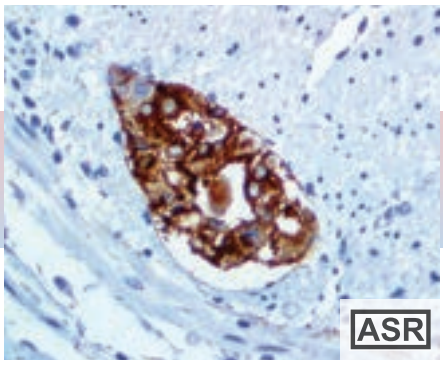
Uroplakins (UPs) are a family of transmembrane proteins (UPs Ia, Ib, II and III) that are specific differentation products of urothelial cells. In non-neoplastic mammalian urothelium, UPs are expressed in the luminal surface plasmalemma of superficial (umbrella) cells, forming complexes of 16-nm crystalline particles. Uroplakin III is expressed in urothelial carcinomas, whereas many non urothelial carcinomas were UPIII-negative. Recent studies have shown that UP expression might reflect the malignant potential of urothelial cancer cells as well as being cytodifferential markers of urothelial cells.

UPIII expression is strongly associated with lower tumor grades and lack of UPIII expression in urothelial tumors of the upper urinary tract is associated with much higher rates of metastases. Five-year specific survival is much worse for UPIII negative tumors (54%) than for UPIII positive tumors (100%). Apparently UPIII expression is a better indicator fo the malignant potential of the tumor than the grade of the tumor.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP321*
ISOTYPE: *IgG*
CONTROL: *Bladder, Bladder Carcinoma*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3239	Tinto Predilute	3.0 ml
BSB 3240	Tinto Predilute	7.0 ml
BSB 3241	Tinto Predilute	15.0 ml
BSB 3242	Concentrate	0.1 ml
BSB 3243	Concentrate	0.5 ml
BSB 3244	Concentrate	1.0 ml
BSB 3245	Control Slides	5

Varicella Zoster Virus, MMab



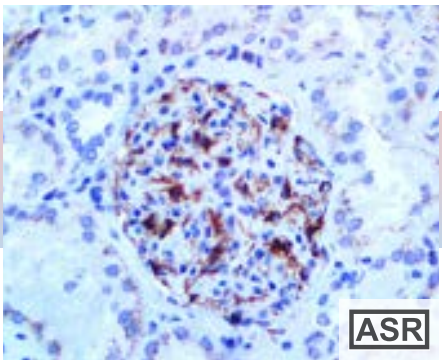
IHC of Varicella Zoster Virus on a FFPE Infected Tissue

Varicella Zoster Virus (VZV) is a member of the human herpes virus family and causes two distinct clinical manifestations: chickenpox and shingles.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *SG1-1, SG1-4, NCP-1& IE-62*
ISOTYPE: *Mixed*
CONTROL: *Varicella Zoster Virus Infected Tissue*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2293	Tinto Predilute	3.0 ml
BSB 2294	Tinto Predilute	7.0 ml
BSB 2295	Tinto Predilute	15.0 ml
BSB 2296	Concentrate	0.1 ml
BSB 2297	Concentrate	0.5 ml
BSB 2298	Concentrate	1.0 ml
BSB 2299	Control Slides	5

VEGF, RMab



IHC of VEGF on a FFPE Kidney Tissue

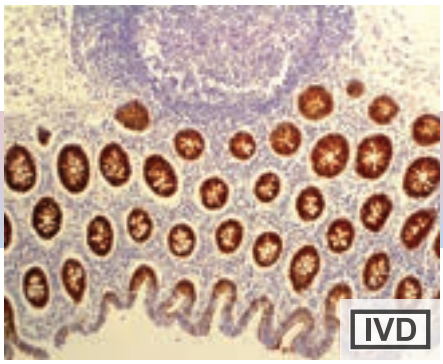
Vascular endothelial growth factor (VEGF) is an important signaling protein involved in both vasculogenesis (the de novo formation of the embryonic circulatory system) and angiogenesis (the growth of blood vessels from pre-existing vasculature). As its name implies, VEGF activity is restricted mainly to cells of the vascular endothelium, although it has an effect on a limited number of other cell types (e.g., stimulation monocyte/macrophage migration).

VEGF has been implicated with poor prognosis in breast cancer. The overexpression of VEGF may be an early step in the process of metastasis, a step involved in the "angiogenic" switch. Although VEGF has been correlated with poor survival, its exact mechanism of action in the progression of tumors remains unclear. VEGF is also released in rheumatoid arthritis in response to TNF-alpha, increasing endothelial permeability and swelling and also stimulating angiogenesis (formation of capillaries). Once released, VEGF may elicit several responses. It may cause a cell to survive, move, or further differentiate.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-VEGF*
ISOTYPE: *IgG*
CONTROL: *Placenta, Angioma, Angiosarcoma & Soft Tissue*
LOCALIZATION: *Cell Surface, Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6050	Tinto Predilute	3.0 ml
BSB 6051	Tinto Predilute	7.0 ml
BSB 6052	Tinto Predilute	15.0 ml
BSB 6053	Concentrate	0.1 ml
BSB 6054	Concentrate	0.5 ml
BSB 6055	Concentrate	1.0 ml
BSB 6056	Control Slides	5

Villin, MMab



IHC of Villin on a FFPE Colon Tissue

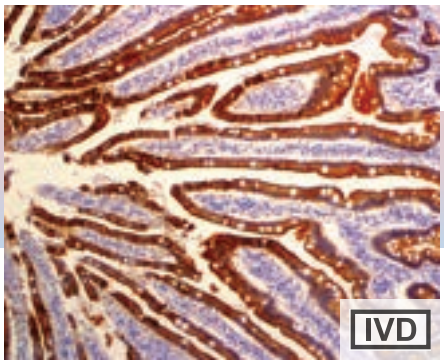
Villin is an actin-binding protein that contains gelsolin domains capped by a "headpiece" consisting of a fast and independently-folding three-helix bundle stabilized by hydrophobic interactions. The headpiece domain is a commonly-studied protein in molecular dynamics due to its fast-folding kinetics and short primary sequence. It is a regulator of the actin cytoskeleton and is expressed mainly in the brush border in animals.

Anti-Villin labels the brush border area in the gastrointestinal mucosal epithelium. This antibody has been useful in differentiating Gastrointestinal Adenocarcinoma, Neuroendocrine Carcinomas and Ovarian Adenocarcinomas from Adenocarcinomas of other organs. Also labeled by this antibody are Merkel cells of the skin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *CWWB1*
ISOTYPE: *IgG1*
CONTROL: *Kidney, Colon, Small Bowel Mucosa, Colonic Mucosa*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6015	Tinto Predilute	3.0 ml
BSB 6016	Tinto Predilute	7.0 ml
BSB 6017	Tinto Predilute	15.0 ml
BSB 6018	Concentrate	0.1 ml
BSB 6019	Concentrate	0.5 ml
BSB 6020	Concentrate	1.0 ml
BSB 6021	Control Slides	5

Villin, RMab



IHC of Villin on a FFPE Colon Tissue

Villin is an actin-binding protein that contains gelsolin domains capped by a "headpiece" consisting of a fast and independently-folding three-helix bundle stabilized by hydrophobic interactions. The headpiece domain is a commonly-studied protein in molecular dynamics due to its fast-folding kinetics and short primary sequence. It is a regulator of the actin cytoskeleton and is expressed mainly in the brush border of the GI mucosal epithelium in animals.

Anti-Villin labels the brush border area in the gastrointestinal mucosal epithelium. This antibody has been useful in differentiating Gastrointestinal Adenocarcinoma, Neuroendocrine Carcinomas and Ovarian Adenocarcinomas from Adenocarcinomas of other organs. Also labeled by this antibody are Merkel cells of the skin.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP163*
ISOTYPE: *IgG*
CONTROL: *Kidney, Colon, Small Bowel Mucosa, Colonic Mucosa*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2300	Tinto Predilute	3.0 ml
BSB 2301	Tinto Predilute	7.0 ml
BSB 2302	Tinto Predilute	15.0 ml
BSB 2303	Concentrate	0.1 ml
BSB 2304	Concentrate	0.5 ml
BSB 2305	Concentrate	1.0 ml
BSB 2306	Control Slides	5

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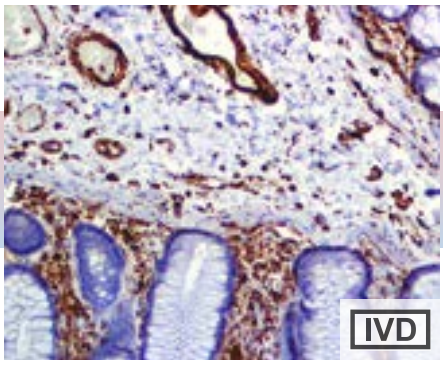
Vimentin, MMab



IHC of Vimentin on a FFPE Colon Tissue

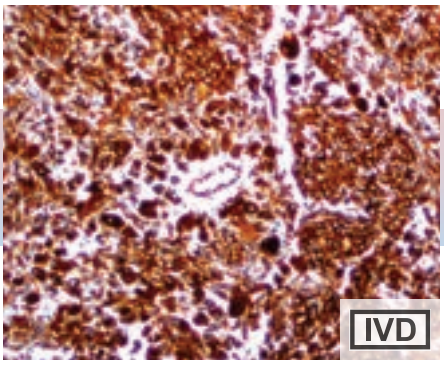
Vimentin is a member of the intermediate filament family of proteins. Intermediate filaments are an important structural feature of eukaryotic cells. Together with microtubules and actin microfilaments, they make up the cytoskeleton.

Expression of vimentin, when used in conjunction with keratin, is helpful in distinguishing melanomas from Undifferentiated Carcinomas and Large-Cell Lymphomas. All Melanomas and Schwannomas react strongly with vimentin. This antibody recognizes a 57 kDa intermediate filament. It labels a variety of mesenchymal cells, including melanocytes, lymph cells, endothelial cells and fibroblasts. Non-reactivity of vimentin antibody is often considered more useful than its presence, since there are a few tumors that do not contain vimentin (e.g., Hepatoma and Seminoma).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *V9*
ISOTYPE: *IgG/K*
CONTROL: *Tonsil, Lymph Node, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat, Rat, Rabbit, Cattle, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 6022	Tinto Predilute	3.0 ml
BSB 6023	Tinto Predilute	7.0 ml
BSB 6024	Tinto Predilute	15.0 ml
BSB 6025	Concentrate	0.1 ml
BSB 6026	Concentrate	0.5 ml
BSB 6027	Concentrate	1.0 ml
BSB 6028	Control Slides	5

Vimentin, RMab



IHC of Vimentin on a FFPE Melanoma Tissue

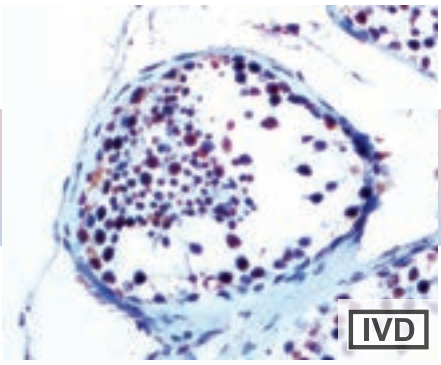
Vimentin is a member of the intermediate filament family of proteins. Intermediate filaments are an important structural feature of eukaryotic cells. Together with microtubules and actin microfilaments, they make up the cytoskeleton.

Expression of vimentin, when used in conjunction with keratin, is helpful in distinguishing melanomas from Undifferentiated Carcinomas and Large-Cell Lymphomas. All Melanomas and Schwannomas react strongly with vimentin. This antibody recognizes a 57 kDa intermediate filament. It labels a variety of mesenchymal cells, including melanocytes, lymph cells, endothelial cells and fibroblasts. Non-reactivity of vimentin antibody is often considered more useful than its presence, since there are a few tumors that do not contain vimentin (e.g., Hepatoma and Seminoma).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP21*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Predicted: Mouse, Rat, Rhesus Monkey*

CAT. #	PRESENTATION	VOL/QTY
BSB 2307	Tinto Predilute	3.0 ml
BSB 2308	Tinto Predilute	7.0 ml
BSB 2309	Tinto Predilute	15.0 ml
BSB 2310	Concentrate	0.1 ml
BSB 2311	Concentrate	0.5 ml
BSB 2312	Concentrate	1.0 ml
BSB 2313	Control Slides	5

WT1, MMab



IHC of WT1 on a FFPE Testicular Cancer Tissue

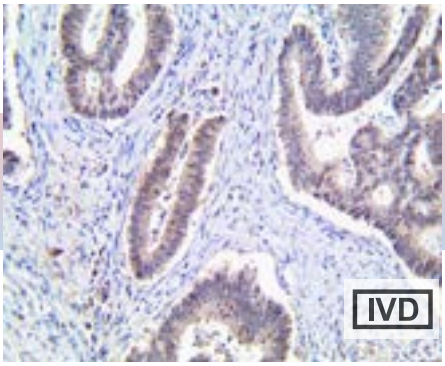
Wilms' Tumor Protein (WT1) is a suppressor gene located on Chromosome 11p13. Mutations of the WT1 gene on Chromosome 11 are observed in approximately 20% of Wilms tumors. At least half of the Wilms tumors with mutations in WT1 also carry mutations in CTNNB1, the gene encoding the proto-oncogene beta-catenin.

Wilms' tumor is a neoplasm of the kidneys that typically occurs in children. It is also known as a Nephroblastoma. WT1 has been identified in proliferative mesothelial cells, Malignant Mesothelioma, Ovarian Cystadenocarcinoma, Gonadoblastoma, Nephroblastoma and Desmoplastic Small Round Cell Tumor. Lung Adenocarcinomas rarely stain positive with this antibody.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *6F-H2*
ISOTYPE: *IgG1/K*
CONTROL: *Kidney, Testis, Malignant Mesothelioma,Fallopian Tubes*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6029	Tinto Predilute	3.0 ml
BSB 6030	Tinto Predilute	7.0 ml
BSB 6031	Tinto Predilute	15.0 ml
BSB 6032	Concentrate	0.1 ml
BSB 6033	Concentrate	0.5 ml
BSB 6034	Concentrate	1.0 ml
BSB 6035	Control Slides	5

YAP1, MMab



IHC of YAP1 on FPPE Colon Adenocarcinoma Tissue

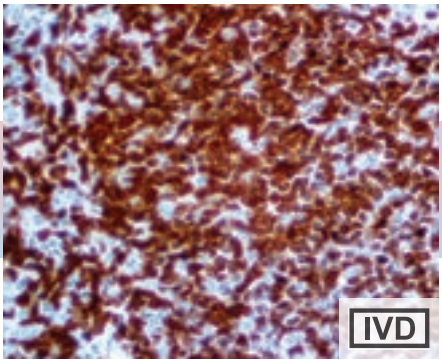
Yes-Associated Protein 1 (YAP1) is a regulatory protein that binds the Src family tyrosine kinase YES, promotes transcriptional activation of cyclin E and inhibition of caspase-induced apoptosis. YAP1 is found in the cytoplasm, though transported into the nucleus to perform its roles in proliferation and assist in tissue repair and growth. YAP1 is essential for cancer growth, contributing to stem-cell-like features of proliferation and metastasis and inducing these features in neighboring cells. YAP1 may be upregulated or have higher nuclear localization in more malignant and metastatic tumors, as seen in Lung, Breast, Colorectal, Liver, Gastric, Pancreatic, and Brain Cancers.

YAP1 It is frequently overexpressed in Mammary carcinoma, Glioblastoma and Squamous Cell Carcinoma, Pancreatic, Oral, Cervical, Ovarian and Lung Cancers. YAP1 has been found to be expressed in fetal and adult brain regions known to harbor neural progenitor cells but there was little YAP1 immunoreactivity in the adult cerebral cortex. YAP1 protein was also readily detected in the nuclei of human brain tumors. In Medulloblastoma, expression varied between histologic subtypes and was most prominent in Nodular/Desmoplastic tumors. In Gliomas it was frequently expressed in infiltrating Astrocytomas and Oligodendrogliomas, but rarely in Pilocytic Astrocytomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-146*
ISOTYPE: *IgG1*
CONTROL: *Testis, Placenta, Breast, Fallopian Tube, Transitional Cell Carcinoma, HER2 Negative Breast Cancer*
LOCALIZATION: *Nulcear, Cytoplasmic*
SPECIES REACTIVITY: *Human, Mouse, Rat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3755-3	Tinto Predilute	3.0 ml
BSB-3755-7	Tinto Predilute	7.0 ml
BSB-3755-15	Tinto Predilute	15.0 ml
BSB-3755-01	Concentrate	0.1 ml
BSB-3755-05	Concentrate	0.5 ml
BSB-3755-1	Concentrate	1.0 ml
BSB-3755-CS	Control Slides	5

ZAP-70, MMab



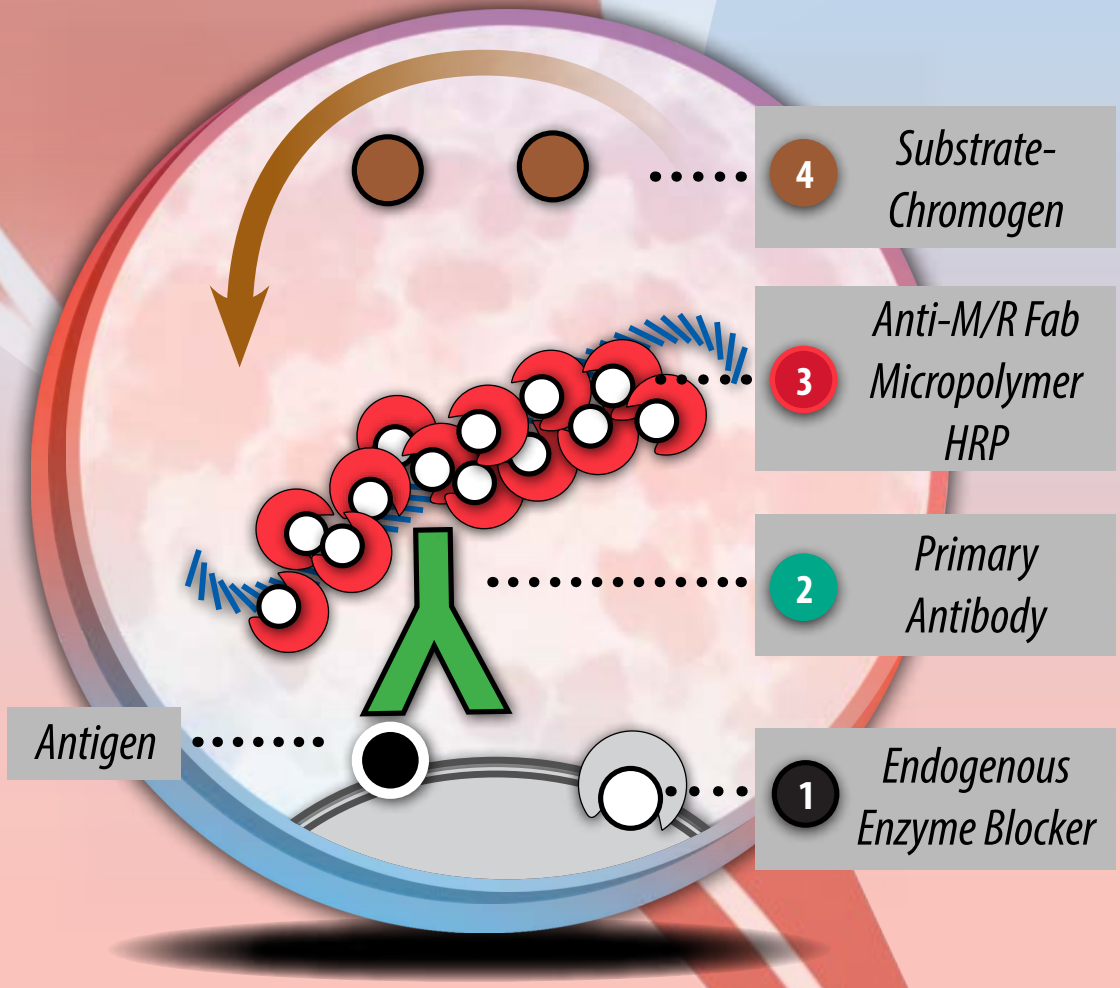
IHC of ZAP-70 on a FFPE Lymphoma Tissue

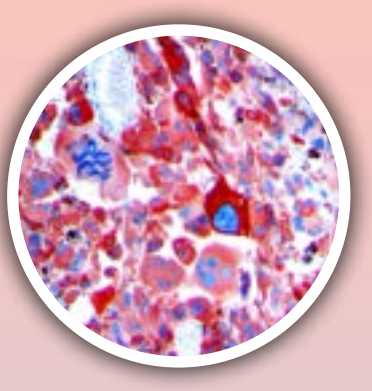
ZAP-70 is an abbreviation for Zeta-chain-associated protein kinase 70 (70 is the molecular weight in kDa). The protein is a member of the protein-tyrosine kinase family. ZAP-70 is normally expressed in T-cells and natural killer cells and has a critical role in the initiation of T-cell signaling.

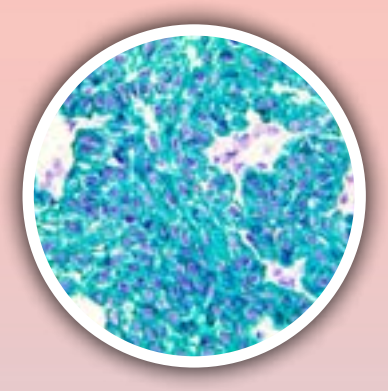
ZAP-70 in B-cells is used as a prognostic marker in identifying different forms of Chronic Lymphocytic Leukemia (CLL). ZAP-70 protein is expressed in leukemic cells in approximately 25% of Chronic Lymphocytic Leukemia (CLL) cases as well. ZAP-70 expression is an excellent surrogate marker for the distinction between the Ig-mutated (ZAP-70 negative) and Ig-unmutated (ZAP-70 positive) CLL subtypes and can identify patient groups with divergent clinical courses. The ZAP-70 positive Ig-unmutated CLL cases have a poorer prognosis.

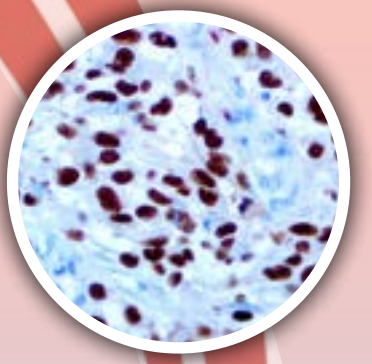
ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *2F3.2*
ISOTYPE: *IgG2a*
CONTROL: *Tonsil, Lymph Node, Chronis Lymphocytic Leukemia*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6036	Tinto Predilute	3.0 ml
BSB 6037	Tinto Predilute	7.0 ml
BSB 6038	Tinto Predilute	15.0 ml
BSB 6039	Concentrate	0.1 ml
BSB 6040	Concentrate	0.5 ml
BSB 6041	Concentrate	1.0 ml
BSB 6042	Control Slides	5


4
Substrate-Chromogen
3
Anti-M/R Fab Micropolymer HRP
2
Primary Antibody
Antigen
1
Endogenous Enzyme Blocker







Fast Mohs Immunohistochemistry

Quality Antibodies | Sensitive Detection | Less Time

A selection of antibodies, detection systems and chromogens for fast IHC cancer detection after Mohs surgery

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Antibodies For Fast Mohs IHC

The most common reason for recurrence of skin cancers after Mohs micrographic surgery is residual undetected tumor. Frozen tissue Immunohistochemistry (IHC) has demonstrated greater sensitivity than routine H&E stains, which are difficult to interpret. Bio SB has developed a highly sensitive non-biotin monovalent Fab micropolymer IHC detection system for the detection of IVD antibodies for melanoma, BCC, SCC and other Mohs surgery related conditions. Our innovative IHC detection systems and high affinity monoclonal antibodies, have opened the doors for a faster and accurate immunohistochemistry applicable to Mohs surgery.

BCC, SCC and Carcinoma Antibodies
TintoFast Androgen Receptor, MMab
TintoFast CD31, MMab
TintoFast Cytokeratin 5/6, MMab
TintoFast Cytokeratin Cocktail, AE1/AE3, MMab
TintoFast EpCAM BerEP4, MMab
TintoFast EMA, MMab
TintoFast p40, RMab
TintoFast p63, MMab
TintoFast Podoplanin, MMab
TintoFast NGFR, MMab

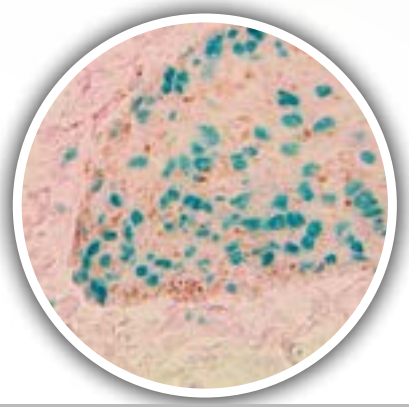
Dermatofibrosarcoma Protuberans (DFSP) Antibodies
TintoFast CD34, MMab

Melanoma Antibodies
TintoFast Ki-67, RMab
TintoFast MART-1, MMab
TintoFast Melanoma Cocktail (MART-1, Melanosome HMB-45, Tyrosinase), MMab
TintoFast Melanosome HMB-45, MMab
TintoFast MiTF, MMab
TintoFast PRAME, RMab
TintoFast SOX-10, MMab

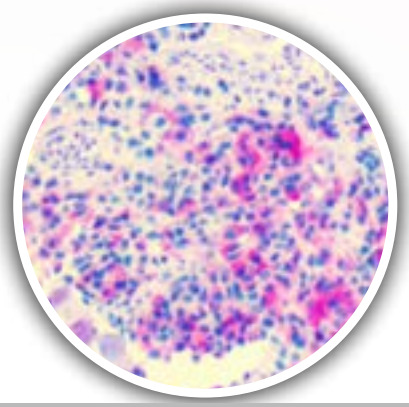
Neuroendocrine Tumor Antibodies
TintoFast Chromogranin A, MMab
TintoFast Synaptophysin, RPab

Paget's Disease Antibodies
TintoFast Cytokeratin 7, MMab

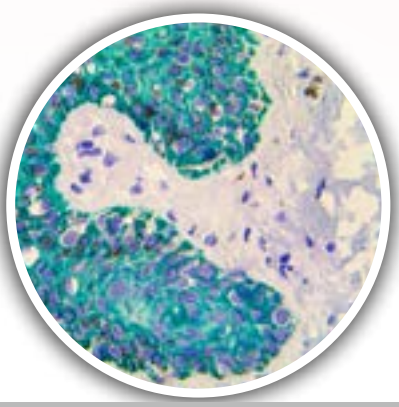
Primary Cutaneous Adnexal Neoplasm Antibodies
TintoFast Adipophilin, MMab
TintoFast Androgen Receptor, MMab
TintoFast Cytokeratin 5/6, MMab
TintoFast EMA, MMab
TintoFast p63, MMab
TintoFast Podoplanin, MMab



SOX-10 using Mohs PolyDetector Plus HRP Green on a Frozen Mohs Melanoma



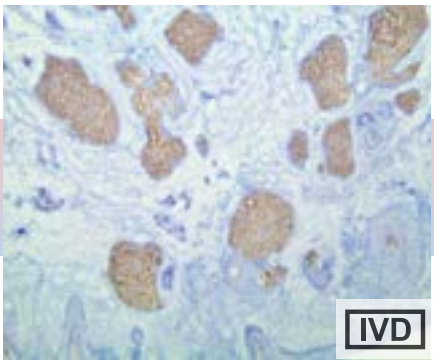
PRAME using Mohs PolyDetector Plus HRP Green and MART-1 using ALK Scarlet on a Frozen Melanoma Tissue



CK AE1 / AE3 using Mohs Poly-Detector Plus HRP Green on a Frozen Mohs Melanoma

IVD For *in Vitro* Diagnostic Use

TintoFast Adipophilin, MMab



IHC of Adipophilin on a Frozen Acetone-fixed Squamous Cell Carcinoma Tissue

Adipose differentiation-related protein, also known as Perilipin 2 (PLIN2), ADRP or Adipophilin, is a protein which in humans is encoded by the ADFP gene. Adipophilin is associated with the globule surface membrane material. This protein is a major constituent of the globule surface. Increase in mRNA levels is one of the earliest indications of adipocyte differentiation. Adipophilin is present in a wide range of cultured cell lines, including fibroblasts, endothelial, and epithelial cells. In tissues, however, expression of Adipophilin is restricted to certain cell types, such as Lactating Mammary epithelial cells, Adrenal Cortex cells, Sertoli and Leydig cells of the male reproductive system, and Steatosis or fatty change hepatocytes in alcoholic liver Cirrhosis.

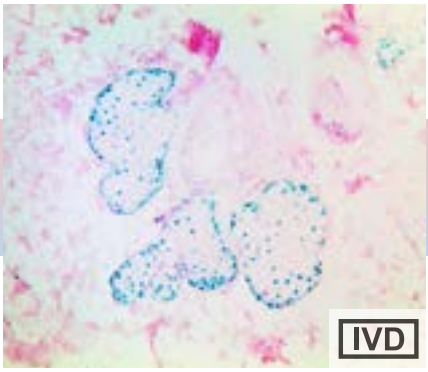
Adipophilin expresses in various Sebaceous lesions and other Cutaneous Tumors with a clear cell histology that may mimic sebaceous differentiation. In periocular lesions, it is effective in helping to exclude Basal Cell Carcinoma and Squamous Cell Carcinoma when sebaceous carcinoma is under consideration.

Adipophilin is suitable for immunostaining and is helpful in the identification of intracytoplasmic lipids, as seen in Sebaceous lesions. It is especially helpful in identifying intracytoplasmic lipid vesicles in poorly differentiated Sebaceous Carcinomas in challenging cases such as small periocular biopsy specimens.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-91*
ISOTYPE: *IgG1*
CONTROL: *Adrenal, SCC, TCC Sebaceous Neoplasms*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3772-3	TintoFast Predilute	3.0 ml
BSB-3772-7	TintoFast Predilute	7.0 ml
BSB-3772-15	TintoFast Predilute	15.0 ml

TintoFast Androgen Receptor, MMab



IHC of Androgen Receptor on a Frozen Acetone-Fixed Melanoma Tissue

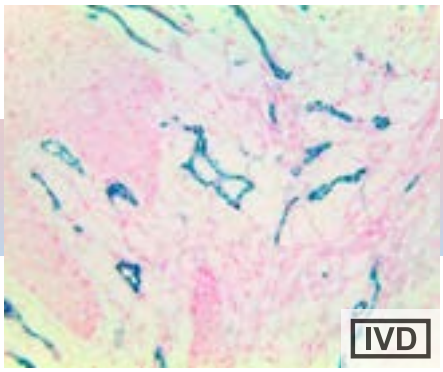
The androgen receptor (AR) is a type of nuclear receptor which is activated by binding of either of the androgenic hormones testosterone or dihydrotestosterone. The main function of the androgen receptor is as a DNA-binding transcription factor which regulates gene expression. However, the androgen receptor has additional functions independent of DNA binding. The AR signaling pathway plays a key role in development and function of male reproductive organs, including the prostate and epididymis. AR also plays a role in nonreproductive organs, such as muscle, hair follicles, and the brain.

This antibody reacts with the androgen receptor and also with the newly-described A form of the receptor. This antibody does not cross-react with estrogen, progesterone or glucocorticoid receptors. Abnormalities in the AR-signaling pathway have been linked to a number of diseases, including Prostate Cancer, Kennedy's Disease and male infertility.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-4*
ISOTYPE: *IgG1*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3690-3	Tinto Predilute	3.0 ml
BSB-3690-7	Tinto Predilute	7.0 ml
BSB-3690-15	Tinto Predilute	15.0 ml

TintoFast CD31, MMab



IHC of CD31 on a Frozen Acetone-fixed Squamous Cell Carcinoma Tissue

CD31 is also called PECAM-1 for platelet endothelial cell-adhesion molecule. It plays a key role in removing aged neutrophils from the body. CD-31 is normally found on stem cells, endothelial cells, platelets, macrophages and Kupffer cells, granulocytes, T/NK cells, lymphocytes, megakaryocytes, fibroblasts, osteoclasts and neutrophils. CD-31 is also expressed in certain tumors, including Epithelioid Hemangioendothelioma, Epithelioid Sarcoma like Hemangioendothelioma, other vascular tumors, Histiocytic malignancies, and Plasmacytomas. It is rarely found in some sarcomas and carcinomas. CD-31 and macrophages play a key role in tissue regeneration.

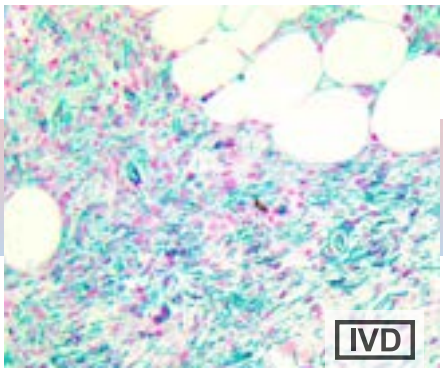
CD31 is widely used to identify the vascular origin of neoplasms, as it is a highly specific and sensitive marker for vascular endothelial cells.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *1A10*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Placenta, Appendix, Spleen, Kidney*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3691-3	Tinto Predilute	3.0 ml
BSB-3691-7	Tinto Predilute	7.0 ml
BSB-3691-15	Tinto Predilute	15.0 ml

Bio SB
BIOSCIENCE FOR THE WORLD

TintoFast CD34, MMab



IHC of CD34 on a FFPE Dermatofibrosarcoma Protuberans Tissue

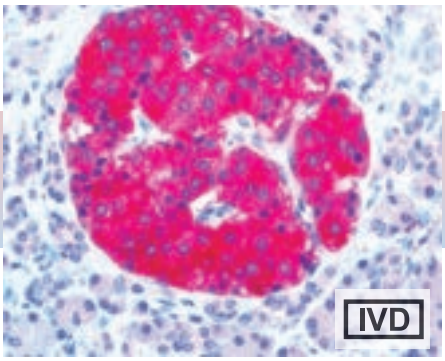
CD34 functions as a cell-cell adhesion factor and cell-surface glycoprotein. It may also mediate the attachment of stem cells to bone marrow extracellular matrixes or directly to stromal cells. Cells expressing CD34 are normally found in the umbilical cord and bone marrow as hematopoietic cells, and in vascular endothelium. In addition to stem cell recognition, CD34 is expressed by vascular endothelium; it appears that proliferating endothelial cells express this molecule in greater amounts than resting cells. In comparison to factor VIII R Antigen, CD34 stains are stronger and appear to be more sensitive in nature.

In tumors, CD34 is found in Alveolar Soft Part Sarcoma, pre B-ALL (positive in 75%), AML(40%), AMLM7 (most), Dermatofibrosarcoma Protuberans, Gastrointestinal Stromal Tumors, Giant Cell Fibroblastoma, Granulocytic Sarcoma, Kaposi's Sarcoma, Liposarcoma, Malignant Fibrous Histiocytoma, Malignant Peripheral Nerve Sheath tumors, Meningeal Hemangiopericytomas, Meningiomas, Neurofibromas, Schwannomas, and Papillary Thyroid Carcinoma. A negative CD34 may exclude Ewing's Sarcoma/PNET, Myofibrosarcoma of the breast, and Inflammatory Myofibroblastic tumors of the stomach.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *QBEnd/10*
ISOTYPE: *IgG1*
CONTROL: *Trichoepithelioma, Desmoplastic Trichilemmoma, Dermatofibrosarcoma Protuberans, Laposi's Sarcoma*
LOCALIZATION: *Cytoplastmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3681	Tinto Predilute	3.0 ml
BSB 3682	Tinto Predilute	7.0 ml
BSB 3683	Tinto Predilute	15.0 ml

TintoFast Chromogranin A, MMab



IHC of TintoFast Adipophilin on a FPPE Pancreas Tissue

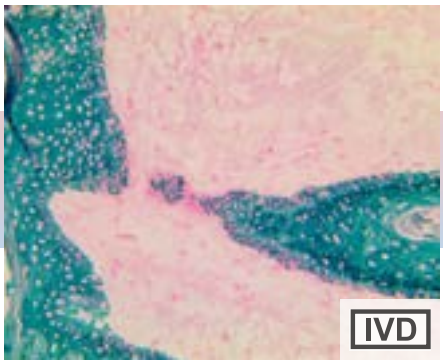
Chromogranin A is a member of the chromogranin/secretogranin family of neuroendocrine secretory proteins. Examples of cells producing chromogranin A are the adrenal medulla, enterochromaffin-like cells and beta cells of the pancreas. The function of chromogranin A is unknown but it is a precursor to 3 functional peptides: vasostatin, pancreastatin and parastatin. These peptides negatively modulate the neuroendocrine function of the releasing cell (autocrine) or nearby cells (paracrine).

Chromogranin A is an excellent marker for Carcinoid Tumors, Pheochromocytomas, Paragangliomas, and other Neuroendocrine Tumors. Coexpression of Chromogranin A and Neuron-Specific Enolase (NSE) is common in Neuroendocrine Neoplasms. It has been identified in a wide variety of endocrine tissues including the Pituitary, Pancreas, Hypothalamus, Thymus, Thyroid, Intestine and Parathyroid. It is generally accepted that the coexpression of certain Keratins and Chromogranin means Neuroendocrine lineage. The presence of strong Chromogranin staining and absence of Keratin staining should raise the possibility of Paraganglioma. Most Pituitary Adenomas and Prolactinomas readily express Chromogranin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *LK2H10*
ISOTYPE: *IgG1/K*
CONTROL: *Pancreas, Pituitary, Colon, Brain*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3773-3	TintoFast Predilute	3.0 ml
BSB-3773-7	TintoFast Predilute	7.0 ml
BSB-3773-15	TintoFast Predilute	15.0 ml

TintoFast CK 5/6, MMab



IHC of CK 5 & 6 on a Frozen Acetone-Fixed Melanoma Tissue

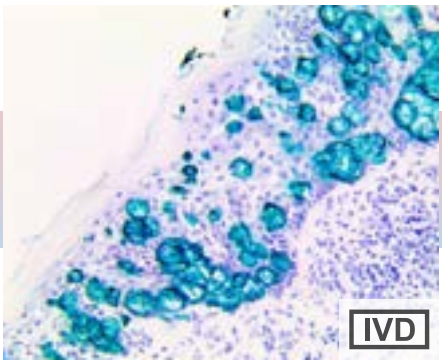
Cytokeratin 5 (58 kDa) is a high-molecular weight, basic type of cytokeratin expressed in basal, intermediate and superficial-cell layers of stratified epithelia as well as transitional epithelia, complex epithelia, mesothelial cells and Mesothelioma. Cytokeratin 6 (56 kD) is also a high-molecular weight, basic type cytokeratin expressed by proliferating squamous epithelium often paired with Cytokeratin 16.

CK 5 and 6 are positively seen in nearly 100% of Malignant Mesotheliomas and is rarely seen in Lung Adenocarcinomas. CK 5 and 6 can positively be seen in undifferentiated Large-cell Carcinoma as well as Squamous Carcinoma. Fewer than 10% of Carcinomas of the breast, colon, and prostate stain positively for this marker. CK 5 and 6 have also been used successfully as a myoepithelial cell marker in the prostate to determine malignancy.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *D5/16B4*
ISOTYPE: *IgG1*
CONTROL: *SCC/BCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3666	Tinto Predilute	3.0 ml
BSB 3667	Tinto Predilute	7.0 ml
BSB 3668	Tinto Predilute	15.0 ml

TintoFast CK7, MMab



IHC of Cytokeratin 7 on a Frozen Acetone-Fixed Extramammary Paget's Disease Tissue

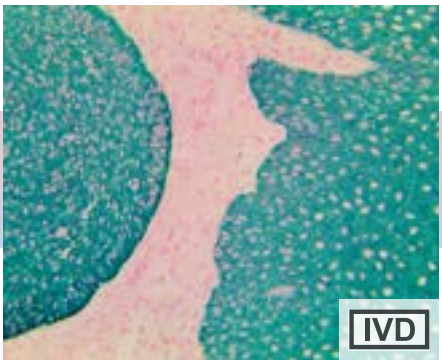
Cytokeratin 7 (CK7) reacts with proteins that are found in most ductal, glandular and transitional epithelium of the urinary tract and bile duct epithelial cells. CK7 distinguishes between lung and breast epithelium that stain positive, and colon and prostate epithelial cells that are negative.

This antibody also reacts with many benign and malignant epithelial lesions (e.g., Adenocarcinomas of the ovary, breast and lung). Further, in frozen sections, the antibody has been shown to label the rete epithelium in the testis, epididymis epithelium, and the surface epithelium of the stomach and duodenum. Transitional Cell Carcinomas are positive and Prostate Cancers are negative. This antibody does not recognize intermediate filament proteins, nor does it recognize non-epithelial tissues such as blood vessels, connective tissue, etc.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *OV-TL 12/30*
ISOTYPE: *IgG1/K*
CONTROL: *TCC/ EMPD*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3669	Tinto Predilute	3.0 ml
BSB 3670	Tinto Predilute	7.0 ml
BSB 3671	Tinto Predilute	15.0 ml

TintoFast CK AE1/AE3, MMab



IHC of Cytokeratin AE1/AE3 on a Frozen Acetone-Fixed Basal Cell Carcinoma Tissue

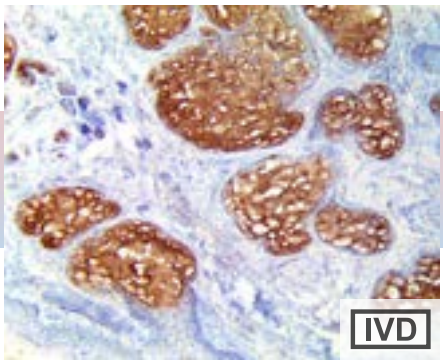
Cytokeratins are intermediate-filament keratins found in the intracytoplasmic cytoskeleton of epithelial tissue. There are two types of cytokeratins: the low-weight, acidic Type I cytokeratins and the high-weight, basic or neutral Type II cytokeratins. Cytokeratins are usually found in pairs comprising a Type I cytokeratin and a Type II cytokeratin. Expression of these cytokeratins is frequently organ or tissue-specific.

Cytokeratin cocktail AE1/AE3 is well suited to distinguish Epithelial Carcinoma from Non-epithelial malignancies and is used to aid Epithelial Tumor classification. This antibody has been used to characterize the source of various neoplasms and to study the distribution of keratin-containing cells in epithelia during normal development and during the development of epithelial neoplasms. This antibody stains cytokeratins present in normal and abnormal human tissues. This antibody has shown high sensitivity and specificity in recognizing epithelial cells of neoplastic origin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *AE1/AE3*
ISOTYPE: *IgG1*
CONTROL: *Skin, SCC, BCC*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3663	Tinto Predilute	3.0 ml
BSB 3664	Tinto Predilute	7.0 ml
BSB 3665	Tinto Predilute	15.0 ml

TintoFast EMA, MMab



IHC of EMA on a Frozen Acetone-fixed Melanoma Tissue

Epithelial Membrane Antigen (EMA) antibody is a mucin-like glycoprotein, shown to be useful as a pan-epithelial marker for detecting early metastatic loci of carcinoma in the bone marrow or liver. It stains normal and neoplastic cells from various tissues, including mammary epithelium, sweat glands and squamous epithelium. Hepatocellular Carcinoma, Adrenal Carcinoma and Embryonal Carcinomas are consistently EMA negative, so keratin positivity with negative EMA favors one of these tumors.

EMA is frequently positive in meningioma, which can be useful when distinguishing it from other intracranial neoplasms. The absence of EMA can also be of value since negative EMA is characteristic of some tumors including Adrenal Carcinoma, Seminomas, Paraganglioma and Hepatoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *E29*
ISOTYPE: *IgG2a/K*
CONTROL: *Breast, Skin, Colon, Kidney, Cervix*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3692-3	Tinto Predilute	3.0 ml
BSB-3692-7	Tinto Predilute	7.0 ml
BSB-3692-15	Tinto Predilute	15.0 ml

Bio SB
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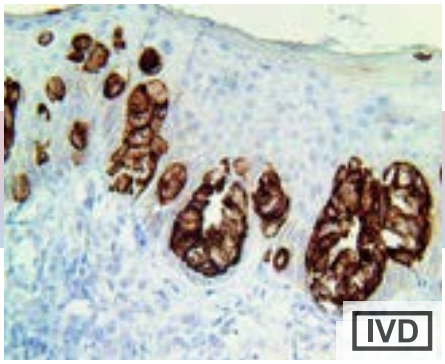
TintoFast EpCAM BerEP4, MMab



IHC of Cytokeratin EpCAM BerEP4 on a Frozen Acetone-Fixed Extramammary Paget's Disease Tissue

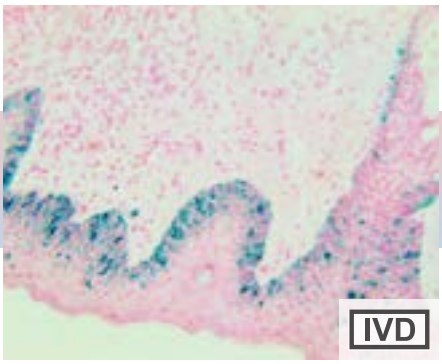
Epithelial Cell Adhesion Molecule (EpCAM) or Epithelial Specific Antigen is a 40kD cell surface antigen that is broadly distributed in epithelial cells and displays a highly conserved expression in carcinomas. These glycoproteins are located on the cell membrane surface and in the cytoplasm of virtually all epithelial cells, with the exception of most squamous epithelia, epatocytes, renal proximal tubular cells, gastric parietal cells and myoepithelial cells. However, focal positivity may be seen in the basal layer of squamous cell epithelium of endoderm (e.g., palatine tonsils) and mesoderm (e.g., uterine cervix).

EpCAM expression has been reported to be a possible marker of early malignancy, with expression being increased in tumor cells, and de novo expression being seen in dysplastic squamous epithelium. Epithelial specific antigen has been known to play an important role as a tumor-cell marker in lymph nodes from patients with esophageal carcinoma. EpCAM can be used to distinguish among Basal Cell, Basosquamous Carcinomas and Squamous Cell Carcinomas of the skin.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Ber-EP4*
ISOTYPE: *IgG1/K*
CONTROL: *BCC, EMPD*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3678	Tinto Predilute	3.0 ml
BSB 3679	Tinto Predilute	7.0 ml
BSB 3680	Tinto Predilute	15.0 ml

TintoFast HMB45, MMab



IHC of HMB45 on a Frozen Acetone-fixed Melanoma Tissue

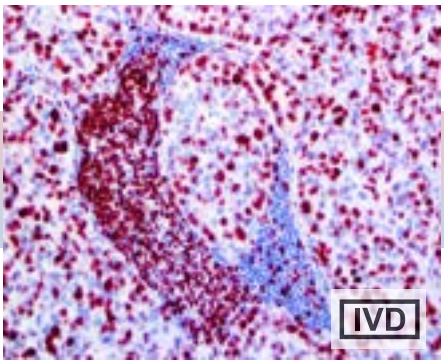
HMB-45 reacts against an antigen present in immature melanosomes, cutaneous melanocytes, prenatal and infantile retinal pigment epithelium and melanoma cells. This antibody was generated to an extract of Melanoma. It reacted positively against Melanocytic Tumors but not other tumors, thus demonstrating specificity and sensitivity. Moreover, this antibody reacts positively against junctional nevus cells but not intradermal nevi, and against fetal melanocytes but not normal adult melanocytes.

This antibody is very useful to identify Malignant Melanoma. Metastatic Amelanotic Melanoma can often be confused with a variety of poorly differentiated Carcinomas, Large Cell Lymphomas, Sarcomas, Spindle Cell Carcinomas and various types of mesenchymal neoplasms. A keratin-negative, vimentin-rich neoplasm that immunoreacts with antibody to S-100 protein and with this melanoma antibody, is, with rare exception, a Melanoma.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HMB-45*
ISOTYPE: *IgG1/K*
CONTROL: *Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3693-3	Tinto Predilute	3.0 ml
BSB-3693-7	Tinto Predilute	7.0 ml
BSB-3693-15	Tinto Predilute	15.0 ml

TintoFast Ki-67, RMab



IHC of TintoFast Ki-67 on FPPE Breast Carcinoma Tissue

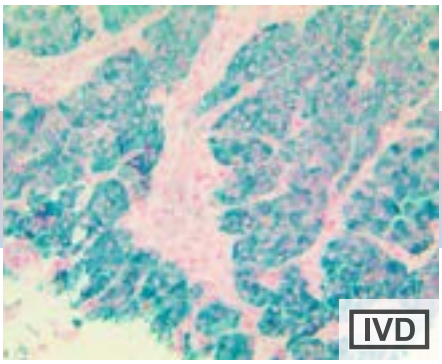
The Ki-67 protein is a cellular marker for proliferation. It is strictly associated with cell proliferation. During the interphase, the Ki-67 antigen can be exclusively detected within the cell nucleus, whereas in mitosis most of the protein is relocated to the surface of the chromosomes. Ki-67 protein is present during all active phases of the cell cycle (G1, S, G2, and mitosis), but is absent from resting cells (G0).

Ki-67 is an excellent marker to determine the growth fraction of a given cell population. The fraction of Ki-67-positive tumor cells (the Ki-67 labeling index) is often correlated with the clinical course of cancer. The best-studied examples in this context are carcinomas of the prostate and the breast.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RM360*
ISOTYPE: *IgG*
CONTROL: *Testis, Tonsil, Bone Marrow, Placenta, Colon, Tonsil, Fallopian Tube, Astrocytoma, Breast Carcinoma, Colon Carcinoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3771-3	TintoFast Predilute	3.0 ml
BSB-3771-7	TintoFast Predilute	7.0 ml
BSB-3771-15	TintoFast Predilute	15.0 ml

TintoFast MART-1, MMab



IHC of MART-1 on a Frozen Acetone-Fixed Melanoma Tissue

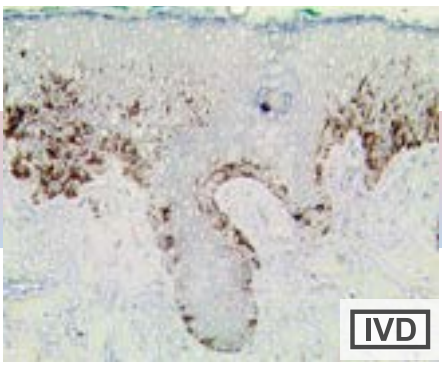
MART-1/Melan-A is a putative 18 kDa transmembrane protein consisting of 118 amino acids. It has a single transmembrane domain. MART-1/Melan-A is a protein antigen found on melanocytes. Antibodies against this antigen are used to recognize cells of melanocytic differentiation, useful for the diagnosis of Melanoma. The same name is used to refer to the gene which codes for this antigen.

The MART-1/Melan-A antigen is specific for the melanocyte lineage found in normal skin, retina, and melanocytes, but not in other normal tissues. It is thus useful as a marker for Melanocytic Tumors, with the caveat that it is normally found in benign nevi as well. This antibody is very useful in establishing the diagnosis of Metastatic Melanomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *A103*
ISOTYPE: *IgG1*
CONTROL: *Skin, Melanoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3651	Tinto Predilute	3.0 ml
BSB 3652	Tinto Predilute	7.0 ml
BSB 3653	Tinto Predilute	15.0 ml

TintoFast Melanoma Cocktail: HMB-45 MART-1 & Tyrosinase, MMab



IHC of Melanoma Cocktail on a Frozen Acetone-fixed Lentigo Maligna Carcinoma Tissue

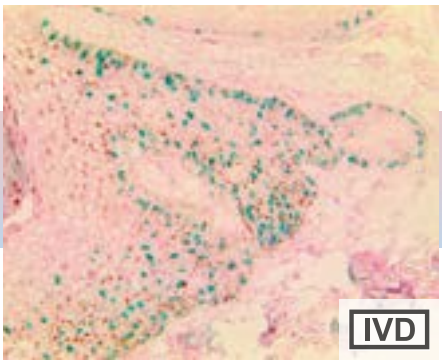
HMB-45 reacts against an antigen present in immature melanosomes, cutaneous, melanocytes, prenatal and infantile retinal pigment epithelium and melanoma cells. This antibody is very useful to identify Malignant Melanoma. MART-1/Melan-A is a protein antigen found on melanocytes. Antibodies against this antigen are used to recognize cells of melanocytic differentiation, useful for the diagnosis of Melanoma. The same name is used to refer to thegene which codes for this antigen. Tyrosinase is a copper-containing enzyme present in plant and animal tissues that catalyzes the production of melanin and other pigments from tyrosine by oxidation.

The MART-1/Melan-A antigen is specific for the melanocyte lineage found in normal skin, retina, and melanocytes, but not in other normal tissues. It is thus useful as a marker for Melanocytic Tumors, with the caveat that it is normally found in benign nevi as well. Anti-Tyrosinase has been found to be quite specific for melanotic lesions such as Malignant Melanoma and Melanotic Neurofibroma. Essentially no carcinomas express this marker. Melanoma cocktail HMB-45, Mart-1 and Tyrosinase are ideally suited to detect melanomas and melanocytic lesions and may prove to be a valuable marker for melanoma metastasis in sentinel lymph nodes.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *HMB-45, A103 & BSB-6*
ISOTYPE: *IgG1/K, IgG1 & IgG2a*
CONTROL: *Prostate, Prostatic Adenocarcinoma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog*

CAT. #	PRESENTATION	VOL/QTY
BSB-3695-3	Tinto Predilute	3.0 ml
BSB-3695-7	Tinto Predilute	7.0 ml
BSB-3695-15	Tinto Predilute	15.0 ml

TintoFast MiTF, MMab



IHC of MiTF on a Frozen Acetone-Fixed Melanoma Tissue

Microphthalmia-associated Transcription Factor (MiTF) is a basic helix-loop-helix leucine zipper transcription factor involved in melanocyte and osteoclast development. Mutations in MiTF cause auditory pigmentary syndromes, such as Waardenburg Syndrome Type II, Type IIa and Tietz Syndrome in humans. There are two known isoforms of MiTF differing by 66 amino acids at the NH2 terminus. Shorter forms are expressed in melanocytes and run as two bands at 52 kDa and 56 kDa, while the longer Mi form runs as a cluster of bands at 60-70 kDa in osteoclasts and in B16 Melonoma cells (but not other Melanoma cell lines), as well as mast cells and heart cells. MiTF plays a critical role in the differentiation of various cell types such as neural crest-derived melanocytes, mast cells, osteoclasts and optic cup-derived retinal pigment epithelium.

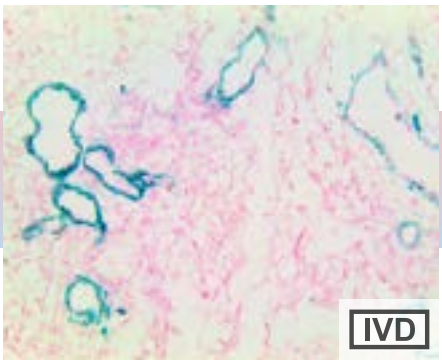
This antibody recognizes serine phosphorylated and non-phosphorylated melanocytic isoforms of microphthalmia. It is useful in identifying Malignant Melanoma, and distinguishing mast cell lesions from lesions of myeloid derivation. A relatively rare class of tumors known as PEComas (tumors showing perivascular epithelioid cell differentiation) express MiTF in a high percentage of cases (~90%).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *C5/D5*
ISOTYPE: *IgG1/K*
CONTROL: *Skin, Melanoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3657	Tinto Predilute	3.0 ml
BSB 3658	Tinto Predilute	7.0 ml
BSB 3659	Tinto Predilute	15.0 ml

Bio SB
BIOSCIENCE FOR THE WORLD

TintoFast NGFR, MMab



IHC of NGFR on a Frozen Acetone-fixed Squamous Cell Carcinoma Tissue

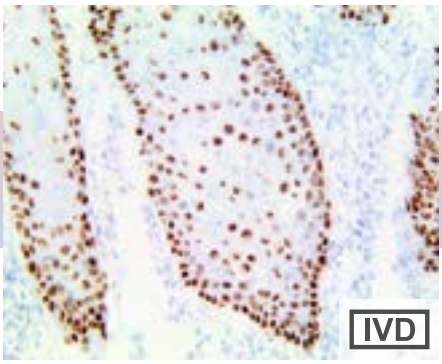
NGFR (Nerve Growth Factor Receptor), also termed p75 or CD271, is the low-affinity NGFR (LNGFR) which binds NGF and other neurotrophins, including BDNF, NT3 and NT4/5 with similar low-affinity. NGFR p75 is a 75 kD transmembrane glycoprotein that is mainly expressed in Schwann cells and neurons and in a variety of non-neuronal cells. NGFR p75 is necessary for regulating neuronal growth, migration, differentiation and cell death during development of the central and peripheral nervous system. NGFR p75 plays a central role in the regulation of cell number by apoptosis in the developing CNS. During early development, activation of NGFR p75 by NGF induces apoptotic cell death in some neuronal cells, probably through activation of the sphingomyelinase/ceramide pathway, the ICE-like proteases and the JNK pathway. CD271 has recently been described as being expressed in mesenchymal stem cells (bone marrow stromal cells).

NGFR is expressed not only in sympathetic and sensory neurons, but also in various neural crest cell or tumor derivatives such as melanocytes, Melanomas, Neuroblastomas, Pheochromocytomas, Neurofibromas, and neurotized nevi (Type C melanocytes). It is now apparent that expression of NGFR is ubiquitous and not limited to the nervous system, being expressed in mature non-neural cells such as perivascular cells, dental pulp cells, lymphoid follicular dendritic cells, basal epithelium of oral mucosa and hair follicles, prostate basal cells and myoepithelial cells. Studies in Prostate and Urothelial Cancer suggest that NGFR may act as a tumor suppressor, negatively regulating cell growth and proliferation. NGFR labels the myoepithelial cells of breast ducts and intralobular fibroblasts of breast ducts and, thus, aids in the diagnosis of malignancy in the breast.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-18*
ISOTYPE: *IgG1*
CONTROL: *Brain, Breast, Prostate, Neuroblastoma, CNS Tumor*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3696-3	Tinto Predilute	3.0 ml
BSB-3696-7	Tinto Predilute	7.0 ml
BSB-3696-15	Tinto Predilute	15.0 ml

TintoFast p40, RMab



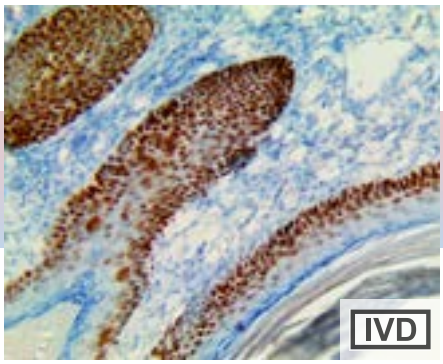
IHC of p40 on a Frozen Acetone-fixed Squamous Cell Carcinoma Tissue

p40 is an antibody that recognizes ΔNp63-a p63 isoform and it is highly specific for squamous/basal cells. It may be a valuable marker in detecting Squamous Cell Carcinoma where p63 is currently used. It recognizes the shortest variant of p53. p40 is superior in specificity to p63 because it does not label lung adenocarinomas like p63 does, which eliminates the potential of misinterpreting a positive adenocarcinoma as a squamous cell carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *Zr8*
ISOTYPE: *IgG*
CONTROL: *Normal Prostate, Breast, Skin*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3697-3	Tinto Predilute	3.0 ml
BSB-3697-7	Tinto Predilute	7.0 ml
BSB-3697-15	Tinto Predilute	15.0 ml

TintoFast p63, MMab



IHC of p63 on a Frozen Acetone-fixed Squamous Cell Carcinoma Tissue

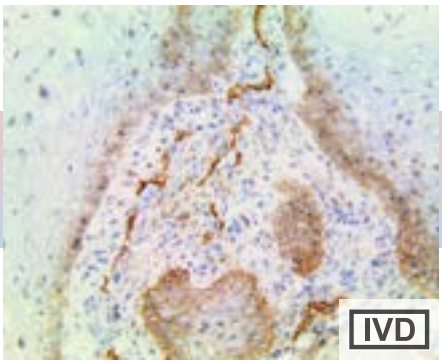
In addition to p53, mammalian cells contain two homologous genes, p63 and p73. These genes give rise to the expression of proteins that are highly similar to p53 in structure and function. In particular, p63 and p73 proteins can induce p53-responsive genes and elicit programmed cell death. p73 and p63 are important during development and differentiation. In particular, p63 appears to be primarily implicated in epithelial development.

Anti-p63 to human p63 protein labels an epitope common to all six p63 isotypes 5"QA 5"QC 5"Qc 3/QA 3/Qc 3/Qc QMBCFMT UIF OVDMFJPG myoepithelial cells in the prostate gland as well as breast tissue, making it useful in differentiating benign vs. malignant prostate lesions and breast lesions.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *4A4*
ISOTYPE: *IgG2a/K*
CONTROL: *Prostate, Breast, Skin, Salivary Gland*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat, Turtle*

CAT. #	PRESENTATION	VOL/QTY
BSB-3698-3	Tinto Predilute	3.0 ml
BSB-3698-7	Tinto Predilute	7.0 ml
BSB-3698-15	Tinto Predilute	15.0 ml

TintoFast Podoplanin, MMab



IHC of Podoplanin on a Frozen Acetone-fixed Squamous Cell Carcinoma Tissue

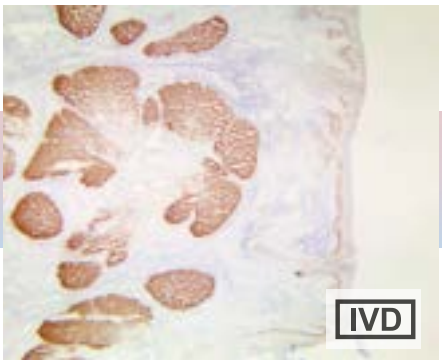
Podoplanin is a transmembrane mucoprotein (38 kDa) recognized by the D2-40 monoclonal antibody. Podoplanin is specifically expressed in the endothelium of lymphatic capillaries but not in the blood vasculature. In normal skin and kidney, podoplanin is co-localized with VEGFR3/FLT4, another marker for lymphatic endothelial cells.

Podoplanin is selectively expressed in lymphatic endothelium as well as Lymphangiomas, Kaposi's Sarcomas and in subset Angiosarcomas with probable lymphatic differentiation. Podoplanin has also been shown to be expressed in Epithelioid Mesotheliomas, Hemangioblastomas and Seminomas.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *D2-40*
ISOTYPE: *IgG1*
CONTROL: *Tonsil, Lymph Node. Lymphangioma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Mouse*

CAT. #	PRESENTATION	VOL/QTY
BSB-3699-3	Tinto Predilute	3.0 ml
BSB-3699-7	Tinto Predilute	7.0 ml
BSB-3699-15	Tinto Predilute	15.0 ml

TintoFast Prame, RMab



IHC of TintoFast PRAME on Frozen Melanoma Tissue

Melanoma antigen preferentially expressed in tumors is a protein that in humans is encoded by the PRAME gene. This gene encodes an antigen that is predominantly expressed in human Melanomas and is recognized by cytolytic T lymphocytes. This expression pattern is like that of other CT antigens, such as MAGE, BAGE and GAGE. However, unlike these other CT antigens, this antigen is also expressed in Acute Leukemias.

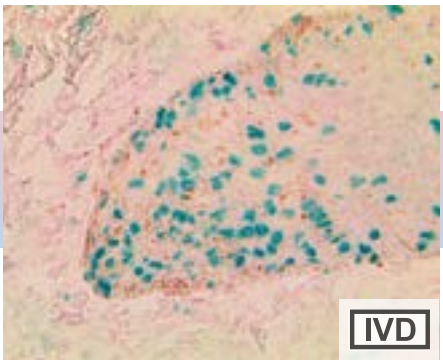
PRAME overexpression in triple negative breast cancer has also been found to promote cancer cell motility through induction of the epithelial-to-mesenchymal transition. PRAME mRNA expression is well documented in Cutaneous and Ocular Melanomas. One study concluded that diffuse nuclear immunoreactivity for PRAME was found in 87% of metastatic and 83.2% of primary Melanomas. Among Melanoma subtypes, PRAME was diffusely expressed in 94.4% of acral Melanomas, 92.5% of superficial spreading Melanomas, 90% of Nodular Melanomas, 88.6% of Lentigo Maligna Melanomas, and 35% of Desmoplastic Melanomas. When in situ and NonDesmoplastic Invasive Melanoma components were present, PRAME expression was seen in both. Most Melanocytic nevi (86.4%), were completely negative for PRAME.

A study suggests that immunohistochemical analysis for PRAME expression may be useful for diagnostic purposes to support a suspected diagnosis of Melanoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-PRAME*
ISOTYPE: *IgG*
CONTROL: *Testis, Seminoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3774-3	TintoFast Predilute	3.0 ml
BSB-3774-7	TintoFast Predilute	7.0 ml
BSB-3774-15	TintoFast Predilute	15.0 ml

TintoFast SOX-10, MMab



IHC of SOX-10 on a Frozen Acetone-Fixed Melanoma Tissue

Transcription factor SOX-10 is a member of the SOX (SRY-related HMG-box) family of transcription factors involved in the regulation of embryonic development and in the determination of the cell fate. The encoded protein may act as a transcriptional activator after forming a protein complex with other proteins. This protein acts as a nucleocytoplasmic shuttle protein and is important for neural crest and peripheral nervous system development. Mutations in this gene are associated with Waardenburg-Shah and Waardenburg-Hirschsprung disease. Anti-SOX-10 has been recently shown to be a sensitive marker of melanoma, including conventional, spindled, and desmoplastic subtypes.

SOX-10 is expressed by metastatic melanomas and nodal capsular nevus in sentinel lymph nodes, but not by other lymph node components such as dendritic cells which usually express S100 protein. In scar specimens, immature fibroblasts, epithelioid granulomas, and histiocytic proliferations can histopathologically mimic residual melanoma and even be positive for MiTF and S100. However, SOX-10 is less likely to be expressed by fibroblasts or histiocytes, especially compared to MiTF and S100. Anti-SOX-10 produces a nuclear stain that provides a clean signal that is much sharper and darker in staining quality when compared to the use of antibodies against MiTF and S100.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-62*
ISOTYPE: *IgG2b/K*
CONTROL: *Skin, Melanoma*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3654	Tinto Predilute	3.0 ml
BSB 3655	Tinto Predilute	7.0 ml
BSB 3656	Tinto Predilute	15.0 ml

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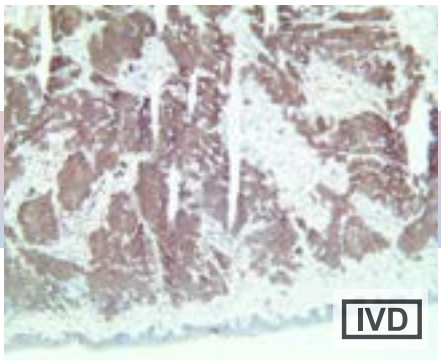
TintoFast Synatophysin, RPab



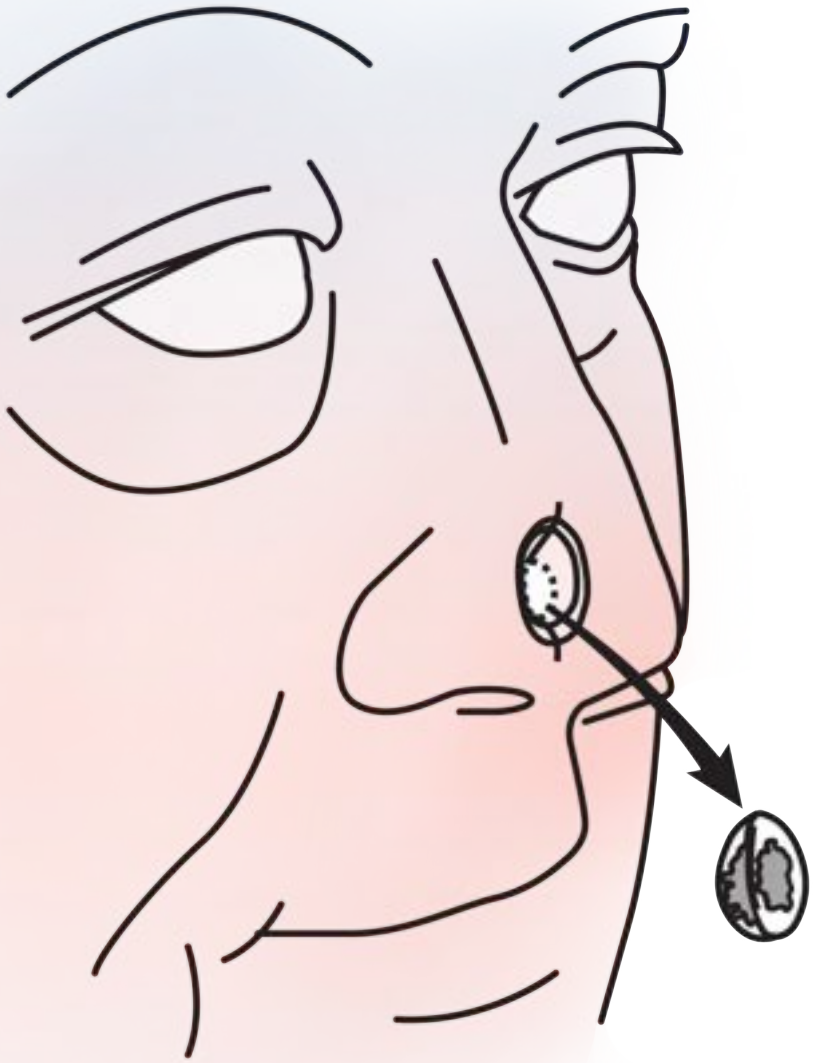
IHC of TintoFast Synaptophysin on Frozen Merkel Cell Carcinoma Tissue

Synaptophysin is a synaptic vesicle glycoprotein weighing 38 kDa. It is present in endocrine cells, the brain, spinal cord, and adrenal glands. It acts as a marker for neuroendocrine cells. Synaptophysin reacts with Neuroendocrine cells of human Adrenal Medulla, Carotid Body, Skin, Pituitary, Thyroid, Lung, Pancreas and Gastrointestinal mucosa. Positive staining is seen in neurons of the Brain, Spinal Cord, Retina, and Paneth's cells in the Gastrointestinal tract and Gastric parietal cells.

This antibody identifies normal Neuroendocrine cells and Neuroendocrine neoplasms. Diffuse, finely-granular cytoplasmic staining is observed and probably correlates with the distribution of the antigen within Neurosecretory vesicles. The expression of Synaptophysin is independent of the presence of NSE or other Neuroendocrine markers. Synaptophysin is an independent broad-range marker of neural and neuroendocrine differentiation.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Pancreas, Brain, Pituitary, Adrenal, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3775-3	TintoFast Predilute	3.0 ml
BSB-3775-7	TintoFast Predilute	7.0 ml
BSB-3775-15	TintoFast Predilute	15.0 ml

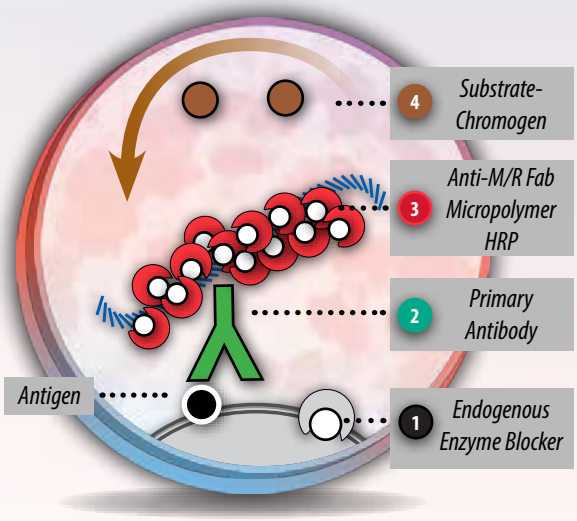


Fast Mohs PolyDetector HRP Detection Systems

The Bio SB Mohs PolyDetector is a non-Biotin, Fab Micropolymer detection system that allows for the demonstration of antigens in FFPE tissues, Mohs cryostat sections, blood smears, cytosmears, and cell preparations. The Bio SB Mohs PolyDetector technology was developed with our proprietary Micropolymer backbone, conjugated to Anti-Mouse and Anti-Rabbit Fab fraction of IgG's, plus high quality HRP. The elimination of the Anti-Mouse and Anti-Rabbit immunoglobulin Fc region reduces non-specific reactions and background. This ensures consistent and reproducible immunostaining for all types of nuclear, cytoplasmic and membranous antigens, in different types of tissues. The increased sensitivity of this system allows for rapid staining procedures without compromising the stain quality.

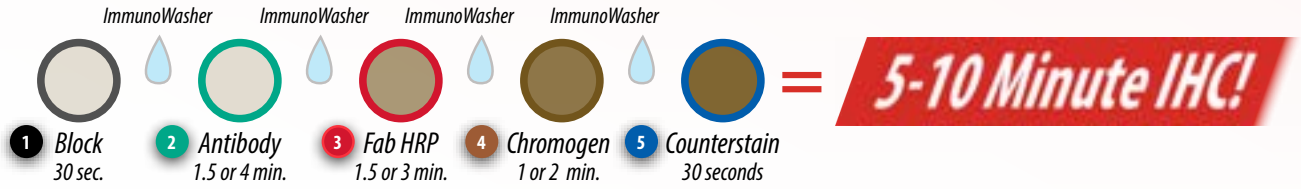
Fast Mohs Fab PolyDetector HRP Overview

- Non-Biotin, Fab Micropolymer HRP 1-Step immunohistochemistry detection technology.
- Fab Micropolymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal.
- Ready-to-use, high sensitivity system especially designed for immunohistochemistry of frozen tissues.
- Universal: detects mouse or rabbit antibodies.
- Developed as DAB HRP Brown and HRP Green detection kits, but can be used with the AEC HRP Red, HRP Blue and HRP Black substrate-chromogens.
- Designed to be used manually, or can be optimized to work with any open, automated system.



- For in vitro diagnostic use. All kits manufactured according to US FDA and ISO 13485 guidelines.

Fast Mohs Fab PolyDetector HRP Protocol



Mohs PolyDetector DAB HRP Brown

Product Description	Volume	Catalog #
Mohs Mouse/Rabbit PolyDetector DAB HRP Brown	5.0 ml	BSB 0307S
Mohs Mouse/Rabbit PolyDetector DAB HRP Brown	15.0 ml	BSB 0307
Mohs Mouse/Rabbit PolyDetector DAB HRP Brown	50.0 ml	BSB 0308
Mohs Mouse/Rabbit PolyDetector DAB HRP Brown	100.0 ml	BSB 0309

Mohs PolyDetector HRP Green

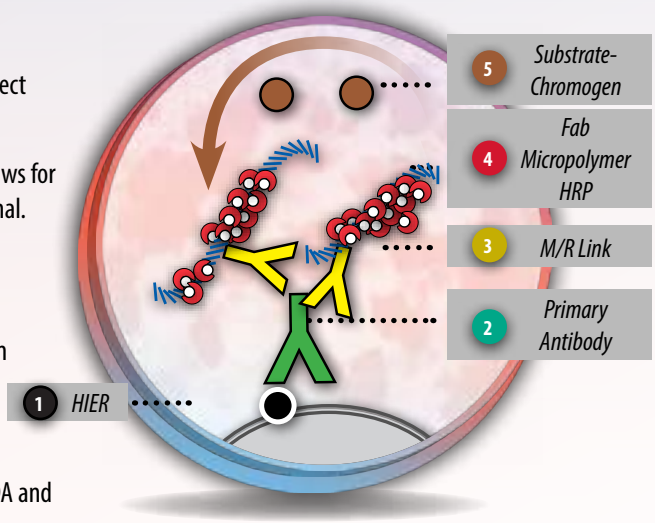
Product Description	Volume	Catalog #
Mohs Mouse/Rabbit PolyDetector HRP Green	5.0 ml	BSB 0310S
Mohs Mouse/Rabbit PolyDetector HRP Green	15.0 ml	BSB 0310
Mohs Mouse/Rabbit PolyDetector HRP Green	50.0 ml	BSB 0311
Mohs Mouse/Rabbit PolyDetector HRP Green	100.0 ml	BSB 0312

Fast Mohs PolyDetector Plus HRP Detection Systems

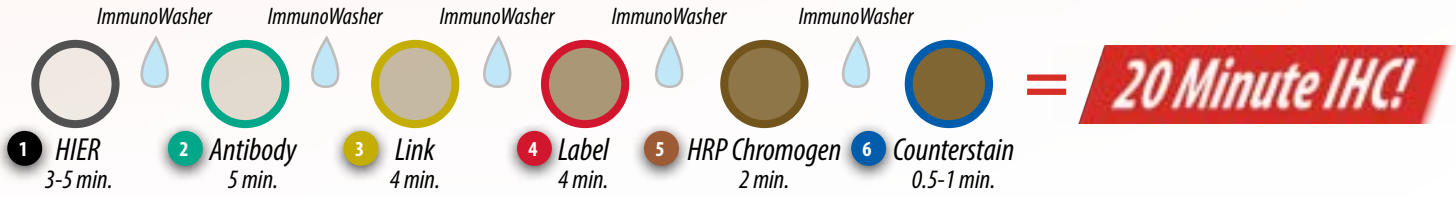
The Bio SB Mohs PolyDetector Plus is a highly sensitive non-Biotin, Fab Micropolymer detection system that allows for the demonstration of antigens in FFPE tissues, Mohs cryostat sections, blood smears, cytosmears, and cell preparations. The Bio SB Mohs PolyDetector Plus technology was developed with our proprietary Micropolymer backbone, conjugated to Anti-Link Fab fraction of IgG's, plus high quality HRP. The elimination of the Anti-Link Fc region reduces non-specific reactions and background. The Mohs PolyDetector Plus kit incorporates an immunoglobulin link and a Fab micropolymer label. This multiple component Fab Micropolymer delivers a highly sensitive and more specific signal than the Mohs PolyDetector kit. It is recommended for easy to detect antigens and more difficult to detect antigens like nuclear targets.

Fast Mohs Fab PolyDetector Plus HRP Overview

- Non-Biotin, 2-Step immunohistochemistry detection technology.
- Recommended for easy to detect antigens and more difficult to detect antigens like nuclear targets.
- Anti-mouse and rabbit Fab Micropolymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal.
- Ready-to-use, high sensitivity system especially designed for immunohistochemistry of frozen tissues.
- Developed as DAB HRP Brown and HRP Green detection kits, but can be used with the AEC HRP Red, HRP Blue and HRP Black substrate-chromogens.
- For in vitro diagnostic use. All kits manufactured according to US FDA and ISO 13485 guidelines.



Fast Mohs Fab PolyDetector Plus HRP Protocol



Mohs PolyDetector Plus DAB HRP Brown

Product Description	Volume	Catalog #
Mohs Mouse/Rabbit PolyDetector Plus DAB HRP Brown	5.0 ml	BSB-0355-5
Mohs Mouse/Rabbit PolyDetector Plus DAB HRP Brown	15.0 ml	BSB-0355-15
Mohs Mouse/Rabbit PolyDetector Plus DAB HRP Brown	50.0 ml	BSB-0355-50
Mohs Mouse/Rabbit PolyDetector Plus DAB HRP Brown	100.0 ml	BSB-0355-100

Mohs PolyDetector Plus HRP Green

Product Description	Volume	Catalog #
Mohs Mouse/Rabbit PolyDetector Plus HRP Green	5.0 ml	BSB-0359-5
Mohs Mouse/Rabbit PolyDetector Plus HRP Green	15.0 ml	BSB-0359-15
Mohs Mouse/Rabbit PolyDetector Plus HRP Green	50.0 ml	BSB-0359-50
Mohs Mouse/Rabbit PolyDetector Plus HRP Green	100.0 ml	BSB-0359-100

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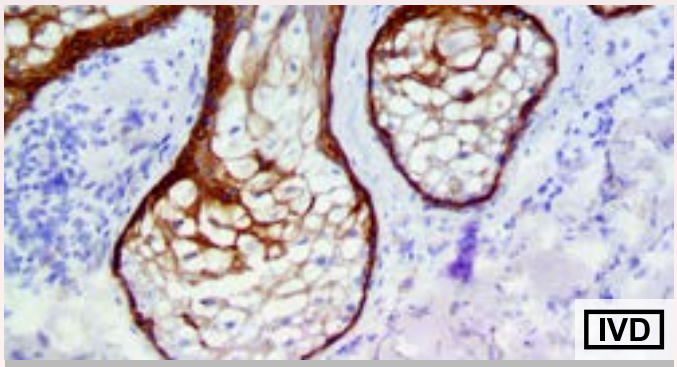
Ancillaries For Fast Mohs IHC

Fast ChromoProtector

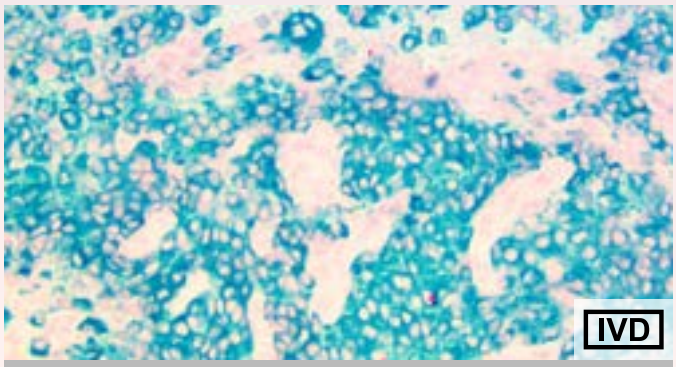
Product Description	Volume	Catalog #
Fast ChromoProtector	15 ml	BSB-0327-15
Fast ChromoProtector	50 ml	BSB-0327-50
Fast ChromoProtector	100 ml	BSB-0327-100
Fast ChromoProtector	200 ml	BSB-0327-200
Fast ChromoProtector	500 ml	BSB-0327-500
Fast ChromoProtector	1000 ml	BSB-0327-1000

Mohs ImmunoDigestor

Product Description	Volume	Catalog #
Mohs ImmunoDigestor	15.0 ml	BSB 0324
Mohs ImmunoDigestor	50.0 ml	BSB 0325
Mohs ImmunoDigestor	100.0 ml	BSB 0326



IHC of EpCAM BerEP4 on a Frozen Acetone-fixed Basal Cell Carcinoma Tissue using the Mohs PolyDetector DAB HRP Brown

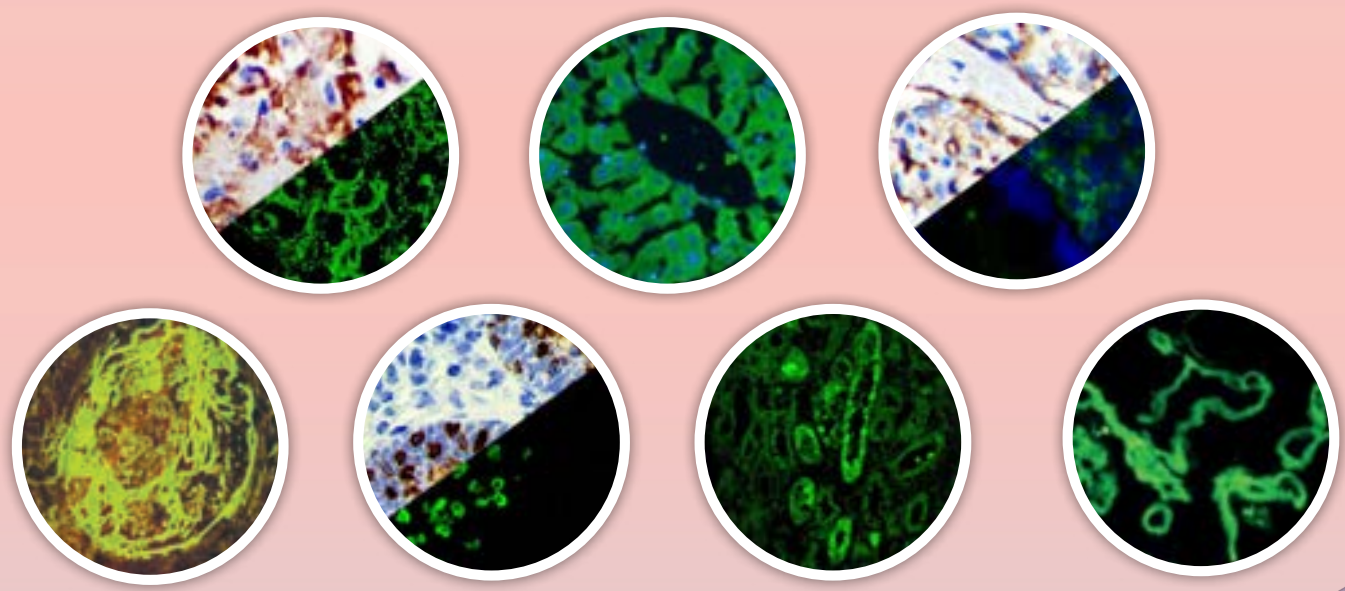


IHC of MART-1 on a Frozen Acetone-fixed Melanoma Tissue using the Mohs PolyDetector HRP Green

Immunofluorescence for Autoimmunity

Quality Antibodies | Sensitive Detection | IF and IHC Applications

A selection of antibodies, detection systems for IF and IHC Autoimmune disease applications.



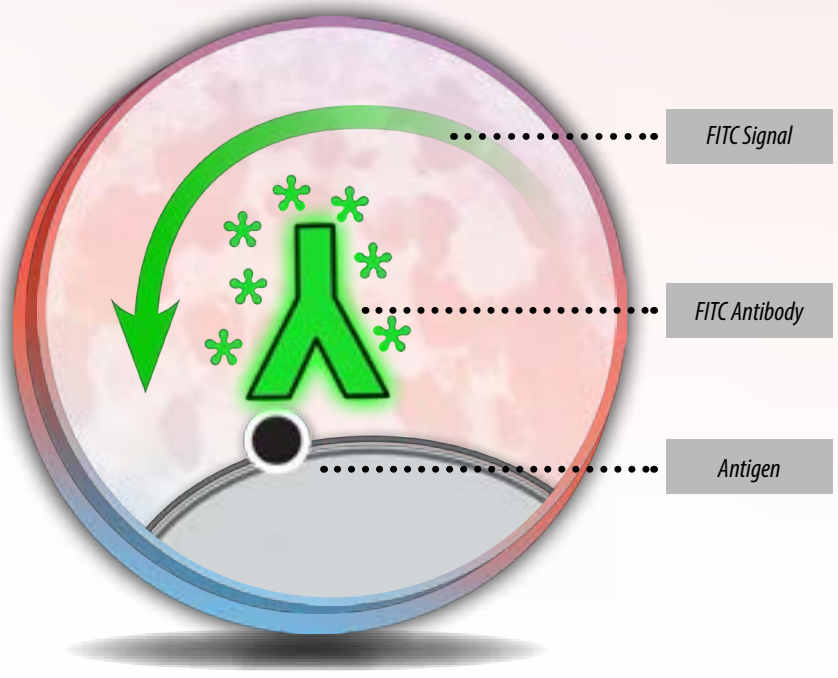
Direct Immunofluorescence

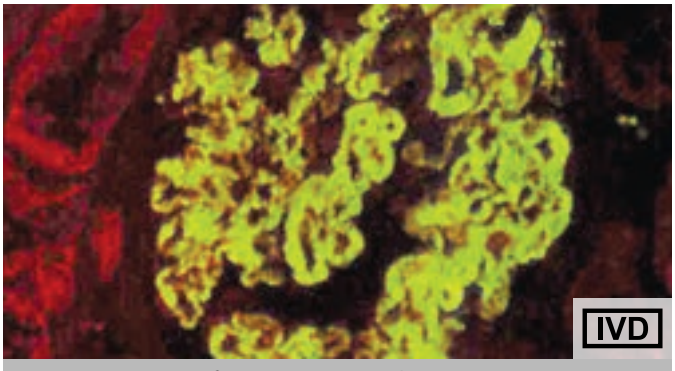
Direct immunofluorescence uses a single, primary antibody, chemically linked to a fluorophore or fluorochrome. The primary antibody recognizes the target molecule (antigen) and binds to a specific region called the epitope. The attached fluorophore can be detected via fluorescent microscopy. Bio SB's Direct immunofluorescence, although somewhat less common, has notable advantages over the indirect procedure. The direct detection of the antigen by a primary antibody directly labeled with a fluorochrome reduces the number of steps in the procedure, saving time and reducing non-specific background signal.

All Direct Immunofluorescence Antibodies are available in concentrate and convenient Tinto Predilute formats to meet your laboratory needs.

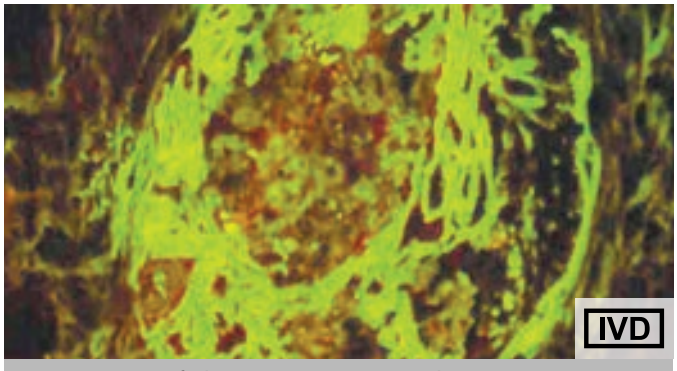
Tinto Prediluted Antibodies	**3 mL Tinto Predilute (30 tests)** **7 mL Tinto Predilute (70 tests)** **15 mL Tinto Predilute (150 tests)**	**Concentrated Antibodies**	**0.5 mL Concentrate** **1 mL Concentrate**

- High affinity purified antibodies conjugated to FITC.
- Highly sensitive and specific.
- Low background.
- Reduction in time compared to InDirect labeling.
- Validated for transplantation and autoimmunity studies.



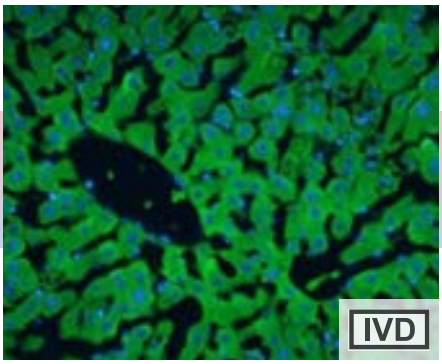


IF of IgA on a Frozen Kidney Tissue



IF of Fibrinogen on a Frozen Kidney Tissue

Albumin / FITC, RPab



IF of Albumin on a FFPE Liver Tissue

The albumins are a family of globular proteins, the most common of which are the serum albumins. Albumins are commonly found in blood plasma and differ from other blood proteins in that they are not glycosylated. Albumin functions primarily as a carrier protein for steroids, fatty acids, and thyroid hormones and plays a role in stabilizing extracellular fluid volume. Mutations in this gene on chromosome 4 result in various anomalous proteins.

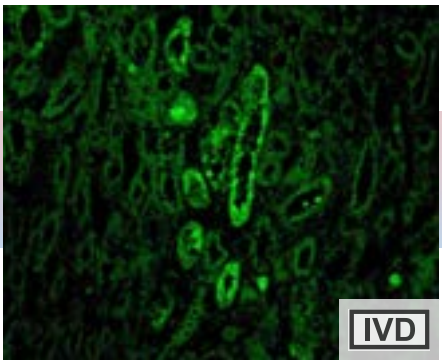
Low albumin (hypoalbuminemia) may be caused by liver disease, nephrotic syndrome, burns, protein-losing enteropathy, malabsorption, malnutrition, late pregnancy, artefact, genetic variations and malignancy. High albumin (hyperalbuminemia) is almost always caused by dehydration. In some cases of retinol (Vitamin A) deficiency, the albumin level can be elevated to high-normal values.

It has been reported in systemic lupus erythematosus (SLE) patients an increased prevalence of IgG autoantibodies against human serum albumin (anti-HSA IgG) that are associated with SLE disease activity.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Salivary Gland, Kidney, Tonsil, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3000-3	Tinto Predilute	3.0 ml
BSB-3000-7	Tinto Predilute	7.0 ml
BSB-3000-15	Tinto Predilute	15.0 ml
BSB-3000-05	Concentrate	0.5 ml
BSB-3000-1	Concentrate	1.0 ml
BSB-3000-CS	Control Slides	5

C1q / FITC, RPab



IF of C1q on a FFPE Lupus Erythematosus Tissue

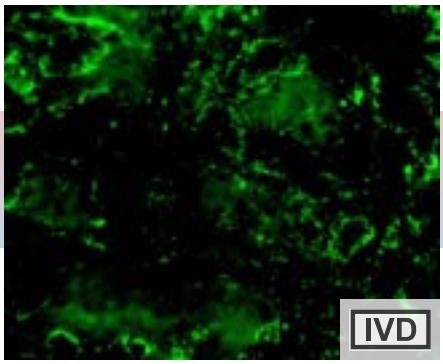
The complement component 1q (C1q) is a protein complex involved in the complement system, which is part of the innate immune system. C1q together with C1r and C1s form the C1 complex. Antibodies of the adaptive immune system can bind antigen, forming an antigen-antibody complex. When C1q binds antigen antibody complexes, the C1 complex becomes activated. Activation of the C1 complex initiates the classical complement pathway of the complement system.

C1q nephropathy is a rare glomerular disease with characteristic mesangial C1q deposition noted on IHC or IF microscopy. It is histologically defined and poorly understood. Light microscopic features are heterogeneous and comprise minimal change disease (MCD), focal segmental glomerulosclerosis (FSGS), and proliferative glomerulonephritis. Clinical presentation is also diverse, and ranges from asymptomatic hematuria or proteinuria to frank nephritic or nephrotic syndrome in both children and adults. Hypertension and renal insufficiency at the time of diagnosis are common findings. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Kidney, Cervix, Spleen, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3001-3	Tinto Predilute	3.0 ml
BSB-3001-7	Tinto Predilute	7.0 ml
BSB-3001-15	Tinto Predilute	15.0 ml
BSB-3001-05	Concentrate	0.5 ml
BSB-3001-1	Concentrate	1.0 ml
BSB-3001-CS	Control Slides	5

C3c / FITC, RPab



IF of C3c on a FFPE Lupus Erythematosus Tissue

Complement component 3, often simply called C3, is a protein of the immune system. It plays a central role in the complement system and contributes to innate immunity.

C3 glomerulopathy was recently coined to describe renal biopsy appearances characterized by the presence of glomerular deposits composed predominantly of C3 in the absence of significant amounts of Ig. The presence of C3 in the absence of Ig suggests activation of complement by antibody-independent pathways, typically the alternative pathway, and many patients with this type of renal lesion have evidence of genetic or acquired alternative pathway dysregulation. C3 glomerulopathy has been further divided into dense deposit disease (DDD) and C3 glomerulonephritis (C3GN) based on electron microscopy (EM) appearances. The underlying genetic defect has been identified in some hereditary forms of C3GN such as CFHR5 nephropathy. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Placenta, Kidney, Fallopian Tube, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3002-3	Tinto Predilute	3.0 ml
BSB-3002-7	Tinto Predilute	7.0 ml
BSB-3002-15	Tinto Predilute	15.0 ml
BSB-3002-05	Concentrate	0.5 ml
BSB-3002-1	Concentrate	1.0 ml
BSB-3002-CS	Control Slides	5

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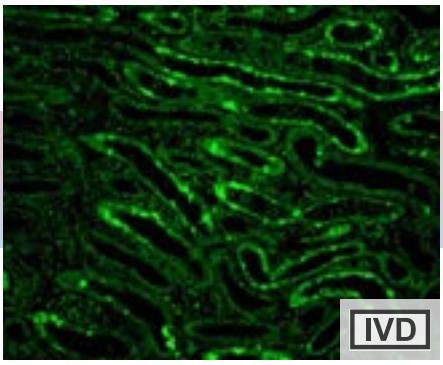
C4c / FITC, RPab



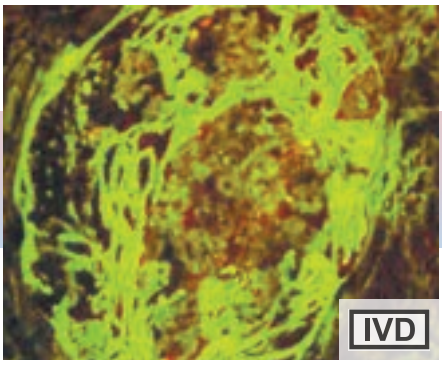
IF of C4c on a Lupus Erythematosus Tissue

Complement component 4 (C4), in humans, is a protein involved in the intricate complement system, originating from the human leukocyte antigen (HLA) system. It serves several critical functions in immunity, tolerance, and autoimmunity with the other numerous components. Low serum complement activity or low protein concentrations of complement C4 are found on Systemic Lupus Erythematosus (SLE) and it is often associated with Congenital C4 deficiency. Complete deficiencies of complement components are among the strongest genetic risk factors for SLE or lupus-like disease, across HLA haplotypes and racial backgrounds.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Testis, Kidney, Pancreas, Salivary Gland, Colon*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3003-3	Tinto Predilute	3.0 ml
BSB-3003-7	Tinto Predilute	7.0 ml
BSB-3003-15	Tinto Predilute	15.0 ml
BSB-3003-05	Concentrate	0.5 ml
BSB-3003-1	Concentrate	1.0 ml
BSB-3003-CS	Control Slides	5

Fibrinogen / FITC, RPab



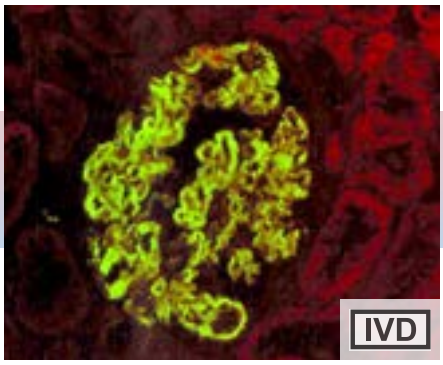
IF of Fibrinogen on a Frozen Kidney Tissue

Fibrinogen (factor I) is a glycoprotein that circulates in the blood of vertebrates. During tissue and vascular injury, it is converted enzymatically by thrombin to fibrin and subsequently to a fibrin-based blood clot. Fibrinogen functions primarily to occlude blood vessels and thereby stop excessive bleeding. Fibrin also mediates blood platelet and endothelial cell spreading, tissue fibroblast proliferation, capillary tube formation, and angiogenesis and thereby functions to promote tissue revascularization, wound healing, and tissue repair. Several disorders (Congenital afibrinogenemia, hypofibrinogenemia, Fibrinogen storage disease, hereditary fibrinogen Aa-Chain amyloidosis, congenital hypodysfibrinogenemia, Cryofibrinogenemia, acquired hypofibrinogenemia, Chronic Kidney Disease, etc.) in the quantity and/or quality of fibrinogen cause pathological bleeding, pathological blood clotting, and/or the deposition of fibrinogen in the liver, kidneys, and other tissues. Chronic kidney disease (CKD) patients have increased rates of bleeding as well as thrombosis. Fibrinogen and platelets combine to generate a mature clot, but in CKD platelets are dysfunctional.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Breast, Testis, Kidney, Pancreas, Salivary Gland, Skin, Fallopian Tube*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3004-3	Tinto Predilute	3.0 ml
BSB-3004-7	Tinto Predilute	7.0 ml
BSB-3004-15	Tinto Predilute	15.0 ml
BSB-3004-05	Concentrate	0.5 ml
BSB-3004-1	Concentrate	1.0 ml
BSB-3004-CS	Control Slides	5

IgA / FITC, RPab



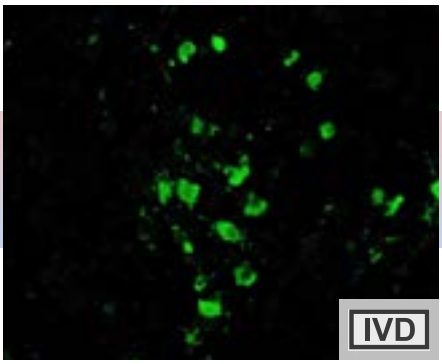
IF of IgA on Frozen Kidney Tissue

Immunoglobulin A (IgA) is the main immunoglobulin in mucous secretions, including tears, saliva, and colostrum, as well as respiratory, intestinal, prostatic, and vaginal secretions. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA provides protection against microbes proliferating in body secretions, especially those of the digestive and respiratory tracts. IgA antibody reacts with surface immunoglobulin IgA alpha chains. It is extremely useful when identifying Acute Leukemias, IgA Myelomas, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. However, due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Lymph Node, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3005-3	Tinto Predilute	3.0 ml
BSB-3005-7	Tinto Predilute	7.0 ml
BSB-3005-15	Tinto Predilute	15.0 ml
BSB-3005-05	Concentrate	0.5 ml
BSB-3005-1	Concentrate	1.0 ml
BSB-3005-CS	Control Slides	5

IgD / FITC, RPab



IF of IgD on a FFPE Tonsil Tissue

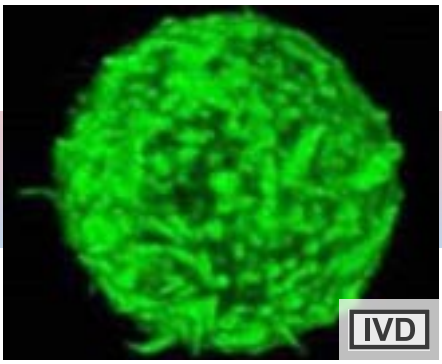
IgD makes up about 1% of proteins in the plasma membranes of immature Blymphocytes (coexpressed with IgM) and is also found in serum in very small amounts. It is monomeric and incorporates the alpha-heavy chain in its structure. IgD's functionis currently unknown, as mice lacking IgD seem to retain normal immune responses (implying redundancy if not lack of function), and IgD ceases to be expressed in activated B-lymphocytes. It may function as a regulatory antigen receptor. IgD is the major antigen receptor isotype co-expressed with IgM on the surface of most peripheral B cells in mice and humans.

The IgD antibody reacts with surface immunoglobulin IgD delta chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived from Lymphomas, specifically Marginal Zone Lymphoma. Renal involvement in systemic lupus erythematosus (SLE) is associated with production of antibodies to double stranded DNA, deposition of immune complexes and organ damage. Lupus nephritis patients were characterized by increased percentage of immature/early-transitional Bcells (CD27-IgD+CD21-), higher frequency of activated switched memory (SM, CD27+IgD-CD21-) and exhausted memory B-cells (CD27-IgD-), and decrease in nonswitched memory (NSM, CD27+IgD+) B-cells.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3006-3	Tinto Predilute	3.0 ml
BSB-3006-7	Tinto Predilute	7.0 ml
BSB-3006-15	Tinto Predilute	15.0 ml
BSB-3006-05	Concentrate	0.5 ml
BSB-3006-1	Concentrate	1.0 ml
BSB-3006-CS	Control Slides	5

IgE / FITC, RPab



IF of IgE on a FFPE Lupus Positive Tissue

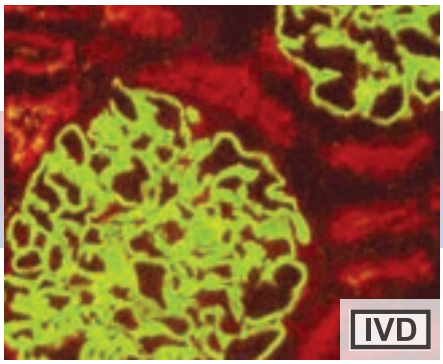
IgE, Immunoglobulin E, is an isotype of antibody only found in mammals. IgE synthetized by plasma cells. Monomers of IgE consist of two heavy chains (e chain) and two light chains, with the echain containing 4 Ig-like constant domains (Ce1-Ce4). IgE's main function is immunity to parasites such as helminths like Schistosoma mansoni, Trichinella spiralis, and Fasciola hepatica. IgE is utilized during immune defense against certain protozoan parasites such as Plasmodium falciparum.

IgE also has an essential role in type I hypersensitivity, which manifests in various allergic diseases, such as allergic asthma, most types of sinusitis, allergic rhinitis, food allergies, and specific types of chronic urticaria and atopic dermatitis. IgE also plays a pivotal role in responses to allergens, such as: anaphylactic drugs, bee stings, and antigen preparations used in desensitization immunotherapy. IgE is known to be elevated in various autoimmune disorders such as Lupus(SLE), Rheumatoid Arthritis(RA) & psoriasis, and is theorized to be of pathogenetic importance in RA and SLE by eliciting a hypersensitivity reaction.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Thymus, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3011-3	Tinto Predilute	3.0 ml
BSB-3011-7	Tinto Predilute	7.0 ml
BSB-3011-15	Tinto Predilute	15.0 ml
BSB-3011-05	Concentrate	0.5 ml
BSB-3011-1	Concentrate	1.0 ml
BSB-3011-CS	Control Slides	5

IgG / FITC, RPab



IF of C3c on a FFPE Lupus Erythematosus Tissue

IgG is a monomeric immunoglobulin, comprised of two heavy chains and two light chains. This is the most abundant immunoglobulin and is approximately equally distributed in blood and tissue liquids, constituting 75% of serum immunoglobulins in humans. This is the only isotype that can pass through the placenta and bind to many kinds of pathogens. IgG protects the body against them by complement activation (classic pathway), opsonization for phagocytosis and neutralization of their toxins. There are 4 subclasses: IgG1 (66%), IgG2 (23%), IgG3 (7%) and IgG4 (4%).

IgG antibody reacts with surface immunoglobulin IgG gamma chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q. Clinically, hematuria and proteinuria are present, with or without nephrotic syndromes. Mesangial IgG glomerulonephritis has been recently recognized as a distinct type of glomerulonephritis. The morphologic criteria detected in these patients included mesangial dense deposits by ultrastructural studies, which were predominantly positive for IgG by immunofluorescence.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Kidney, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3007-3	Tinto Predilute	3.0 ml
BSB-3007-7	Tinto Predilute	7.0 ml
BSB-3007-15	Tinto Predilute	15.0 ml
BSB-3007-05	Concentrate	0.5 ml
BSB-3007-1	Concentrate	1.0 ml
BSB-3007-CS	Control Slides	5

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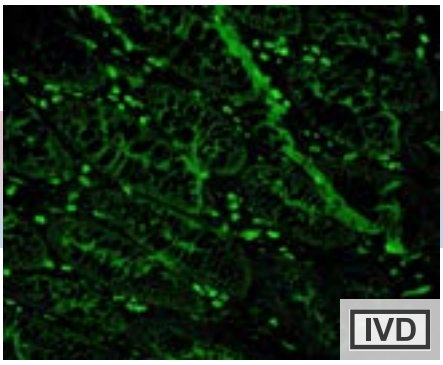
IgM / FITC, RPab



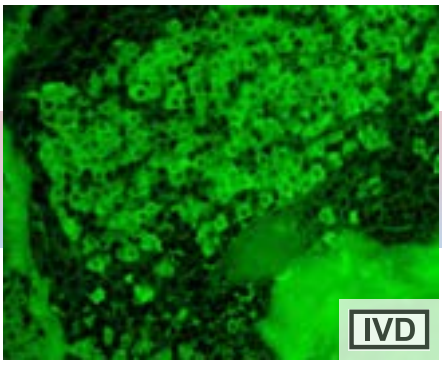
IF of IgM on a FFPE Colon Tissue

IgM forms polymers where multiple immunoglobulins are covalently linked together with disulfide bonds, normally as a pentamer or occasionally as a hexamer. It has a large molecular mass of approximately 900 kDa (in its pentamer form). In germline cells, the gene segment encoding the constant region of the heavy chain is positioned first among other constant region gene segments. For this reason, IgM is the first immunoglobulin expressed by mature B-cells. IgM antibody reacts with surface immunoglobulin IgM mu chains. IgM is one of the predominant surface immunoglobulins on B-lymphocytes, and is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal generearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q. Clinically, hematuria and proteinuria are present, with or without nephrotic syndromes. Immunoglobulin M (IgM) nephropathy is an uncommon glomerular disease characterized by IgM deposits in the mesangium.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3008-3	Tinto Predilute	3.0 ml
BSB-3008-7	Tinto Predilute	7.0 ml
BSB-3008-15	Tinto Predilute	15.0 ml
BSB-3008-05	Concentrate	0.5 ml
BSB-3008-1	Concentrate	1.0 ml
BSB-3008-CS	Control Slides	5

Kappa / FITC, RPab



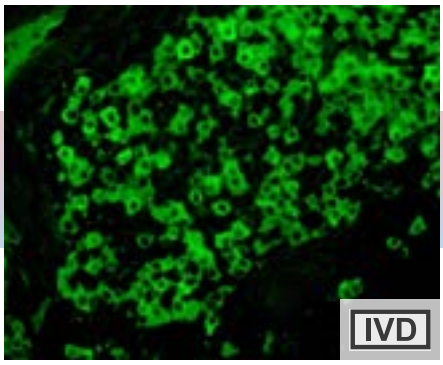
IF of Kappa on a FFPE Tonsil Tissue

Kappa detects surface immunoglobulin on normal and neoplastic B-cells. In paraffin embedded tissue, Kappa exhibits strong staining of kappa-positive plasma cells and cells that have absorbed exogenous immunoglobulin. When studying B-cell neoplasms, the determination of light-chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either Kappa or Lambda light chains, whereas reactive proliferations display a mixture of Kappa and Lambda-positive cells. If only a single light-chain type is detected, a lympho-proliferative disorder is very likely. Monoclonality is determined by a Kappa-Lambda ratio greater than or equal to 3:1, a Lambda-Kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population. In IgG-dominant immune complex-mediated glomerulonephritis, there are multiple pathological findings that strongly suggest the diagnosis of Lupus Nephritis including immunofluorescence staining for IgG, IgM, IgA, Kappa or Lambda, C3 and C1.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3009-3	Tinto Predilute	3.0 ml
BSB-3009-7	Tinto Predilute	7.0 ml
BSB-3009-15	Tinto Predilute	15.0 ml
BSB-3009-05	Concentrate	0.5 ml
BSB-3009-1	Concentrate	1.0 ml
BSB-3009-CS	Control Slides	5

Lambda / FITC, RPab



IF of Lambda on a FFPE Tonsil Tissue

Lambda detects surface immunoglobulin on normal and neoplastic B-cells. Lambda staining is seen in B-cell follicles of human lymphoid tissue. When studying B-cell neoplasms, the determination of light chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population. In IgG-dominant immune complex-mediated glomerulonephritis, there are multiple pathological findings that strongly suggest the diagnosis of Lupus Nephritis including immunofluorescence staining for IgG, IgM, IgA, Kappa or Lambda, C3 and C1.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB-3010-3	Tinto Predilute	3.0 ml
BSB-3010-7	Tinto Predilute	7.0 ml
BSB-3010-15	Tinto Predilute	15.0 ml
BSB-3010-05	Concentrate	0.5 ml
BSB-3010-1	Concentrate	1.0 ml
BSB-3010-CS	Control Slides	5

Immunofluorescence Antibodies for Autoimmunity

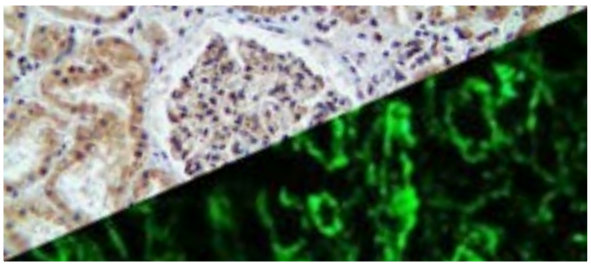
Bio SB's high affinity, high sensitivity InDirect Immunofluorescence antibodies work with both our AmpliDetector Plus InDirect FITC Detection system or our PolyDetector micropolymer IHC detection system. This allows for greater flexibility without sacrificing price or staining quality.

All InDirect Immunofluorescence Antibodies are available in concentrate and convenient Tinto Predilute formats to meet your laboratory needs.

Tinto Prediluted Antibodies	**3 mL Tinto Predilute (30 tests)** **7 mL Tinto Predilute (70 tests)** **15 mL Tinto Predilute (150 tests)**	**Concentrated Antibodies**	**0.1 mL Concentrate** **0.5 mL Concentrate** **1 mL Concentrate**

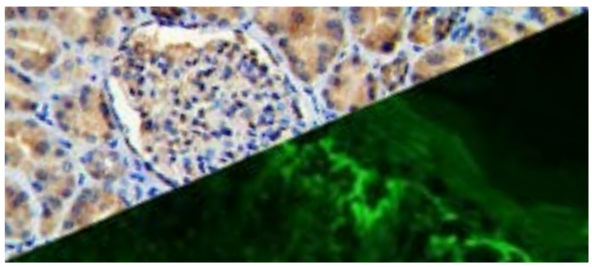
InDirect Immunofluorescence Antibodies	
Albumin, RPab	Polyclonal
Amyloid A, RMab	EP335
C1q, RPab	Polyclonal
C3c, RPab	Polyclonal
C3d, RPab	Polyclonal
C4c, RPab	Polyclonal
C4d, RMab	EP272
Collagen IV, RMab	RBT-COL4
Collagen IV, MMab	CIV22
Cytokeratin 5/6, RMab	EP24 & EP67
Cytomegalovirus, MMab	8B1.2, 1G5.2 & 2D4.2
Fibrinogen, RPab	Polyclonal
IgA, MMab	BSB-39
IgA, RPab	Polyclonal
IgD, RMab	EP173
IgD, RPab	Polyclonal

InDirect Immunofluorescence Antibodies	
IgE, RPab	Polyclonal
IgG, MMab	BSB-40
IgG, RPab	Polyclonal
IgG4, MMab	BSB-96
IgG4, RMab	EP138
IgM, RPab	Polyclonal
IgM, MMab	BSB-41
Kappa, RPab	Polyclonal
Kappa, MMab	BSB-58
Lambda, MMab	BSB-16
Lambda, RPab	Polyclonal
p40, RMab	ZR8
p63, MMab	4A4
p63, RMab	EP174
PLA2R1, MMab	BSB-129
SV40, MMab	pab101



C1q

IHC on a FFPE Lupus Erythmatosus Tissue
IF on a Frozen Lupus Erythamatosus Tissue



Fibrinogen

IHC on a FFPE Kidney Tissue
IF on a Frozen Lichen Planus Tissue

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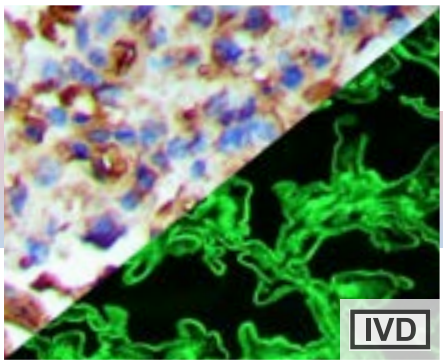
Albumin, RPab



IHC and IF of Albumin on a FFPE Lupus Erythematosus (IHC) and a FFPE Kidney Tissue (IF)

The albumins are a family of globular proteins, the most common of which are the serum albumins. Albumins are commonly found in blood plasma and differ from other blood proteins in that they are not glycosylated. Albumin functions primarily as a carrier protein for steroids, fatty acids, and thyroid hormones and plays a role in stabilizing extracellular fluid volume. Mutations in this gene on chromosome 4 result in various anomalous proteins.

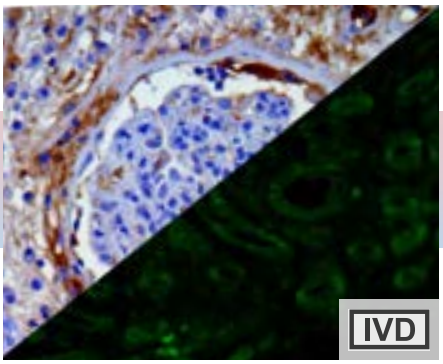
Low albumin (hypoalbuminemia) may be caused by liver disease, nephrotic syndrome, burns, protein-losing enteropathy, malabsorption, malnutrition, late pregnancy, artefact, genetic variations and malignancy. High albumin (hyperalbuminemia) is almost always caused by dehydration. In some cases of retinol (Vitamin A) deficiency, the albumin level can be elevated to high-normal values.

It has been reported in systemic lupus erythematosus (SLE) patients an increased prevalence of IgG autoantibodies against human serum albumin (anti-HSA IgG) that are associated with SLE disease activity.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Salivary Gland, Kidney, Tonsil, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3012	Tinto Predilute	3.0 ml
BSB 3013	Tinto Predilute	7.0 ml
BSB 3014	Tinto Predilute	15.0 ml
BSB 3015	Concentrate	0.1 ml
BSB 3016	Concentrate	0.5 ml
BSB 3017	Concentrate	1.0 ml
BSB 3018	Control Slides	5

Amyloid A, RMab



IHC and IF of Amyloid A on a FFPE Kidney Tissue

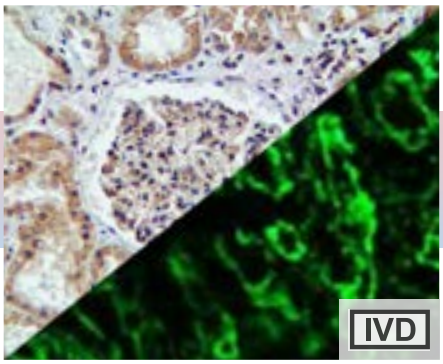
Serum amyloid A (SAA) proteins are a family of apolipoproteins associated with high-density lipoprotein (HDL) in plasma. Different isoforms of SAA are expressed constitutively (constitutive SAAs) at different levels or in response to inflammatory stimuli (acute phase SAAs). These proteins are produced predominantly by the liver. The conservation of these proteins throughout invertebrates and vertebrates suggests that SAAs play a highly essential role in all animals. Acute-phase serum amyloid A proteins (A-SAAs) are secreted during the acute phase of inflammation. A-SAAs are implicated in several chronic inflammatory diseases, such as amyloidosis, atherosclerosis, and rheumatoid arthritis.

Amyloidosis is a disease characterized by the abnormal build-up of amyloid, abnormal non-branching fibrillary β-pleated sheet proteins that are insoluble and highly resistant to proteolytic degradation that result in localized or systemic organ dysfunction. AA amyloidosis is associated with a variety of chronic inflammatory conditions and infections, derived from SAA. Immunohistochemical staining using a panel of antibodies including κ and λ Ig light chains, Amyloid A, and Transthyretin can aid in recognizing most forms of amyloid. The Amyloid A immunostaining detects tissue deposition of serum Amyloid A protein, an acute phase reactive protein. It is positive in AA Amyloidosis and familial Mediterranean fever. SAA concentrations have been reported to be a marker of poor prognosis, elevated in patients with advanced stages of cancer and those with malignant disease.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP335*
ISOTYPE: *IgG*
CONTROL: *Kidney, Amyloidosis*
LOCALIZATION: *Cytoplasmic, Extracellular*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2803	Tinto Predilute	3.0 ml
BSB 2804	Tinto Predilute	7.0 ml
BSB 2805	Tinto Predilute	15.0 ml
BSB 2806	Concentrate	0.1 ml
BSB 2807	Concentrate	0.5 ml
BSB 2808	Concentrate	1.0 ml
BSB 2809	Control Slides	5

C1q, RPab



IHC and IF of C1q on a of FFPE Lupus Erythematosus (IHC) and a Frozen Lupus Erythematosus Tissue (IF)

Thecomplement component 1q(C1q) is aprotein complexinvolved in the complement system, which is part of theinnate immune system. C1q together with C1randC1s form theC1 complex. Antibodiesof theadaptive immune system can bindantigen, forming an antigen-antibody complex.

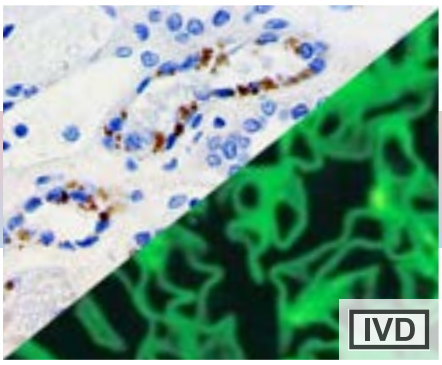
When C1q binds antigenantibody complexes, theC1 complexbecomes activated. Activation of the C1 complex initiates theclassical complement pathway of the complement system.

C1q nephropathy is a rare glomerular disease with characteristic mesangial C1q deposition noted on IHC or IF microscopy. It is histologically defined and poorly understood. Light microscopic features are heterogeneous and comprise minimal change disease (MCD), focal segmental glomerulosclerosis (FSGS), and proliferative glomerulonephritis. Clinical presentation is also diverse, and ranges from asymptomatic hematuria or proteinuria to frank nephritic or nephrotic syndrome in both children and adults. Hypertension and renal insufficiency at the time of diagnosis are common findings. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Kidney, Cervix, Spleen, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3019	Tinto Predilute	3.0 ml
BSB 3020	Tinto Predilute	7.0 ml
BSB 3021	Tinto Predilute	15.0 ml
BSB 3022	Concentrate	0.1 ml
BSB 3023	Concentrate	0.5 ml
BSB 3024	Concentrate	1.0 ml
BSB 3025	Control Slides	5

C3c, RPab



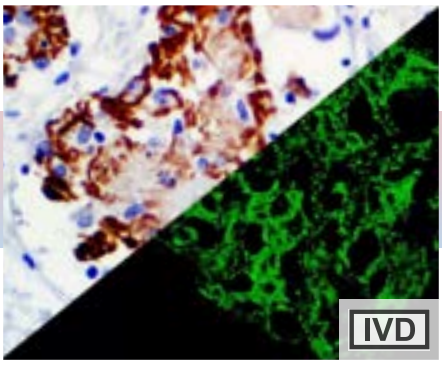
IHC and IF of C3c on a FFPE Lupus Erythematosus (IHC) and Frozen Lupus Erythematosus Tissue (IF)

Complement component 3, often simply called C3, is a protein of the immune system.
It plays a central role in the complement system- and contributes to innate immunity.
C3 glomerulopathy was recently coined to describe renal biopsy appearances characterized by the presence of glomerular deposits composed predominantly of C3 in the absence of significant amounts of Ig. The presence of C3 in the absence of Ig suggests activation of complement by antibody-independent pathways, typically the alternative pathway, and many patients with this type of renal lesion have evidence of genetic or acquired alternative pathway dysregulation. C3 glomerulopathy has been further divided into dense deposit disease (DDD) and C3 glomerulonephritis (C3GN) based on electron microscopy (EM) appearances. The underlying genetic defect has been identified in some hereditary forms of C3GN such as CFHR5 nephropathy. Lupus nephritis is an inflammation of the kidneys caused by SystemicLupusErythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Placenta, Kidney, Fallopian Tube, Lupus Erythematosus*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3026	Tinto Predilute	3.0 ml
BSB 3027	Tinto Predilute	7.0 ml
BSB 3028	Tinto Predilute	15.0 ml
BSB 3029	Concentrate	0.1 ml
BSB 3030	Concentrate	0.5 ml
BSB 3031	Concentrate	1.0 ml
BSB 3032	Control Slides	5

C3d, RPab



IHC and IF of C3d on a FFPE Rejected Kidney Transplant (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

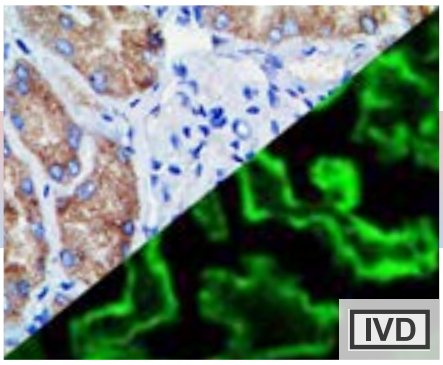
Complement component 3, or C3, is a protein of the immune system that plays a central role in the complement system and contributes to innate immunity. Its activation is required for both classical and alternative complement activation pathways. C3d deposition in the renal transplant PTCs (peritubular capillaries) is indicative of AR (acute rejection) with subsequent high probability of graft loss.

Anti-C3d combined with anti-C4d can be utilized as a tool for diagnosis of AR and warrant prompt and aggressive anti-rejection treatment. C3d is also a helpful adjunct in the diagnosis of bullous pemphigoid (BP) and perhaps pemphigus vulgaris (PV), especially in the cases in which only formalin-fixed, paraffin embedded tissue is available for analysis.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Rejected Kidney Transplant*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6387	Tinto Predilute	3.0 ml
BSB 6388	Tinto Predilute	7.0 ml
BSB 6389	Tinto Predilute	15.0 ml
BSB 6390	Concentrate	0.1 ml
BSB 6391	Concentrate	0.5 ml
BSB 6392	Concentrate	1.0 ml
BSB 6393	Control Slides	5

C4c, RPab



IHC and IF of C4c on a FFPE Kidney (IHC) and Frozen GlomerulonephritisTissue (IF)

Complement component 4 (C4), in humans, is a protein involved in the intricate complement system, originating from the human leukocyte antigen(HLA) system. It serves several critical functions in immunity, tolerance, and autoimmunity with the other numerous components.

Low serum complement activity or low protein concentrations of complement C4 are found on Systemic Lupus Erythematosus (SLE) and it is often associated with Congenital C4 deficiency. Complete deficiencies of complement components are among the strongest genetic risk factors for SLE or lupus-like disease, across HLA haplotypes and racial backgrounds.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Testis, Kidney, Pancreas, Salivary Gland, Colon*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3033	Tinto Predilute	3.0 ml
BSB 3034	Tinto Predilute	7.0 ml
BSB 3035	Tinto Predilute	15.0 ml
BSB 3036	Concentrate	0.1 ml
BSB 3037	Concentrate	0.5 ml
BSB 3038	Concentrate	1.0 ml
BSB 3039	Control Slides	5

Bio SB
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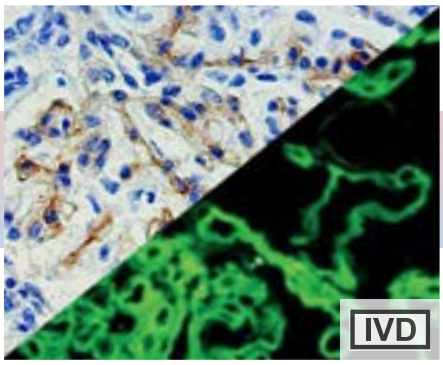
C4d, RMab



IHC and IF of C4d on a FFPE Kidney Tissue (IHC) and a Frozen Kidney Rejection Tissue (IF)

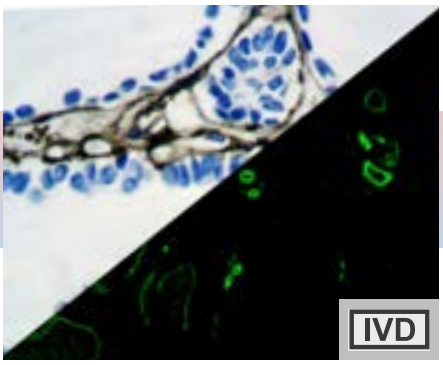
Complement component 4, or C4, plays a central role in the complement system. C4d is the final proteolytic remnant of deposited C4b on endothelium and remains covalently attached to endothelium for little more than a week. It is easily detectable by Immunohistochemistry.

Anti-C4d combined with anti-C3d can be utilized as a tool for diagnosis of AR (Acute Rejection) and warrant prompt and aggressive anti-rejection treatment. C4d can be detected in peritubular capillaries in both chronic renal allograft rejection as well as hyperacute rejection, acute vascular rejection, acute cellular rejection, and borderline rejection. It has been shown to be a significant predictor of transplant kidney graft survival and is an aid in treating acute rejection.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP272*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Kidney Transplant Rejection*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2831	Tinto Predilute	3.0 ml
BSB 2832	Tinto Predilute	7.0 ml
BSB 2833	Tinto Predilute	15.0 ml
BSB 2834	Concentrate	0.1 ml
BSB 2835	Concentrate	0.5 ml
BSB 2836	Concentrate	1.0 ml
BSB 2837	Control Slides	5

Collagen Type IV, MMab



IHC and IF of Collagen IV on a FFPE Skin Tissue

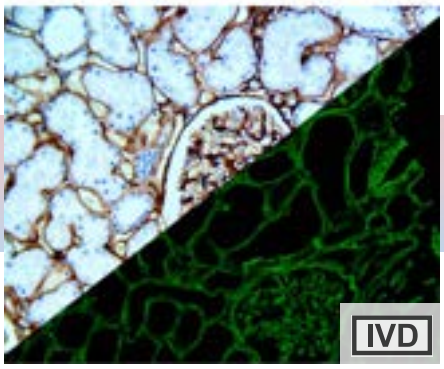
Collagen is the main protein of connective tissue in animals and the most abundant protein in mammals, making up about 25% of the total protein content. Collagen IV is a major constituent of the basement membranes, along with laminins and enactins. It is composed of the alpha 1 IV chain and alpha 2 IV chain in a 2:1 ratio. It can form insoluble fibers with high tensile strength.

Normal tissue stains with this antibody in a manner consistent with the sites of mesenchymal elements and epithelial basal laminae. Antibody to collagen IV is useful in detecting the loss of parts of basement membrane in carcinomas. Collagen IV can also be useful in the classification of soft tissue tumors; Schwanomas, Leiomyomas, and their well-differentiated malignant counterparts usually immunoreact to this antibody. The vascular nature of neoplasms, Hemangiopericytoma, Angiosarcoma and Epithelioid Hemangioendothelioma can be observed with this antibody.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *CIV22*
ISOTYPE: *IgG1/K*
CONTROL: *Muscle, Lung*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Rat, Dog, Horse*

CAT. #	PRESENTATION	VOL/QTY
BSB 5351	Tinto Predilute	3.0 ml
BSB 5352	Tinto Predilute	7.0 ml
BSB 5353	Tinto Predilute	15.0 ml
BSB 5354	Concentrate	0.1 ml
BSB 5355	Concentrate	0.5 ml
BSB 5356	Concentrate	1.0 ml
BSB 5357	Control Slides	5

Collagen Type IV, RMab



IHC and IF of Collagen Type IV on a FFPE Kidney Tissue

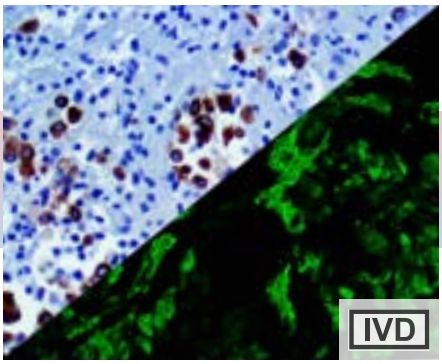
Collagen is the main protein of connective tissue in animals and the most abundant protein in mammals, making up about 25% of the total protein content. Collagen IV is a major constituent of the basement membranes, along with laminins and enactins. It is composed of the alpha 1 IV chain and alpha 2 IV chain in a 2:1 ratio. It can form insoluble fibers with high tensile strength.

Normal tissue stains with this antibody in a manner consistent with the sites of mesenchymal elements and epithelial basal laminae. Antibody to collagen IV is useful in detecting the loss of parts of basement membrane in carcinomas. Collagen IV can also be useful in the classification of soft tissue tumors; Schwanomas, Leiomyomas, and their well-differentiated malignant counterparts usually immune react to this antibody. The vascular nature of neoplasms, Hemangiopericytoma, Angiosarcoma and Epithelioid Hemangioendothelioma can be observed with this antibody.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *RBT-COL4*
ISOTYPE: *IgG*
CONTROL: *Muscle, Lung, Breast, Placenta, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma*
LOCALIZATION: *Membranous, Cytoplasmic, Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-3777-3	Tinto Predilute	3.0 ml
BSB-3777-7	Tinto Predilute	7.0 ml
BSB-3777-15	Tinto Predilute	15.0 ml
BSB-3777-01	Concentrate	0.1 ml
BSB-3777-05	Concentrate	0.5 ml
BSB-3777-1	Concentrate	1.0 ml
BSB-3777-CS	Control Slides	5

Cytokeratin 5 & 6, RMab



IHC and IF of Cytokeratin 4 & 6 on an FFPE Mesothelioma Tissue (IHC) an FFPE Colon Carcinoma Tissue (IF)

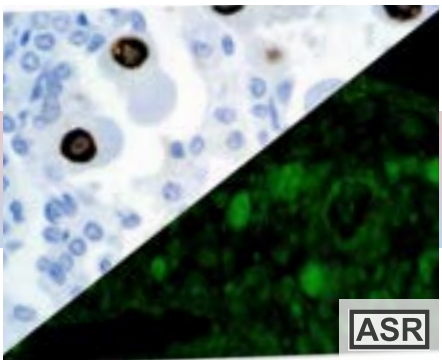
Cytokeratin 5 (58 kDa) is a high-molecular weight, basic type of cytokeratin expressed in basal, intermediate and superficial-cell layers of stratified epithelia as well as transitional epithelia, complex epithelia, mesothelial cells and Mesothelioma. Cytokeratin 6 (56 kD) is also a high-molecular weight, basic type cytokeratin expressed by proliferating squamous epithelium often paired with Cytokeratin 16.

CK 5 and 6 are positively seen in nearly 100% of Malignant Mesotheliomas and are rarely seen in Lung Adenocarcinomas. CK 5 and 6 can positively be seen in undifferentiated Large-cell Carcinoma as well as Squamous Carcinoma. Fewer than 10% of Carcinomas of the breast, colon, and prostate stain positively for this marker. CK 5 and 6 have also been used successfully as a myoepithelial cell marker in the prostate to determine malignancy.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP24 & EP67*
ISOTYPE: *IgG*
CONTROL: *Prostate, Mesothelioma*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6604	Tinto Predilute	3.0 ml
BSB 6605	Tinto Predilute	7.0 ml
BSB 6606	Tinto Predilute	15.0 ml
BSB 6607	Concentrate	0.1 ml
BSB 6608	Concentrate	0.5 ml
BSB 6609	Concentrate	1.0 ml
BSB 6610	Control Slides	5

Cytomegalovirus, MMab



IHC and IF of CMV on a FFPE Infected Lung Tissue

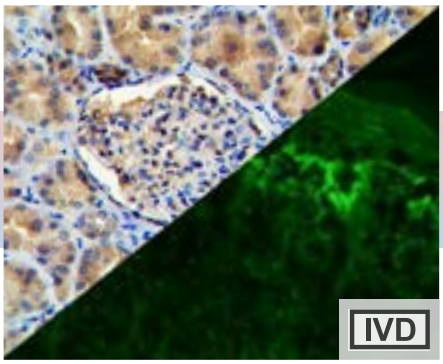
Cytomegalovirus (CMV) is a virus of the Herpesvirus group; in humans it is commonly known as HCMV or Human Herpesvirus 5 (HHV-5). CMV belongs to the Betaherpesvirinae subfamily of Herpesviridae, which also includes Roseolovirus. CMV especially attacks salivary glands. CMV infection can also be life-threatening for patients who are immunocompromised (e.g., patients with HIV or organ-transplant recipients). CMV viruses are found in many mammal species, but CMV species isolated from animals differ from human CMV in terms of genomic structure, and have not been reported to cause human disease.

This Anti-cytomegalovirus antibody cocktail reacts with two different epitopes. The DDG9 antibody reacts with a 76 kDa protein produced by CMV. CCH2 antibody reacts with the early DNA-binding protein p52. There is no cross-reactivity with other Herpesviruses or Adenoviruses. CMV infection is usually seen in immunocompromised patients and involves the GI tract, lung, heart and liver, as well as other organs.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *8B1.2, 1G5.2 & 2D4*
ISOTYPE: *IgG2a*
CONTROL: *CMV Infected Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5449	Tinto Predilute	3.0 ml
BSB 5450	Tinto Predilute	7.0 ml
BSB 5451	Tinto Predilute	15.0 ml
BSB 5452	Concentrate	0.1 ml
BSB 5453	Concentrate	0.5 ml
BSB 5454	Concentrate	1.0 ml
BSB 5455	Control Slides	5

Fibrinogen, RPab



IHC and IF of Fibrinogen on a FFPE Kidney Tissue (IHC) and on a Frozen Lichen Planus Tissue (IF)

Fibrinogen (factor I) is a glycoprotein that circulates in the blood of vertebrates. During tissue and vascular injury, it is converted enzymatically by thrombin to fibrin and subsequently to a fibrin-based blood clot. Fibrinogen functions primarily to occlude blood vessels and thereby stop excessive bleeding. Fibrin also mediates blood platelet and endothelial cell spreading, tissue fibroblast proliferation, capillary tube formation, and angiogenesis and thereby functions to promote tissue revascularization, wound healing, and tissue repair.

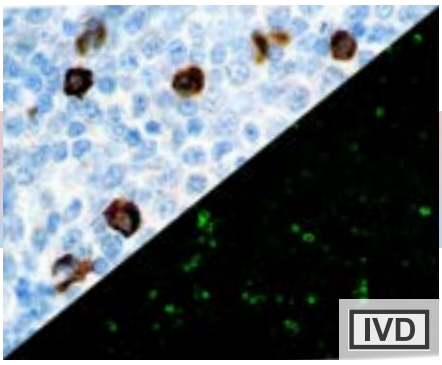
Several disorders (Congenital afibrinogenemia, hypofibrinogenemia, Fibrinogen storage disease, Hereditary fibrinogen Aα-Chain amyloidosis, Congenital hypodysfibrinogenemia, Cryofibrinogenemia, acquired hypofibrinogenemia, Chronic Kidney Disease, etc.) in the quantity and/or quality of fibrinogen cause pathological bleeding, pathological blood clotting, and/or the deposition of fibrinogen in the liver, kidneys, and other tissues. Chronic kidney disease (CKD) patients have increased rates of bleeding as well as thrombosis. Fibrinogen and platelets combine to generate a mature clot, but in CKD platelets are dysfunctional.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Breast, Testls, Kidney, Pancreas, Salivary Gland, Skin, Fallopian Tube*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3047	Tinto Predilute	3.0 ml
BSB 3048	Tinto Predilute	7.0 ml
BSB 3049	Tinto Predilute	15.0 ml
BSB 3050	Concentrate	0.1 ml
BSB 3051	Concentrate	0.5 ml
BSB 3052	Concentrate	1.0 ml
BSB 3053	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

IgA, MMab



IHC and IF of IgA on a FFPE Tonsil Tissue

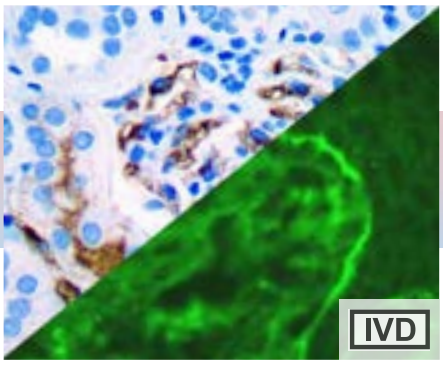
Immunoglobulin A (IgA) is the main immunoglobulin in mucous secretions, including tears, saliva, and colostrum, as well as respiratory, intestinal, prostatic, and vaginal secretions. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA provides protection against microbes proliferating in body secretions, especially those of the digestive and respiratory tracts.

IgA antibody reacts with surface immunoglobulin IgA alpha chains. It is extremely useful when identifying Acute Leukemias, IgA Myelomas, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. However, due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-39*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Spleen, Lymph Node, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5659	Tinto Predilute	3.0 ml
BSB 5660	Tinto Predilute	7.0 ml
BSB 5661	Tinto Predilute	15.0 ml
BSB 5662	Concentrate	0.1 ml
BSB 5663	Concentrate	0.5 ml
BSB 5664	Concentrate	1.0 ml
BSB 5665	Control Slides	5

IgA, RPab



IHC and IF of Fibrinogen on a FFPE Kidney Tissue (IHC) and on a Frozen Bullous Dermatosis Tissue (IF)

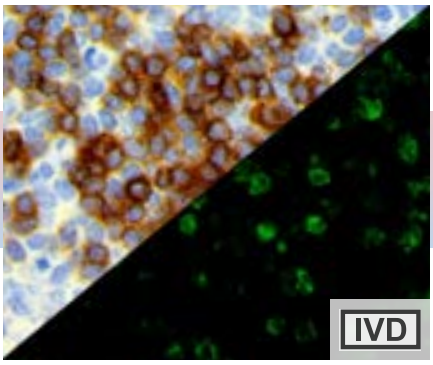
Immunoglobulin A (IgA) is the main immunoglobulin in mucous secretions, including tears, saliva, and colostrum, as well as respiratory, intestinal, prostatic, and vaginal secretions. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA provides protection against microbes proliferating in body secretions, especially those of the digestive and respiratory tracts.

IgA antibody reacts with surface immunoglobulin IgA alpha chains. It is extremely useful when identifying Acute Leukemias, IgA Myelomas, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. However, due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Lymph Node, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3054	Tinto Predilute	3.0 ml
BSB 3055	Tinto Predilute	7.0 ml
BSB 3056	Tinto Predilute	15.0 ml
BSB 3057	Concentrate	0.1 ml
BSB 3058	Concentrate	0.5 ml
BSB 3059	Concentrate	1.0 ml
BSB 3685	Control Slides	5

IgD, RMab



IHC and IF of IgD on a FFPE Tonsil Tissue

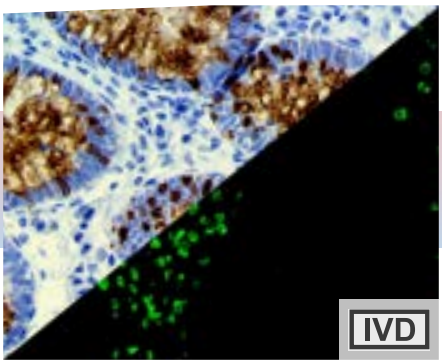
IgD makes up about 1% of proteins in the plasma membranes of immature B-lymphocytes (coexpressed with IgM) and is also found in serum in very small amounts. It is monomeric and incorporates the alpha-heavy chain in its structure. IgD's function is currently unknown, as mice lacking IgD seem to retain normal
immune responses (implying redundancy if not lack of function), and IgD ceases to be expressed in activated B-lymphocytes. It may function as a regulatory antigen receptor.

IgD antibody reacts with surface immunoglobulin IgD delta chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived from Lymphomas, specifically Marginal Zone Lymphoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP173*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2957	Tinto Predilute	3.0 ml
BSB 2958	Tinto Predilute	7.0 ml
BSB 2959	Tinto Predilute	15.0 ml
BSB 2960	Concentrate	0.1 ml
BSB 2961	Concentrate	0.5 ml
BSB 2962	Concentrate	1.0 ml
BSB 2963	Control Slides	5

IgD, RPab



IHC and IF of IgD on a FFPE Colon Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

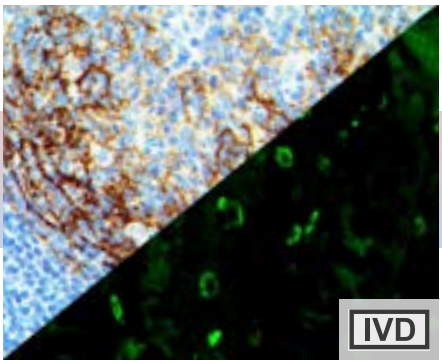
IgD makes up about 1% of proteins in the plasma membranes of immature B-lymphocytes (coexpressed with IgM) and is also found in serum in very small amounts. It is monomeric and incorporates the alpha-heavy chain in its structure. IgD's function is currently unknown, as mice lacking IgD seem to retain normal immune responses (implying redundancy if not lack of function), and IgD ceases to be expressed in activated B-lymphocytes. It may function as a regulatory antigen receptor. IgD is the major antigen receptor isotype co-expressed with IgM on the surface of most peripheral B cells in mice and humans.

The IgD antibody reacts with surface immunoglobulin IgD delta chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived from Lymphomas, specifically Marginal Zone Lymphoma. Renal involvement in systemic lupus erythematosus (SLE) is associated with production of antibodies to double stranded DNA, deposition of immune complexes and organ damage. Lupus nephritis patients were characterized by increased percentage of immature/early-transitional B-cells (CD27-IgD+CD21-), higher frequency of activated switched memory (SM, CD27+IgD-CD21-) and exhausted memory B-cells (CD27-IgD-), and decrease in non-switched memory (NSM, CD27+IgD+) B-cells.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5666	Tinto Predilute	3.0 ml
BSB 5667	Tinto Predilute	7.0 ml
BSB 5668	Tinto Predilute	15.0 ml
BSB 5669	Concentrate	0.1 ml
BSB 5670	Concentrate	0.5 ml
BSB 5671	Concentrate	1.0 ml
BSB 5672	Control Slides	5

IgE, RPab



IHC and IF of IgE on a FFPE Tonsil Tissue (IHC) and on a Frozen Colon Tissue (IF)

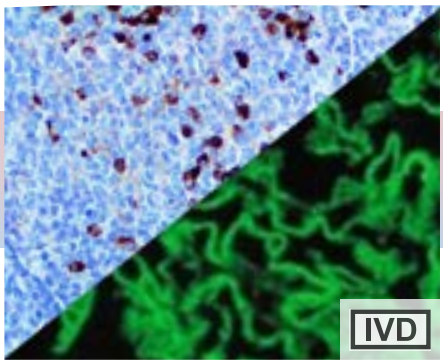
IgE, Immunoglobulin E, is an isotype of antibody only found in mammals. IgE is synthesized by plasma cells. Monomers of IgE consist of two heavy chains (ε chain) and two light chains, with the ε chain containing 4 Ig-like constant domains (Cε1-Cε4). IgE's main function is immunity to parasites such as helminths like Schistosoma mansoni, Trichinella spiralis, and Fasciola hepatica. IgE is utilized during immune defense against certain protozoan parasites such as Plasmodium falciparum.

IgE also has an essential role in type I hypersensitivity, which manifests in various allergic diseases, such as allergic asthma, most types of sinusitis, allergic rhinitis, food allergies, and specific types of chronic urticaria and atopic dermatitis. IgE also plays a pivotal role in responses to allergens, such as: anaphylactic drugs, bee stings, and antigen preparations used in desensitization immunotherapy. IgE is known to be elevated in various autoimmune disorders such as Lupus(SLE), Rheumatoid Arthritis(RA) & psoriasis, and is theorized to be of pathogenetic importance in RA and SLE by eliciting a hypersensitivity reaction.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Thymus, Colon*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3067	Tinto Predilute	3.0 ml
BSB 3068	Tinto Predilute	7.0 ml
BSB 3069	Tinto Predilute	15.0 ml
BSB 3070	Concentrate	0.1 ml
BSB 3071	Concentrate	0.5 ml
BSB 3072	Concentrate	1.0 ml
BSB 3073	Control Slides	5

IgG, RPab



IHC and IF of IgG on a FFPE Tonsil Tissue (IHC) and on a Frozen Lupus ErythematosusTissue (IF)

IgG is a monomeric immunoglobulin, comprised of two heavy chains and two light chains. This is the most abundant immunoglobulin and is approximately equally distributed in blood and tissue liquids, constituting 75% of serum immunoglobulins in humans. This is the only isotype that can pass through the placenta and bind to many kinds of pathogens. IgG protects the body against them by complement activation (classic pathway), opsonization for phagocytosis and neutralization of their toxins. There are 4 subclasses: IgG1 (66%), IgG2 (23%), IgG3 (7%) and IgG4 (4%).

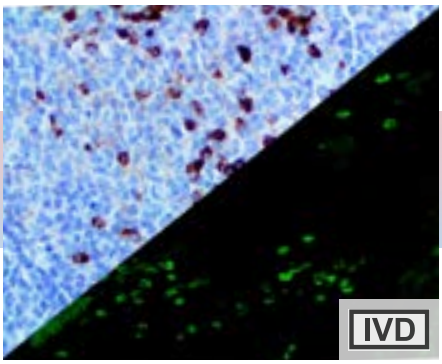
IgG antibody reacts with surface immunoglobulin IgG gamma chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Kidney, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 3074	Tinto Predilute	3.0 ml
BSB 3075	Tinto Predilute	7.0 ml
BSB 3076	Tinto Predilute	15.0 ml
BSB 3076	Concentrate	0.1 ml
BSB 3077	Concentrate	0.5 ml
BSB 3078	Concentrate	1.0 ml
BSB 3079	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

IgG, MMab



IHC and IF of IgG on a FFPE Tonsil Tissue

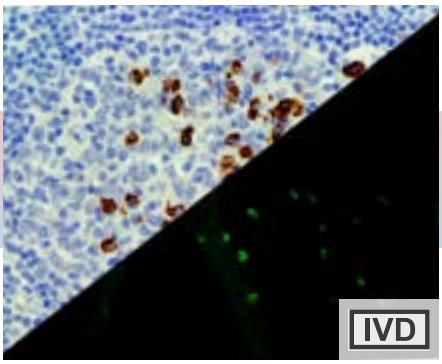
IgG is a monomeric immunoglobulin, comprised of two heavy chains and two light chains. This is the most abundant immunoglobulin and is approximately equally distributed in blood and tissue liquids, constituting 75% of serum immunoglobulins in humans. This is the only isotype that can pass through the placenta and bind to many kinds of pathogens. IgG protects the body against them by complement activation(classic pathway), opsonization for phagocytosisand neutralization of their toxins. There are 4 subclasses: IgG1 (66%), IgG2 (23%), IgG3 (7%) and IgG4 (4%).

IgG antibody reacts with surface immunoglobulin IgG gamma chains. This antibody is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q. Clinically, hematuria and proteinuria are present, with or without nephrotic syndromes. Mesangial IgG glomerulonephritis has been recently recognized as a distinct type of glomerulonephritis. The morphologic criteria detected in these patients included mesangial dense deposits by ultrastructural studies, which were predominantly positive for IgG by immunofluorescence.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-40*
ISOTYPE: *IgG2a/K*
CONTROL: *Tonsil, Lymph Node, Kidney, Spleen*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5673	Tinto Predilute	3.0 ml
BSB 5674	Tinto Predilute	7.0 ml
BSB 5675	Tinto Predilute	15.0 ml
BSB 5676	Concentrate	0.1 ml
BSB 5677	Concentrate	0.5 ml
BSB 5678	Concentrate	1.0 ml
BSB 5679	Control Slides	5

IgG4, MMab



IHC and IF of IgG4 on a FFPE Tonsil Tissue

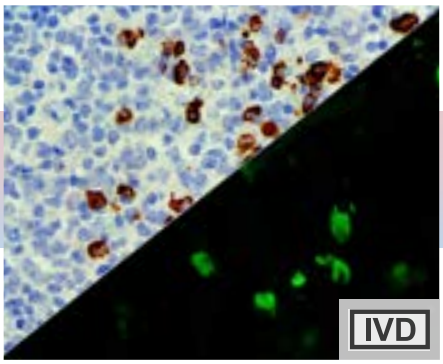
IgG4-related sclerosing disease has been recognized as a systemic disease entity characterized by an elevated serum IgG4 level, sclerosing fibrosis and diffuse lymphoplasmacytic infiltration with the presence of many IgG4-positive plasma cells. As these patients tend to respond favorably to steroid treatment, it is important to recognize this entity and differentiate it from such mimics as lymphoma.

Clinical manifestations are apparent in the pancreas, bile duct, gallbladder, lacrimal gland, salivary gland, retroperitoneum, kidney, lung, breast, thyroid, and prostate. Immunohistochemical analyses in the case of IgG4-related sclerosing disease not only exhibits significantly more IgG4-positive plasma cells in affected tissues but also significantly higher IgG4/ IgG ratios (typically > 30%).

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-96*
ISOTYPE: *IgG2a/K*
CONTROL: *Tonsil, Spleen, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6807	Tinto Predilute	3.0 ml
BSB 6808	Tinto Predilute	7.0 ml
BSB 6809	Tinto Predilute	15.0 ml
BSB 6810	Concentrate	0.1 ml
BSB 6811	Concentrate	0.5 ml
BSB 6812	Concentrate	1.0 ml
BSB 6823	Control Slides	5

IgG4, RMab



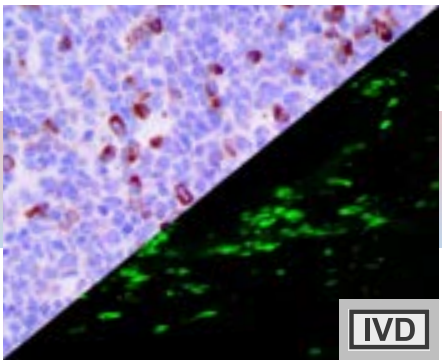
IHC and IF of IgG4 on a FFPE Tonsil Tissue

IgG4-related sclerosing disease has been recognized as a systemic disease entity characterized by an elevated serum IgG4 level, sclerosing fibrosis and diffuse lymphoplasmacytic infiltration with the presence of many IgG4-positive plasma cells. As these patients tend to respond favorably to steroid treatment, it is important to recognize this entity and differentiate it from such mimics as lymphoma.
Clinical manifestations are apparent in the pancreas, bile duct, gallbladder, lacrimal gland, salivary gland, retroperitoneum, kidney, lung, breast, thyroid, and prostate. Immunohistochemical analyses in the case of IgG4-related sclerosing disease not only exhibits significantly more IgG4- positive plasma cells in affected tissues but also significantly higher IgG4/ IgG ratios (typically 30%).

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP138*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Spleen, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 6814	Tinto Predilute	3.0 ml
BSB 6815	Tinto Predilute	7.0 ml
BSB 6816	Tinto Predilute	15.0 ml
BSB 6817	Concentrate	0.1 ml
BSB 6818	Concentrate	0.5 ml
BSB 6819	Concentrate	1.0 ml
BSB 6820	Control Slides	5

IgM, RPab



IHC and IF of IgM on a FFPE Kidney Tissue (IHC) and on a Frozen Lupus Erythematosus Tissue (IF)

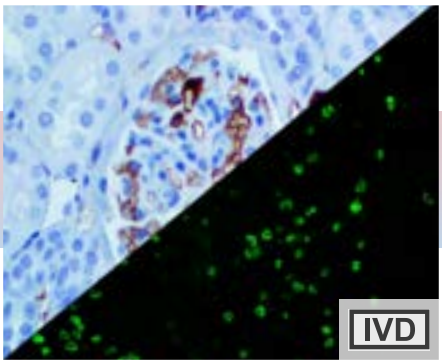
IgM forms polymers where multiple immunoglobulins are covalently linked together with disulfide bonds, normally as a pentamer or occasionally as a hexamer. It has a large molecular mass of approximately 900 kDa (in its pentamer form). In germline cells, the gene segment encoding the constant region of the heavy chain is positioned first among other constant region gene segments. For this reason, IgM is the first immunoglobulin expressed by mature B-cells.

IgM antibody reacts with surface immunoglobulin IgM mu chains. IgM is one of the predominant surface immunoglobulins on B-lymphocytes, and is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies. Lupus nephritis is an inflammation of the kidneys caused by Systemic Lupus Erythematosus. Immunofluorescence reveals positively for IgG, IgA, IgM, C3, and C1q. Clinically, hematuria and proteinuria are present, with or without nephrotic syndromes. Immunoglobulin M (IgM) nephropathy is an uncommon glomerular disease characterized by IgM deposits in the mesangium.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3080	Tinto Predilute	3.0 ml
BSB 3081	Tinto Predilute	7.0 ml
BSB 3082	Tinto Predilute	15.0 ml
BSB 3083	Concentrate	0.1 ml
BSB 3084	Concentrate	0.5 ml
BSB 3085	Concentrate	1.0 ml
BSB 3086	Control Slides	5

IgM, MMab



IHCand IF of IgM on a FFPE Kidney Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

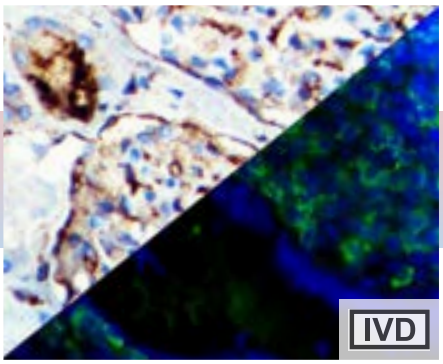
IgM forms polymers where multiple immunoglobulins are covalently linked together with disulfide bonds, normally as a pentamer or occasionally as a hexamer. It has a large molecular mass of approximately 900 kDa (in its pentamer form). In germline cells, the gene segment encoding the constant region of the heavy chain is positioned first among other constant region gene segments. For this reason, IgM is the first immunoglobulin expressed by mature B-cells.

IgM antibody reacts with surface immunoglobulin IgM mu chains. IgM is one of the predominant surface immunoglobulins on B-lymphocytes, and is useful when identifying Leukemias, Plasmacytomas, and B-cell lineage derived Hodgkin's Lymphomas. Due to the restricted expression of heavy and light chains in these diseases, demonstration of B-cell Lymphomas is possible with clonal gene-rearrangement studies.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-41*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node, Spleen, Kidney, Colon*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 5680	Tinto Predilute	3.0 ml
BSB 5681	Tinto Predilute	7.0 ml
BSB 5682	Tinto Predilute	15.0 ml
BSB 5683	Concentrate	0.1 ml
BSB 5684	Concentrate	0.5 ml
BSB 5685	Concentrate	1.0 ml
BSB 5686	Control Slides	5

Kappa, RPab



IHC and IF of Kappa on a FFPE Kidney Tissue (IHC) and on a Frozen ColonTissue (IF with FluoroMounter DAPI)

Kappa detects surface immunoglobulin on normal and neoplastic B-cells. In paraffin-embedded tissue, Kappa exhibits strong staining of kappa-positive plasma cells and cells that have absorbed exogenous immunoglobulin.

When studying B-cell neoplasms, the determination of light-chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either Kappa or Lambda light chains, whereas reactive proliferations display a mixture of Kappa and Lambda-positive cells. If only a single light-chain type is detected, a lympho-proliferative disorder is very likely. Monoclonality is determined by a Kappa-Lambda ratio greater than or equal to 3:1, a Lambda-Kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population.

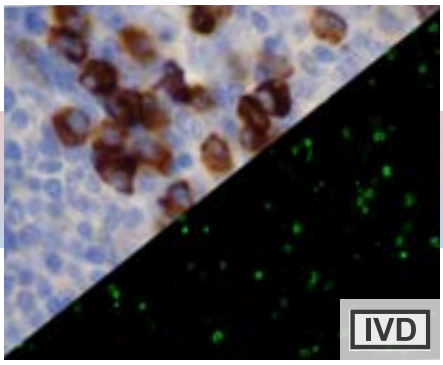
In IgG-dominant immune complex-mediated glomerulonephritis, there are multiple pathological findings that strongly suggest the diagnosis of Lupus Nephritis including immunofluorescence staining for IgG, IgM, IgA, Kappa or Lambda, C3 and C1.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3086	Tinto Predilute	3.0 ml
BSB 3087	Tinto Predilute	7.0 ml
BSB 3088	Tinto Predilute	15.0 ml
BSB 3089	Concentrate	0.1 ml
BSB 3090	Concentrate	0.5 ml
BSB 3091	Concentrate	1.0 ml
BSB 3092	Control Slides	5

Bio SB
BIOSCIENCE FOR THE WORLD

Kappa Light Chains, MMab



IHC and IF of Kappa on a FFPE Tonsil Tissue (IHC) and on a Frozen Spleen Tissue (IF)

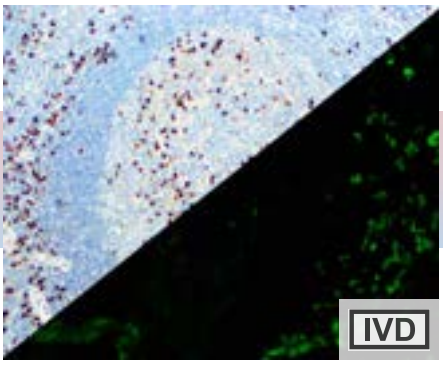
Kappa detects surface immunoglobulin on normal and neoplastic B-cells. In paraffin-embedded tissue, Kappa exhibits strong staining of kappa-positive plasma cells and cells that have absorbed exogenous immunoglobulin.

When studying B-cell neoplasms, the determination of light-chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-58*
ISOTYPE: *IgG1/K*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5701	Tinto Predilute	3.0 ml
BSB 5702	Tinto Predilute	7.0 ml
BSB 5703	Tinto Predilute	15.0 ml
BSB 5704	Concentrate	0.1 ml
BSB 5705	Concentrate	0.5 ml
BSB 5706	Concentrate	1.0 ml
BSB 5707	Control Slides	5

Lambda, MMab



IHC and IF of Lambda on a FFPE Tonsil Tissue

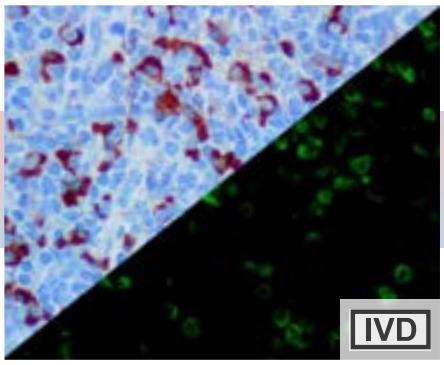
Lambda detects surface immunoglobulin on normal and neoplastic B-cells. Lambda staining is seen in B-cell follicles of human lymphoid tissue.

When studying B-cell neoplasms, the determination of light chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-16*
ISOTYPE: *IgG2a*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human, Dog, Cat*

CAT. #	PRESENTATION	VOL/QTY
BSB 5715	Tinto Predilute	3.0 ml
BSB 5716	Tinto Predilute	7.0 ml
BSB 5717	Tinto Predilute	15.0 ml
BSB 5718	Concentrate	0.1 ml
BSB 5719	Concentrate	0.5 ml
BSB 5720	Concentrate	1.0 ml
BSB 5721	Control Slides	5

Lambda, RPab



IHC and IF of Lambda on a FFPE Tonsil Tissue (IHC) and on a Frozen Tonsil Tissue (IF)

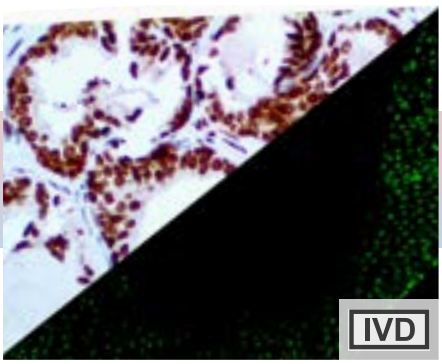
Lambda detects surface immunoglobulin on normal and neoplastic B-cells. Lambda staining is seen in B-cell follicles of human lymphoid tissue.

When studying B-cell neoplasms, the determination of light chain ratios remains the centerpiece. This is sound reasoning because most B-cell Lymphomas express either kappa or lambda light chains, whereas reactive proliferations display a mixture of kappa and lambda-positive cells. If only a single light-chain type is detected, a lymphoproliferative disorder is very likely. Monoclonality is determined by a kappa-lambda ratio greater than or equal to 3:1, a lambda-kappa ratio greater than or equal to 2:1, or a monoclonal population of 75% or more of the total population. In IgG-dominant immune complex-mediated glomerulonephritis, there are multiple pathological findings that strongly suggest the diagnosis of Lupus Nephritis including immunofluorescence staining for IgG, IgM, IgA, Kappa or Lambda, C3 and C1.

ANTIBODY TYPE: *Rabbit Polyclonal*
CLONE: *Polyclonal*
ISOTYPE: *IgG*
CONTROL: *Tonsil, Lymph Node*
LOCALIZATION: *Cytoplasmic*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3092	Tinto Predilute	3.0 ml
BSB 3093	Tinto Predilute	7.0 ml
BSB 3094	Tinto Predilute	15.0 ml
BSB 3095	Concentrate	0.1 ml
BSB 3096	Concentrate	0.5 ml
BSB 3097	Concentrate	1.0 ml
BSB 3098	Control Slides	5

p40, RMab



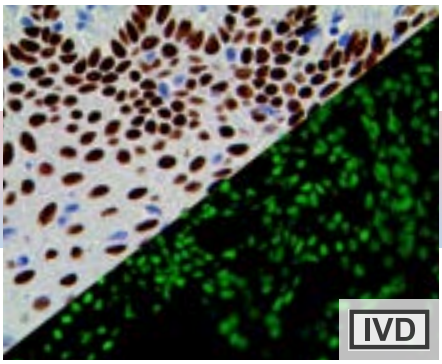
IHC and IF of p40 on an FFPE Prostate Tissue (IHC) an FFPE Tonsil Tissue (IF)

p40 is an antibody that recognizes ΔNp63-a p63 isoform and it is highly specific for squamous/basal cells. It may be a valuable marker in detecting Squamous Cell Carcinoma where p63 is currently used. It recognizes the shortest variant of p53. p40 is superior in specificity to p63 because it does not label lung adenocarinomas like p63 does, which eliminates the potential of misinterpreting a positive adenocarcinoma as a squamous cell carcinoma.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *ZR8*
ISOTYPE: *IgG*
CONTROL: *Normal Prostate, Breast, Skin*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 2070	Tinto Predilute	3.0 ml
BSB 2071	Tinto Predilute	7.0 ml
BSB 2072	Tinto Predilute	15.0 ml
BSB 2073	Concentrate	0.1 ml
BSB 2074	Concentrate	0.5 ml
BSB 2075	Concentrate	1.0 ml
BSB 2076	Control Slides	5

p63, MMab



IHC and IF of p63 on an FFPE Basal Cell Carcinoma Tissue

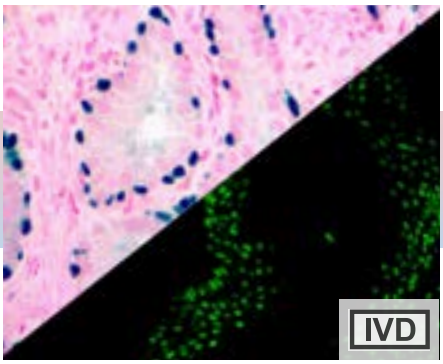
In addition to p53, mammalian cells contain two homologous genes, p63 and p73. These genes give rise to the expression of proteins that are highly similar to p53 in structure and function. In particular, p63 and p73 proteins can induce p53-responsive genes and elicit programmed cell death. p73 and p63 are important during development and differentiation. In particular, p63 appears to be primarily implicated in epithelial development.

Anti-p63 to human p63 protein labels an epitope common to all six p63 isotypes (TAp63α, TAp63β, TAp63γ, ΔNp63α, ΔNp63β, ΔNp63γ). p63 labels the nuclei of myoepithelial cells in the prostate gland as well as breast tissue, making it useful in differentiating benign vs. malignant prostate lesions and breast lesions.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *4A4*
ISOTYPE: *IgG2a/K*
CONTROL: ***Prostate, Breast, Skin, Salivary Gland***
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB 3602	Tinto Predilute	3.0 ml
BSB 3603	Tinto Predilute	7.0 ml
BSB 3604	Tinto Predilute	15.0 ml
BSB 3605	Concentrate	0.1 ml
BSB 3606	Concentrate	0.5 ml
BSB 3607	Concentrate	1.0 ml
BSB 3608	Control Slides	5

p63, RMab



IHC and IF of p63 on a FFPE Prostate Tissue (IHC) and an FFPE Skin Tissue (IF)

In addition to p53, mammalian cells contain two homologous genes, p63 and p73. These genes give rise to the expression of proteins that are highly similar to p53 in structure and function. In particular, p63 and p73 proteins can induce p53-responsive genes and elicit programmed cell death. p73 and p63 are more important during development and differentiation. In particular, p63 appears to be primarily implicated in epithelial development.

Anti-p63 to human p63 protein labels an epitope common to all six p63 isotypes (TAp63α, TAp63β, TAp63γ, ΔNp63α, ΔNp63β, ΔNp63γ). p63 labels the nuclei of myoepithelial cells in the prostate gland as well as breast tissue, making it useful in differentiating benign vs. malignant prostate lesions and breast lesions.

ANTIBODY TYPE: *Rabbit Monoclonal*
CLONE: *EP174*
ISOTYPE: *IgG*
CONTROL: *Prostate, Breast, Skin, Salivary Gland*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human, Mouse, Rat, Rabbit*

CAT. #	PRESENTATION	VOL/QTY
BSB 5848	Tinto Predilute	3.0 ml
BSB 5849	Tinto Predilute	7.0 ml
BSB 5850	Tinto Predilute	15.0 ml
BSB 5851	Concentrate	0.1 ml
BSB 5852	Concentrate	0.5 ml
BSB 5853	Concentrate	1.0 ml
BSB 5854-1	Control Slides	5

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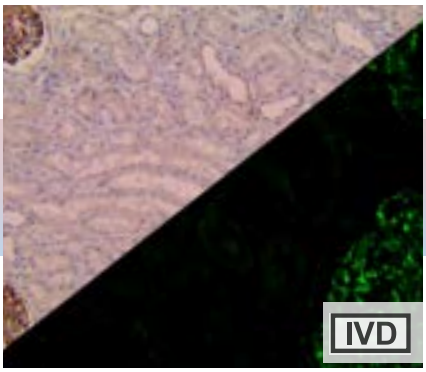
PLA2R1, MMab



IHC and IF of PLA2R1 on a FFPE Membranous Glomerulopathy Tissue

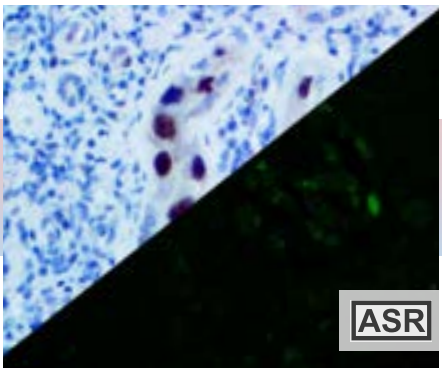
PLA2R1 gene encodes phospholipase A2 receptor 1 protein, a 180 kDa transmembrane glycoproteins expressed by podocyte. Approximately 70% of patients with idiopathic membranous glomerulopathy have autoantibodies directed against podocyte PLA2R1. PLA2R1 also promotes tumor suppressive responses including senescence, apoptosis, and inhibition of transformation. Known oncogenes such as HIF2α and c-Myc repress PLA2R1 expression.

PLA2R1 gain or loss of function experiments in vitro and in vivo shows that this receptor promotes several tumor suppressive responses including senescence, apoptosis and inhibition of transformation. Supporting a tumor suppressive role of PLA2R1, its expression decreases in numerous cancers, and known oncogenes such as HIF2α and c-MYC repress its expression. PLA2R1 promoter methylation, a classical way to repress tumor suppressive gene expression in cancer cells, is observed in leukemia, in kidney and in breast cancer cells. PLA2R1 also promotes accumulation of reactive oxygen species which induce cell death and senescence. This review compiles recent data demonstrating an unexpected tumor suppressive role of PLA2R1 and outlines the future work needed to improve our knowledge of the functions of this gene in cancer

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *BSB-129*
ISOTYPE: *IgG1*
CONTROL: *Brain, Testis, Kidney, Salivary Gland, Gastic GIST*
LOCALIZATION: *Cytoplasmic, Membranous*
SPECIES REACTIVITY: *Human*

CAT. #	PRESENTATION	VOL/QTY
BSB-2372-3	Tinto Predilute	3.0 ml
BSB-2372-7	Tinto Predilute	7.0 ml
BSB-2372-15	Tinto Predilute	15.0 ml
BSB-2372-01	Concentrate	0.1 ml
BSB-2372-05	Concentrate	0.5 ml
BSB-2372-1	Concentrate	1.0 ml
BSB-2372-CS	Control Slides	5

SV40, MMab



IHC and IF of SV40 on a FFPE Infected Kidney Tissue

SV40 is an abbreviation for Simian vacuolating virus 40 or Simian virus 40, a polyomavirus that is found in both monkeys and humans. Like other polyomaviruses, SV40 is a DNA virus that has the potential to cause tumors, but most often persists as a latent infection.

ANTIBODY TYPE: *Mouse Monoclonal*
CLONE: *Pab101*
ISOTYPE: *IgG2a*
CONTROL: *SV40 Infected Tissue*
LOCALIZATION: *Nuclear*
SPECIES REACTIVITY: *Human*

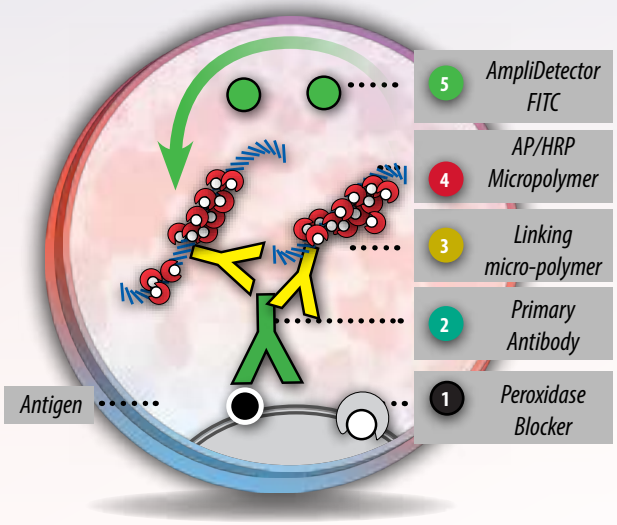
CAT. #	PRESENTATION	VOL/QTY
BSB 2230	Tinto Predilute	3.0 ml
BSB 2231	Tinto Predilute	7.0 ml
BSB 2232	Tinto Predilute	15.0 ml
BSB 2233	Concentrate	0.1 ml
BSB 2234	Concentrate	0.5 ml
BSB 2235	Concentrate	1.0 ml
BSB 2236	Control Slides	5

The InDirect Immunofluorescence Detection AmpliDetector Plus FITC kit

Bio SB offers a highly sensitive Immunofluorescence detection system for the IVD antibodies related to autoimmune conditions. Our innovative Amplidetector Plus FITC detection system and high affinity antibodies, have opened the doors for a faster and accurate Immunofluorescence applicable to Autoimmune Disease like Nephropathies and Lupus.
Amplidetector Plus FITC is intended for use in Immunofluorescence (IF) applications of formalin-fixed paraffin-embedded tissues (FFPE), frozen tissue sections and cell preparations.

AmpliDetector Plus FITC Detection kit Overview

- Non-Biotin, Fab Micropolymer HRP Amplification detection technology.
- Fab Micropolymer HRP Amplification detection technology allows for better cell penetration to deliver a highly specific and sensitive signal.
- Ready-to-use, high sensitivity system especially designed for InDirect IF detection of formalin-fixed paraffin-embedded or frozen tissue sections and cell preparations.
- Universal: detects mouse monoclonal, rabbit monoclonal and polyclonal antibodies.
- For in vitro diagnostic Use. All kits manufactured according to US FDA and ISO 13485 guidelines.



Mouse / Rabbit AmpliDetector FITC kit

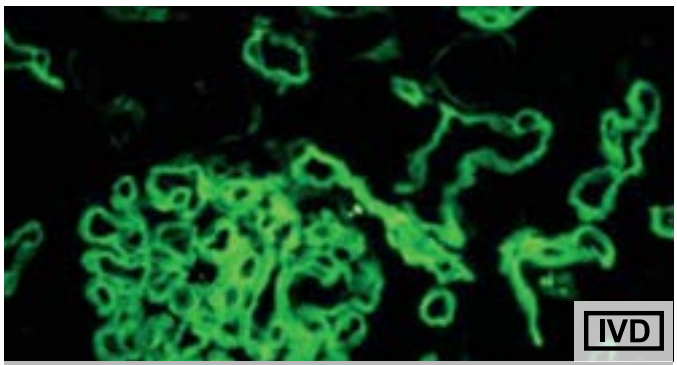
Product Description	Volume	Catalog #
Rabbit AmpliDetector Plus FITC	15.0 ml	BSB-0359-15
Rabbit AmpliDetector Plus FITC	50.0 ml	BSB-0359-50
Rabbit AmpliDetector Plus FITC	100.0 ml	BSB-0359-100

Mouse / Rabbit AmpliDetector Plus FITC with FluoroMounter with DAPI kit

Product Description	Volume	Catalog #
Rabbit AmpliDetector Plus FITC with FluoroMounter with DAPI	15.0 ml	BSB-0357-15
Rabbit AmpliDetector Plus FITC with FluoroMounter with DAPI	50.0 ml	BSB-0357-50
Rabbit AmpliDetector Plus FITC with FluoroMounter with DAPI	100.0 ml	BSB-0357-100

Mouse / Rabbit AmpliDetector Plus FITC with FluoroMounter kit

Product Description	Volume	Catalog #
Rabbit AmpliDetector Plus FITC with FluoroMounter	15.0 ml	BSB-0358-15
Rabbit AmpliDetector Plus FITC with FluoroMounter	50.0 ml	BSB-0358-50
Rabbit AmpliDetector Plus FITC with FluoroMounter	100.0 ml	BSB-0358-100



C4d IF on a Frozen Kidney Tissue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BIO•SB SAMPLE MICROARRAY
TISSUE STAIN SLIDE 001
Bio SB
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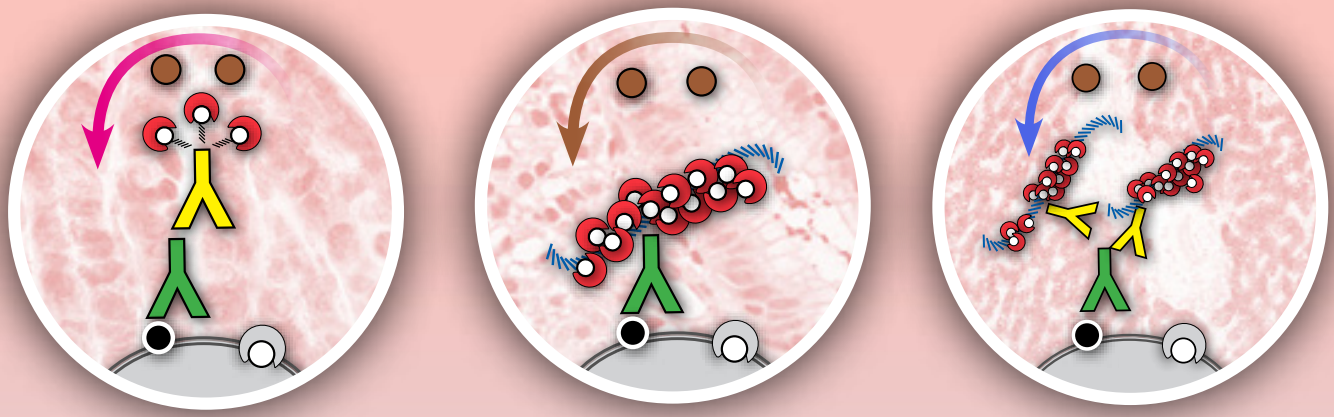
Detection Systems for IHC

ImmunoDetector | PolyDetector | PolyDetector Plus

A wide array of highly sensitive Biotin & Fab Micropolymer based detection systems.
For use in clinical and research applications.



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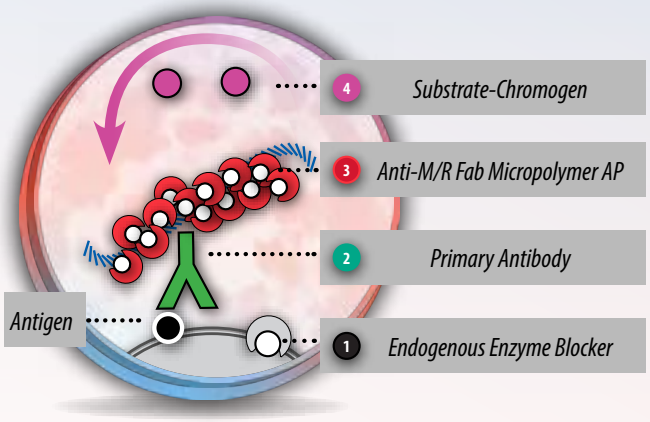
BIOSCIENCE FOR THE WORLD

PolyDetector AP

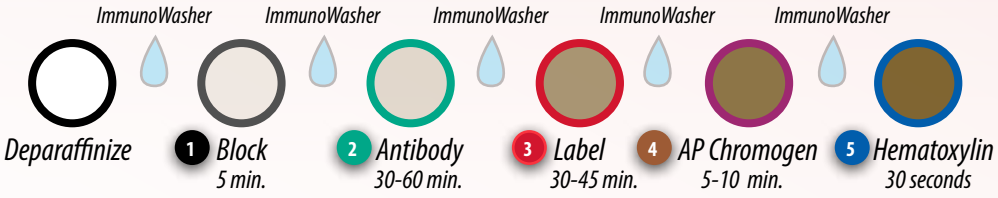
For the Immunohistochemical detection of antigens in cells and formalin-fixed or frozen tissues

The Mouse/Rabbit PolyDetector Alkaline Phosphatase (AP) Detection System is a one-step polymeric detection system that allows for the demonstration of antigens in formalin-fixed paraffin-embedded tissues, cryostat sections, blood smears, cytosmears, and cell preparations. The increased sensitivity of this system allows for rapid staining procedures without compromising stain quality.



- Non-Biotin, 1-Step Immunohistochemistry Detection Technology
- Anti-mouse and rabbit Fab micro-polymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed or frozen tissues
- Universal: Detects Mouse or Rabbit antibodies
- ALK Red, ALK Scarlet, ALK Blue, ALK Magenta and ALK Brown Configurations
- For *in Vitro* Diagnostic Use

Recommended Protocol

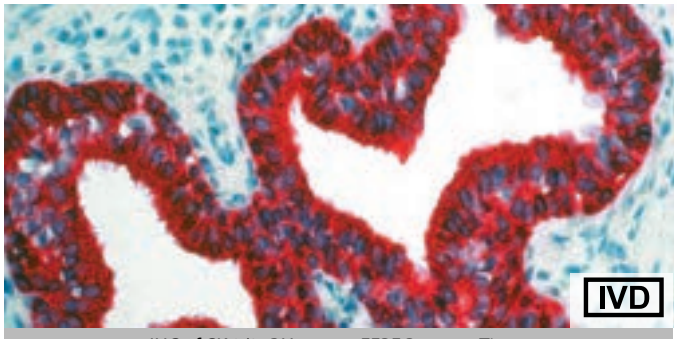


PolyDetector AP Detection Systems

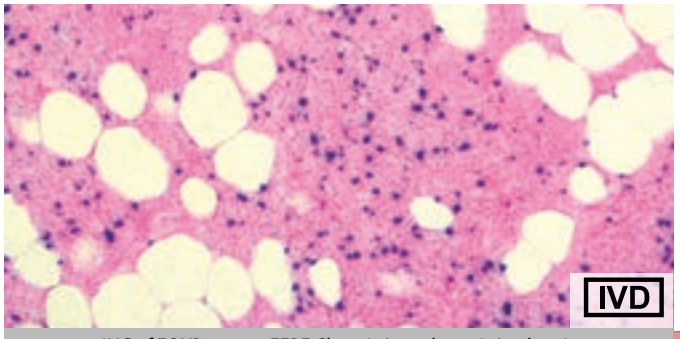
Product Description	Volume	Catalog #
Mouse/Rabbit PolyDetector AP, w/ALK Scarlet	5 ml	BSB-0351-15
Mouse/Rabbit PolyDetector AP, w/ALK Scarlet	15.0 ml	BSB-0351-50
Mouse/Rabbit PolyDetector AP, w/ALK Scarlet	50.0 ml	BSB-0351-100
Mouse/Rabbit PolyDetector AP, w/ALK Scarlet	100.0 ml	BSB-0351-200
Mouse/Rabbit PolyDetector AP, w/ALK Scarlet	200.0 ml	BSB-0351-1000
Mouse/Rabbit PolyDetector AP, w/ALK Scarlet	1000.0 ml	BSB 0009

PolyDetector AP Label

Product Description	Volume	Catalog #
Mouse/Rabbit PolyDetector AP Label	15.0 ml	BSB 0287
Mouse/Rabbit PolyDetector AP Label	50.0 ml	BSB 0288
Mouse/Rabbit PolyDetector AP Label	100.0 ml	BSB 0289
Mouse/Rabbit PolyDetector AP Label	200.0 ml	BSB 0290
Mouse/Rabbit PolyDetector AP Label	1000.0 ml	BSB 0291



IHC of CK 8/35BH11 on a FFPE Prostate Tissue



IHC of FOXP3 on an FFPE Chronic Lymphocytic Leukemia

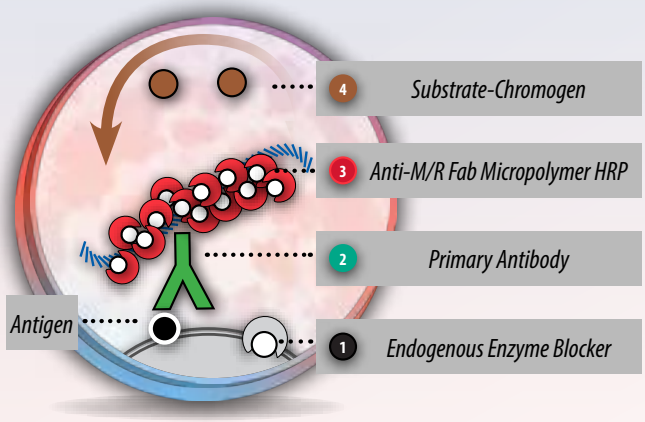
IVD For *in Vitro* Diagnostic Use

10 tests per ml considering 100µl per tissue

PolyDetector HRP

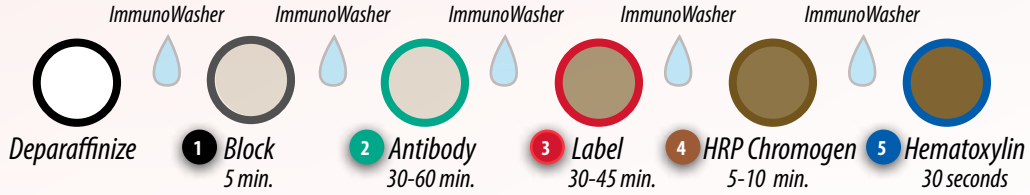
For the Immunohistochemical detection of antigens in cells and formalin-fixed or frozen tissues

The Bio SB PolyDetector is a non-Biotin, Fab Micropolymer detection system that allows for the demonstration of antigens in formalin-fixed paraffin-embedded tissues, cryostat sections, blood smears, cytosmears, and cell preparations. The PolyDetector technology was developed and is manufactured with a proprietary Micropolymer backbone conjugated to Anti-Mouse and Anti-Rabbit Fab Ig's plus high quality HRP or AP enzymes. The elimination of the Anti-Mouse and Anti-Rabbit immunoglobulin Fc region reduces non-specific reactions. This ensures consistent and reproducible immunostaining for all types of nuclear, cytoplasmic and membranous antigens, in different types of tissues. The increased sensitivity of this system allows for rapid staining procedures without compromising stain quality.



- Non-Biotin, 1-Step Immunohistochemistry Detection Technology
- Anti-mouse and rabbit Fab micro-polymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed or frozen tissues
- Universal: Detects Mouse or Rabbit antibodies
- DAB or AEC Configurations. Also works with HRP Green, HRP Blue and HRP Black
- For *in Vitro* Diagnostic Use

Recommended Protocol

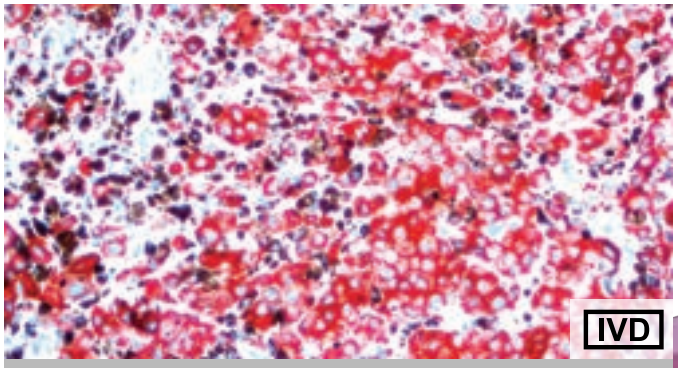


PolyDetector HRP Detection Systems

Product Description	Volume	Catalog #
Mouse/Rabbit PolyDetector DAB HRP Brown	5 ml	BSB 0201S
Mouse/Rabbit PolyDetector DAB HRP Brown	15.0 ml	BSB 0201
Mouse/Rabbit PolyDetector DAB HRP Brown	50.0 ml	BSB 0203
Mouse/Rabbit PolyDetector DAB HRP Brown	100.0 ml	BSB 0205
Mouse/Rabbit PolyDetector DAB HRP Brown	200.0 ml	BSB 0207
Mouse/Rabbit PolyDetector DAB HRP Brown	1000.0 ml	BSB 0207A
Mouse/Rabbit PolyDetector AEC HRP Red	5 ml	BSB 0202S
Mouse/Rabbit PolyDetector AEC HRP Red	15.0 ml	BSB 0202
Mouse/Rabbit PolyDetector AEC HRP Red	50.0 ml	BSB 0204
Mouse/Rabbit PolyDetector AEC HRP Red	100.0 ml	BSB 0206
Mouse/Rabbit PolyDetector AEC HRP Red	200.0 ml	BSB 0208
Mouse/Rabbit PolyDetector AEC HRP Red	1000.0 ml	BSB 0208A

PolyDetector HRP Label

Product Description	Volume	Catalog #
Mouse/Rabbit PolyDetector HRP Label	15.0 ml	BSB 0201H
Mouse/Rabbit PolyDetector HRP Label	50.0 ml	BSB 0203H
Mouse/Rabbit PolyDetector HRP Label	100.0 ml	BSB 0205H
Mouse/Rabbit PolyDetector HRP Label	200.0 ml	BSB 0207H
Mouse/Rabbit PolyDetector HRP Label	1000.0 ml	BSB 0207AH



IHC of S100 on a FFPE Melanoma Tissue

Bio SB
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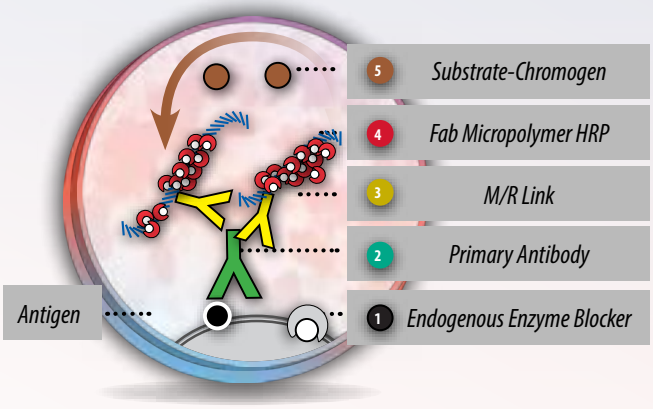
PolyDetector Plus HRP

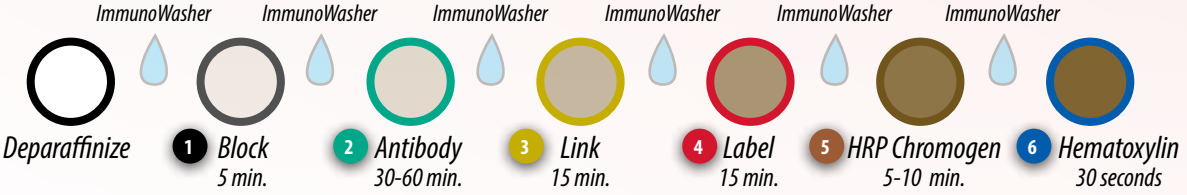
For the Immunohistochemical detection of antigens in cells and formalin-fixed or frozen tissues

The Bio SB PolyDetector Plus system is a highly sensitive non-Biotin, Fab Micropolymer detection system that allows for the demonstration of antigens in formalin-fixed paraffin-embedded tissues, cryostat sections, blood smears, cytosmears, and cell preparations. The PolyDetector Plus technology was developed and is manufactured with a proprietary Micropolymer backbone conjugated to Anti-Mouse and Anti-Rabbit Fab Ig's plus high quality HRP or AP enzymes. The elimination of the Anti-Mouse and Anti-Rabbit immunoglobulin Fc region reduces non-specific reactions. The PolyDetector Plus kit incorporates an Immunoglobulin link and a Fab Micropolymer label. This multiple component Fab Micropolymer delivers a highly sensitive and specific signal in a shorter time-frame than the PolyDetector.



- Non-Biotin, 3-Step Immunohistochemistry Detection Technology
- Anti-mouse and rabbit Fab micro-polymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed or frozen tissues
- Universal: Detects Mouse or Rabbit antibodies
- DAB or AEC Configurations
- For *in Vitro* Diagnostic Use

Recommended Protocol

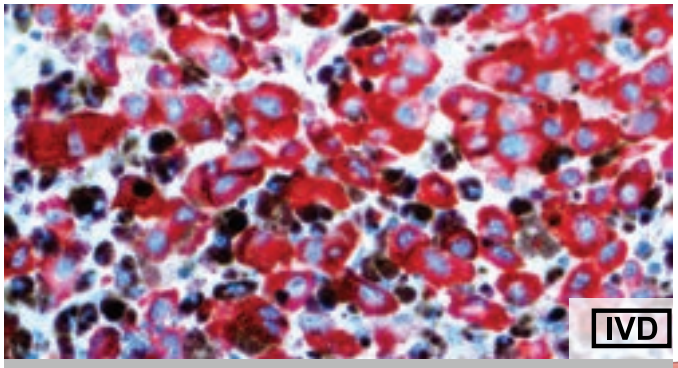


PolyDetector HRP Detection Systems

Product Description	Volume	Catalog #
Mouse/Rabbit PolyDetector DAB HRP Brown	5 ml	BSB 0201S
Mouse/Rabbit PolyDetector DAB HRP Brown	15.0 ml	BSB 0201
Mouse/Rabbit PolyDetector DAB HRP Brown	50.0 ml	BSB 0203
Mouse/Rabbit PolyDetector DAB HRP Brown	100.0 ml	BSB 0205
Mouse/Rabbit PolyDetector DAB HRP Brown	200.0 ml	BSB 0207
Mouse/Rabbit PolyDetector DAB HRP Brown	1000.0 ml	BSB 0207A
Mouse/Rabbit PolyDetector AEC HRP Red	5 ml	BSB 0202S
Mouse/Rabbit PolyDetector AEC HRP Red	15.0 ml	BSB 0202
Mouse/Rabbit PolyDetector AEC HRP Red	50.0 ml	BSB 0204
Mouse/Rabbit PolyDetector AEC HRP Red	100.0 ml	BSB 0206
Mouse/Rabbit PolyDetector AEC HRP Red	200.0 ml	BSB 0208
Mouse/Rabbit PolyDetector AEC HRP Red	1000.0 ml	BSB 0208A

PolyDetector HRP Label

Product Description	Volume	Catalog #
Mouse/Rabbit PolyDetector HRP Label	15.0 ml	BSB 0201H
Mouse/Rabbit PolyDetector HRP Label	50.0 ml	BSB 0203H
Mouse/Rabbit PolyDetector HRP Label	100.0 ml	BSB 0205H
Mouse/Rabbit PolyDetector HRP Label	200.0 ml	BSB 0207H
Mouse/Rabbit PolyDetector HRP Label	1000.0 ml	BSB 0207AH



IHC of Melanoma PNL2 on a FFPE Melanoma Tissue

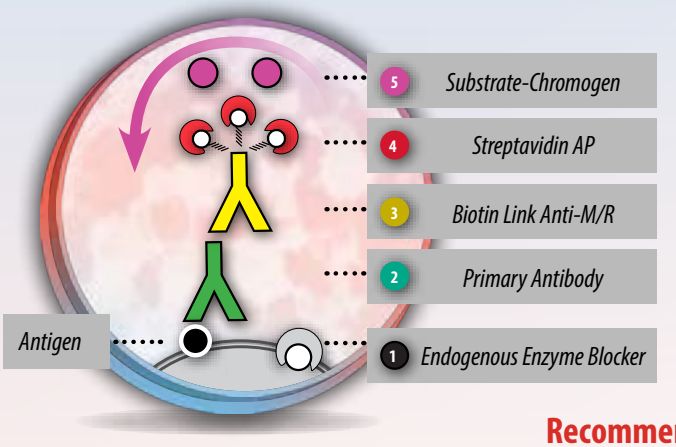
IVD For *in Vitro* Diagnostic Use

10 tests per ml considering 100µl per tissue

ImmunoDetector AP

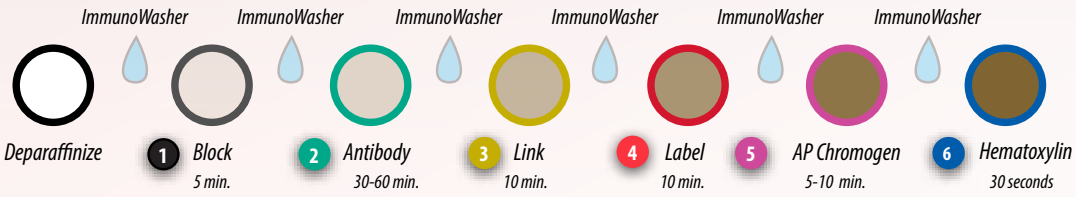
For the Immunohistochemical detection of antigens in cells and formalin-fixed or frozen tissues

The Bio SB ImmunoDetector Alkaline Phosphatase (AP) Detection System is a highly sensitive Biotin-Streptavidin-Alkaline Phosphatase Detection System that allows for the demonstration of antigens in formalin-fixed paraffin-embedded tissue, cryostat sections, cytosmears, and cell preparations. The increased sensitivity of ImmunoDetector AP Detection System allows for rapid staining procedures without compromises in the quality of stains.



- Biotin-Streptavidin, 2-Step Immunohistochemistry Detection Technology
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed or frozen tissues
- Universal: Detects Mouse or Rabbit antibodies
- It can be used with ALK Red, ALK Scarlet, ALK Magenta, ALK Brown and ALK Blue substrate-chromogen
- For *in Vitro* Diagnostic Use

Recommended Protocol



ImmunoDetector AP Detection Systems

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector AP, w/ALK Scarlet	5 ml	BSB-0350-15
Mouse/Rabbit ImmunoDetector AP, w/ALK Scarlet	15.0 ml	BSB-0350-50
Mouse/Rabbit ImmunoDetector AP, w/ALK Scarlet	50.0 ml	BSB-0350-100
Mouse/Rabbit ImmunoDetector AP, w/ALK Scarlet	100.0 ml	BSB-0350-200
Mouse/Rabbit ImmunoDetector AP, w/ALK Scarlet	200.0 ml	BSB-0350-1000

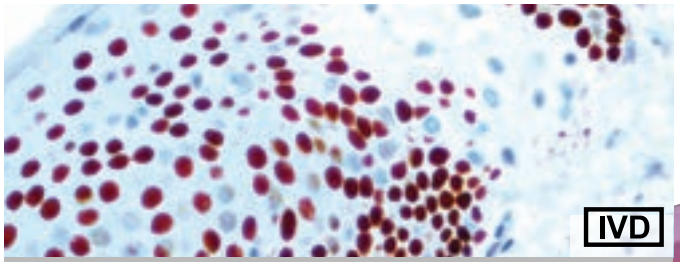
ImmunoDetector AP Link & Label

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector Biotin Link & AP Label	15.0 ml	BSB 0082LA
Mouse/Rabbit ImmunoDetector Biotin Link & AP Label	50.0 ml	BSB 0083LA
Mouse/Rabbit ImmunoDetector Biotin Link & AP Label	100.0 ml	BSB 0084LA
Mouse/Rabbit ImmunoDetector Biotin Link & AP Label	200.0 ml	BSB 0085LA
Mouse/Rabbit ImmunoDetector Biotin Link & AP Label	1000.0 ml	BSB 0086LA

ImmunoDetector AP Link & Label

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector AP Label	15.0 ml	BSB 0082A
Mouse/Rabbit ImmunoDetector AP Label	50.0 ml	BSB 0083A
Mouse/Rabbit ImmunoDetector AP Label	100.0 ml	BSB 0084A
Mouse/Rabbit ImmunoDetector AP Label	200.0 ml	BSB 0085A
Mouse/Rabbit ImmunoDetector AP Label	1000.0 ml	BSB 0086A

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector Biotin Link	15.0 ml	BSB 0001L
Mouse/Rabbit ImmunoDetector Biotin Link	50.0 ml	BSB 0003L
Mouse/Rabbit ImmunoDetector Biotin Link	100.0 ml	BSB 0005L
Mouse/Rabbit ImmunoDetector Biotin Link	200.0 ml	BSB 0007L
Mouse/Rabbit ImmunoDetector Biotin Link	1000.0 ml	BSB 0009L



IHC of p63 on a FFPE Skin Tissue

Bio SB
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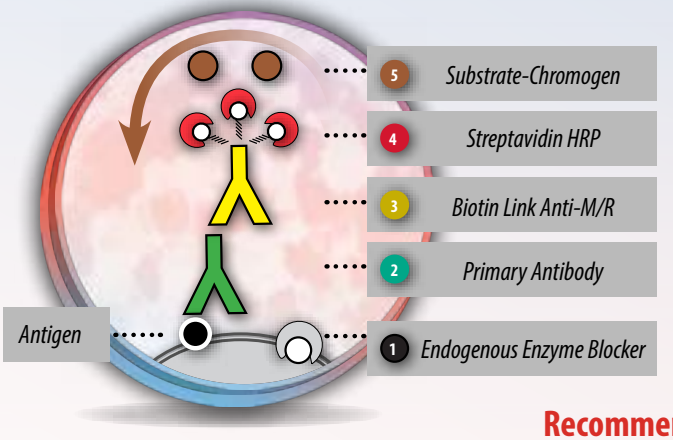
ImmunoDetector HRP

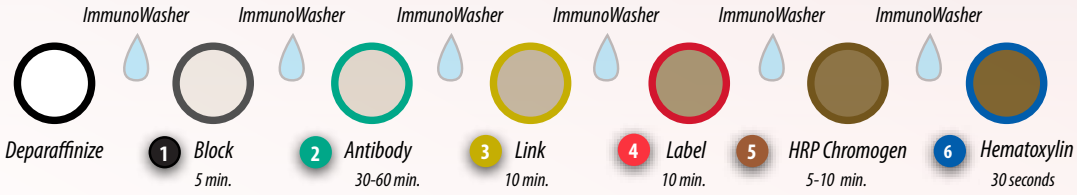
For the Immunohistochemical detection of antigens in cells and formalin-fixed or frozen tissues

The Bio SB ImmunoDetector is a highly sensitive Biotin-Streptavidin detection system that allows for the demonstration of antigens in formalin-fixed paraffin-embedded tissues, cryostat sections, cytosmears, and cell preparations. The ImmunoDetector Detection System is a universal detection system which is suitable for use with mouse or rabbit primary antibodies. The increased sensitivity of the ImmunoDetector Detection System allows for rapid staining procedures without compromising the quality of stains.



- Biotin-Streptavidin, 2-Step Immunohistochemistry Detection Technology
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed or frozen tissues
- Universal: Detects Mouse or Rabbit antibodies
- It can be used with DAB HRP Brown, AEC HRP Red, HRP Black, HRP Green and HRP Blue substrate chromogen.
- For *in Vitro* Diagnostic Use

Recommended Protocol



ImmunoDetector HRP Detection Systems

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector DAB HRP Brown	5 ml	BSB 0001S
Mouse/Rabbit ImmunoDetector DAB HRP Brown	15.0 ml	BSB 0001
Mouse/Rabbit ImmunoDetector DAB HRP Brown	50.0 ml	BSB 0003
Mouse/Rabbit ImmunoDetector DAB HRP Brown	100.0 ml	BSB 0005
Mouse/Rabbit ImmunoDetector DAB HRP Brown	200.0 ml	BSB 0007
Mouse/Rabbit ImmunoDetector DAB HRP Brown	1000.0 ml	BSB 0009
Mouse/Rabbit ImmunoDetector AEC HRP Red	5 ml	BSB 0002S
Mouse/Rabbit ImmunoDetector AEC HRP Red	15.0 ml	BSB 0002
Mouse/Rabbit ImmunoDetector AEC HRP Red	50.0 ml	BSB 0004
Mouse/Rabbit ImmunoDetector AEC HRP Red	100.0 ml	BSB 0006
Mouse/Rabbit ImmunoDetector AEC HRP Red	200.0 ml	BSB 0008
Mouse/Rabbit ImmunoDetector AEC HRP Red	1000.0 ml	BSB 0010

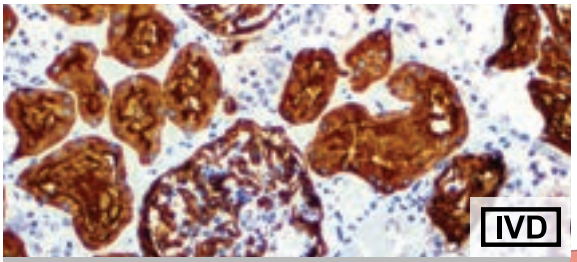
ImmunoDetector HRP Link & Label

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector Biotin Link & HRP Label	15.0 ml	BSB 0001LH
Mouse/Rabbit ImmunoDetector Biotin Link & HRP Label	50.0 ml	BSB 0003LH
Mouse/Rabbit ImmunoDetector Biotin Link & HRP Label	100.0 ml	BSB 0005LH
Mouse/Rabbit ImmunoDetector Biotin Link & HRP Label	200.0 ml	BSB 0007LH
Mouse/Rabbit ImmunoDetector Biotin Link & HRP Label	1000.0 ml	BSB 0009LH

ImmunoDetector HRP Link & Label

Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector Biotin Link	15.0 ml	BSB 0001L
Mouse/Rabbit ImmunoDetector Biotin Link	50.0 ml	BSB 0003L
Mouse/Rabbit ImmunoDetector Biotin Link	100.0 ml	BSB 0005L
Mouse/Rabbit ImmunoDetector Biotin Link	200.0 ml	BSB 0007L
Mouse/Rabbit ImmunoDetector Biotin Link	1000.0 ml	BSB 0009L

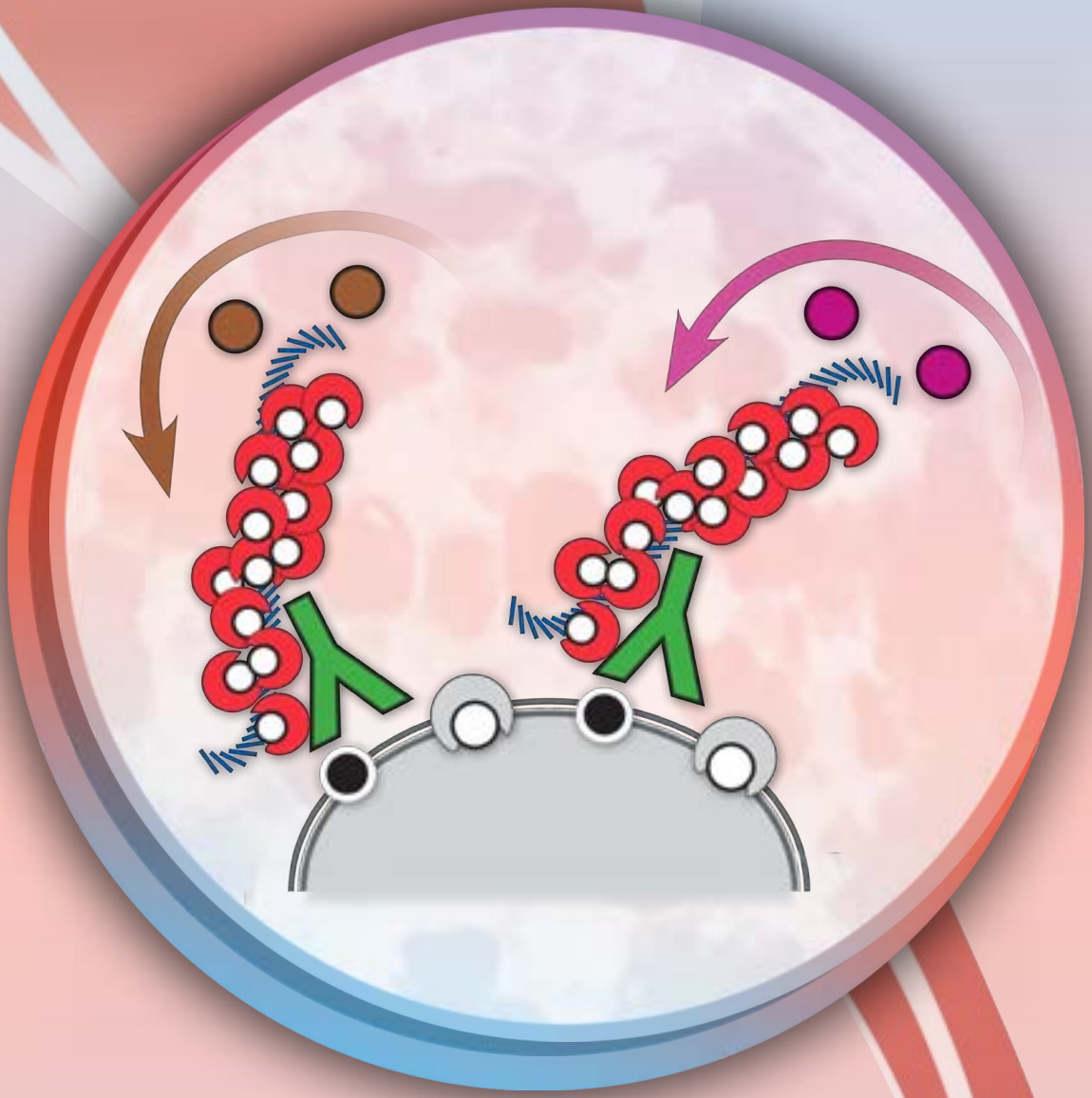
Product Description	Volume	Catalog #
Mouse/Rabbit ImmunoDetector HRP Label	15.0 ml	BSB 0001H
Mouse/Rabbit ImmunoDetector HRP Label	50.0 ml	BSB 0003H
Mouse/Rabbit ImmunoDetector HRP Label	100.0 ml	BSB 0005H
Mouse/Rabbit ImmunoDetector HRP Label	200.0 ml	BSB 0007H
Mouse/Rabbit ImmunoDetector HRP Label	1000.0 ml	BSB 0009H



IHC of CD10 on a FFPE Kidney Tissue

IVD For *in Vitro* Diagnostic Use

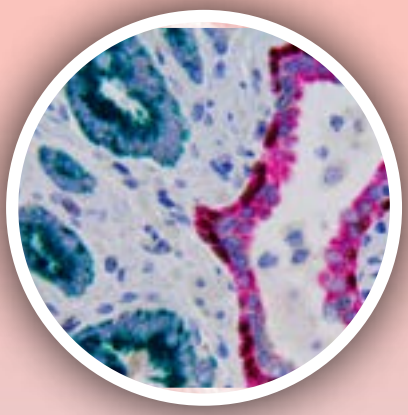
10 tests per ml considering 100µl per tissue

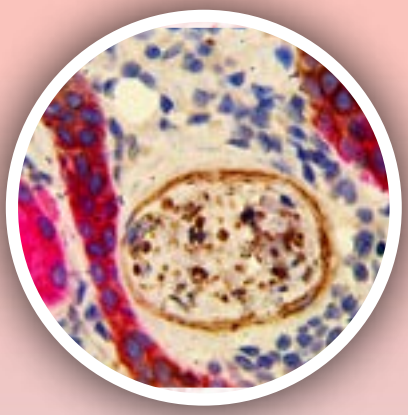


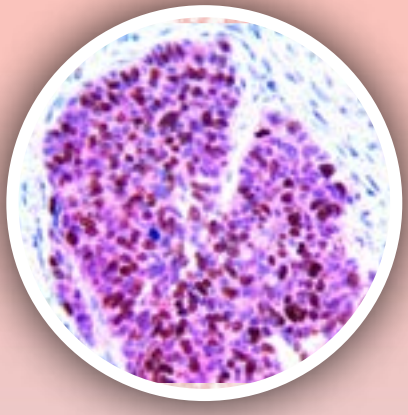
Complete Multiplex Detection Systems for IHC

Simple, Sensitive & Simultaneous Target Detection

A selection of highly sensitive micropolymer based complete multiplex detection systems.
For use in clinical and research applications.







Bio SB
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Prostate Intraepithelial Neoplasia (PIN) MultiDetector HRP/AP Kit

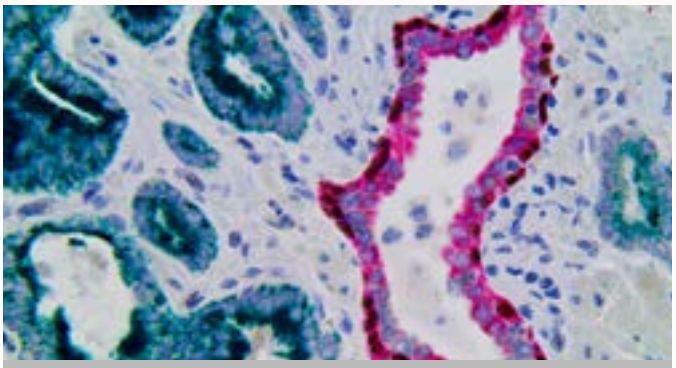
CK 34BE12, p63 & AMACR

The Prostate Intraepithelial Neoplasia (PIN) MultiDetector HRP/AP Kit is a triple stain designed to detect prostate cancer in situ in the prostate glands. The basal cell indicators (p63 in DAB brown and CK34BE12 in Scarlet) stain non-affected glands and the AMACR in Green shows prostate tissue that may be affected by carcinoma. Prostate Intraepithelial Neoplasia (PIN) is a pre-cancerous condition of the prostate glands with a high predictive value for adenocarcinoma. An estimated third of men over 50 have a latent form of PIN, which could develop into a higher grade and eventually malignant carcinoma. High Grade (≥2) PIN (HGPIN) has morphological and genetic similarity to prostate adenocarcinomas, and adenocarcinoma presence and multifocality may be associated with the size and number of HGPIN foci.

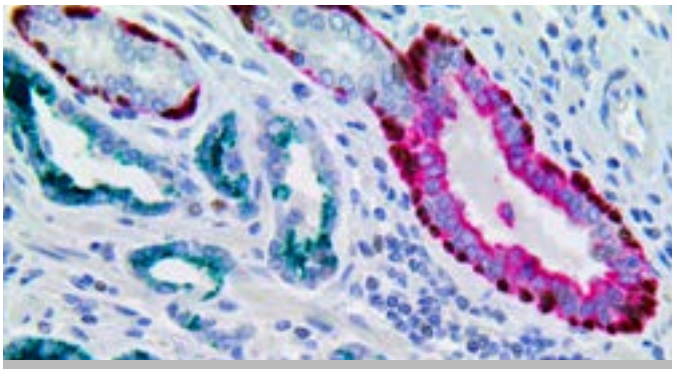
- p63 and CK34BE12 are expressed in basal cells of healthy prostate glands, but absent in adenocarcinoma
- Alpha-methylacyl CoA racemase (AMACR) in the glands has been found at significantly higher near prostate carcinoma foci and can help distinguish PIN from benign lesions.
- Non-Biotin, Multidetector Immunohistochemistry Detection Technology
- Micro-polymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed tissues.
- For *in Vitro* Diagnostic Use

PIN MultiDetector HRP/AP Detection Systems

Product Description	Volume	Catalog #
PIN MultiDetector	70 tests	BSB-0352-7
PIN MultiDetector	150 tests	BSB-0352-15
PIN MultiDetector	500 tests	BSB-0352-50



PIN MultiDetector HRP/AP Kit



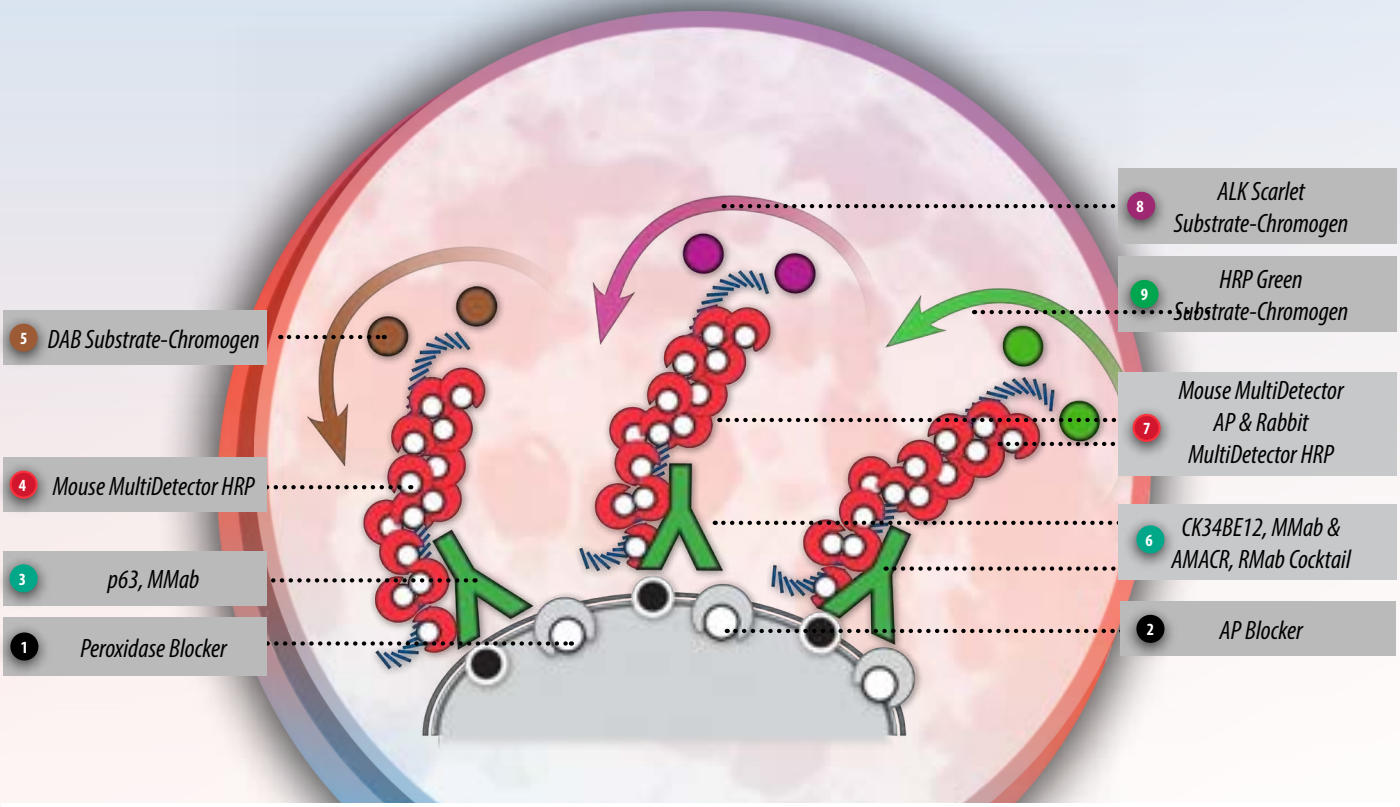
PIN MultiDetector HRP/AP Kit

Components	Volume		
	BSB-0352-7 7 ml Kit 70 tests	**BSB-0352-15 15 ml Kit 150 tests**	**BSB-0352-50 50 ml Kit 500 tests**
20X ImmunoRetriever with Citrate	50 mL	100 mL	200 mL
MultiDetector Peroxidase Blocker	15 mL	30 mL	100 mL
MultiDetector AP Blocker	15 mL	30 mL	100 mL
p63 MMab	7mL	15 mL	50 mL
CK34BE12 MMab & AMACR RMab cocktail	7mL	15 mL	50 mL
Mouse MultiDetector HRP Label	7mL	15 mL	50 mL
Mouse MultiDetector AP & Rabbit MultiDetector HRP Label cocktail	7mL	15 mL	50 mL
MultiDetector DAB Buffer-Substrate	15 mL	30 mL	100 mL
MultiDetector DAB Chromogen	1 mL	2 mL	6 mL
MultiDetector ALK Scarlet Buffer-Substrate	15 mL	30 mL	100 mL
MultiDetector Scarlet Chromogen	1 mL	2 mL	6 mL
MultiDetector HRP Green Buffer-Substrate	15 mL	30 mL	100 mL
MultiDetector HRP Green Chromogen	1 mL	2 mL	6 mL
20X ImmunoDNA Washer	50 mL	100 mL	200 mL
Fast ChromoProtector	10 mL	20 mL	50 mL
Control Slides	5 slides	10 slides	30 slides

10 tests per ml considering 100µl per tissue

Prostate Intraepithelial Neoplasia (PIN) MultiDetector HRP/AP Kit

CK 34BE12, p63 & AMACR



Recommended Protocol

ImmunoWasher

Deparaffinize

ImmunoWasher

1 Peroxidase Blocker
5 min.

ImmunoWasher

2 AP Blocker
5 min.

ImmunoWasher

3 p63, MMab
20 min.

ImmunoWasher

4 Mouse MultiDetector HRP Label
15 min.

ImmunoWasher

5 DAB Substrate-Chromogen
10 min.

ImmunoWasher

6 CK34BE12, MMab & AMACR, RMab Cocktail
20 min.

ImmunoWasher

7 Mouse MultiDetector AP & Rabbit MultiDetector HRP Label Cocktail
15 min.

ImmunoWasher

8 ALK Scarlet Substrate-Chromogen
10 min.

ImmunoWasher

9 HRP Green Substrate-Chromogen
5 min.

ImmunoWasher

10 Hematoxylin
30 seconds

ImmunoWasher

11 Fast ChromoProtecor
1 min.

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PNI Carcinoma MultiDetector HRP/AP Kit

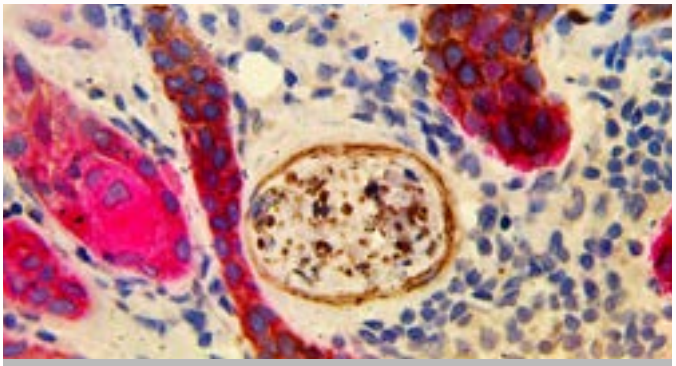
CK 5/6 & NGFR

The PNI Carcinoma MultiDetector HRP/AP Kit is a dual stain that allows for the simultaneous visualization of skin carcinomas and nerve tissue. In cutaneous squamous and basal cell carcinoma, Perineural Invasion (PNI) is the infiltration of tumor within the perineural space. PNI is an uncommon manifestation of SCC and BCC but can indicate adverse outcomes including recurrence, metastasis, poor prognosis, and death. This kit has been optimized with MultiDetector HRP and AP Labels and contrasting chromogens to clearly differentiate tumor cells expressing High Molecular Weight cytokeratin (CK 5/6 in Scarlet) from nerve cells expressing Nerve Growth Factor Receptor (NGFR in Brown).

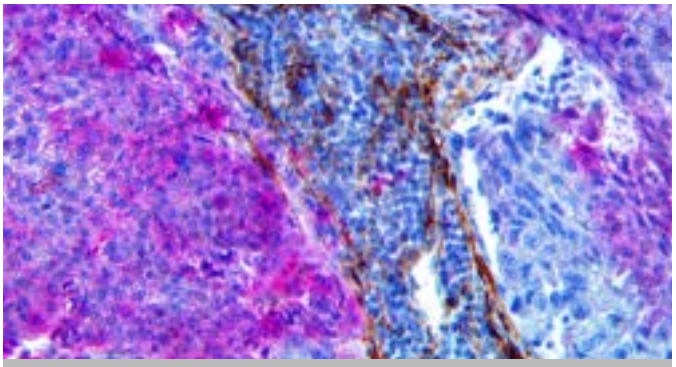
- IHC may be more accurate than routine sections in diagnosing PNI, with significant implications for patient staging, prognosis, and management
- Multiplex IHC may further improve PNI detection by dual staining for cytokeratins (CK AE1/AE3, CK 5/6) and nerve markers (NGFR, SOX-10, NF, etc.)
- Detects Squamous and Basal Cell Carcinomas and nerve bundles using FFPE tissues or frozen Mohs tissue sections
- Non-Biotin, Multidetector Immunohistochemistry Detection Technology
- Micro-polymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed tissues
- For *in Vitro* Diagnostic Use

PNI Carcinoma MultiDetector HRP/AP Detection Systems

Product Description	Volume	Catalog #
PNI Carcinoma MultiDetector	70 tests	BSB-0353-7
PNI Carcinoma MultiDetector	150 tests	BSB-0353-15
PNI Carcinoma MultiDetector	500 tests	BSB-0353-50



PNI Carcinoma MultiDetector HRP/AP Kit

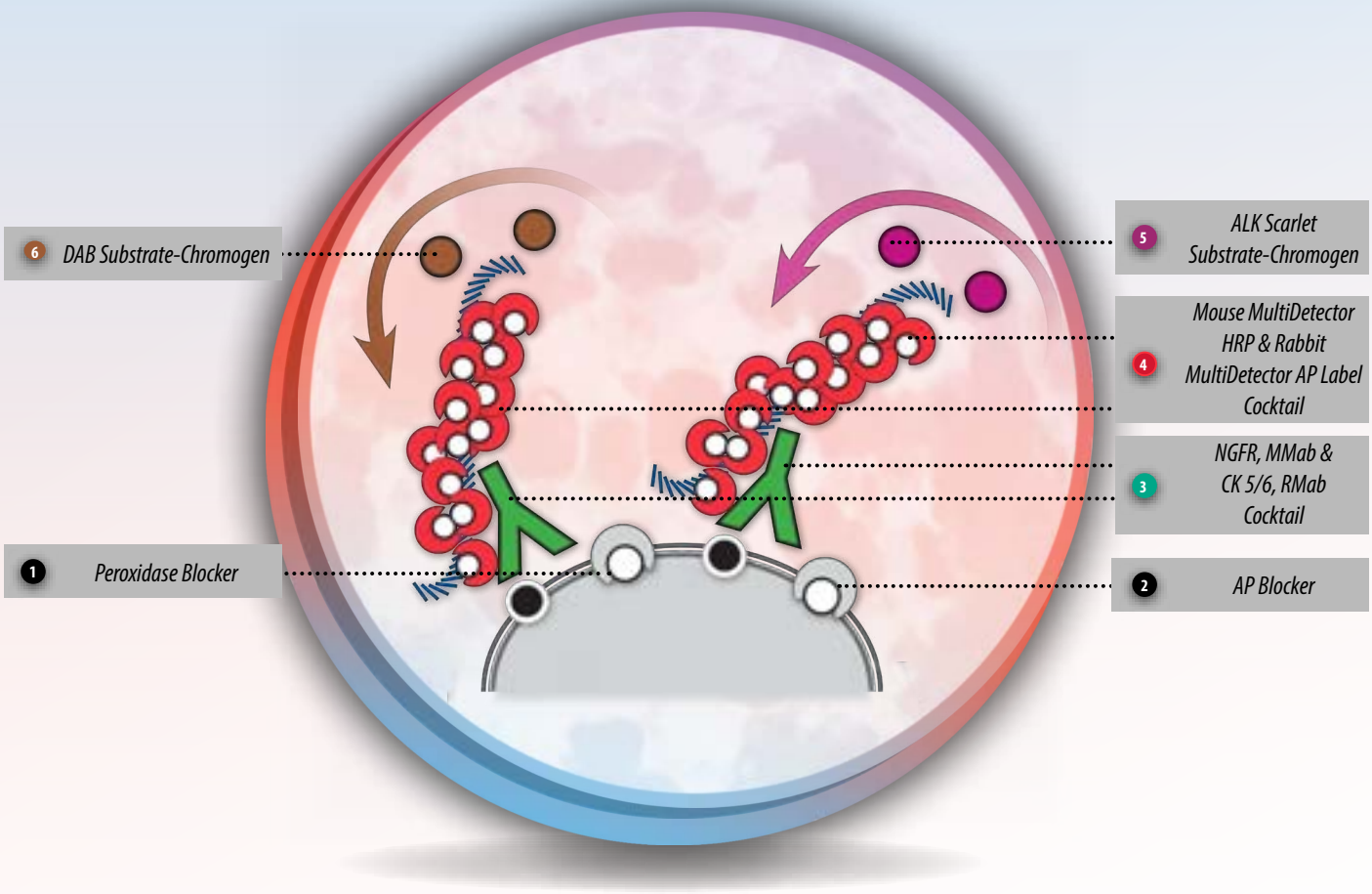


PNI Carcinoma MultiDetector HRP/AP Kit

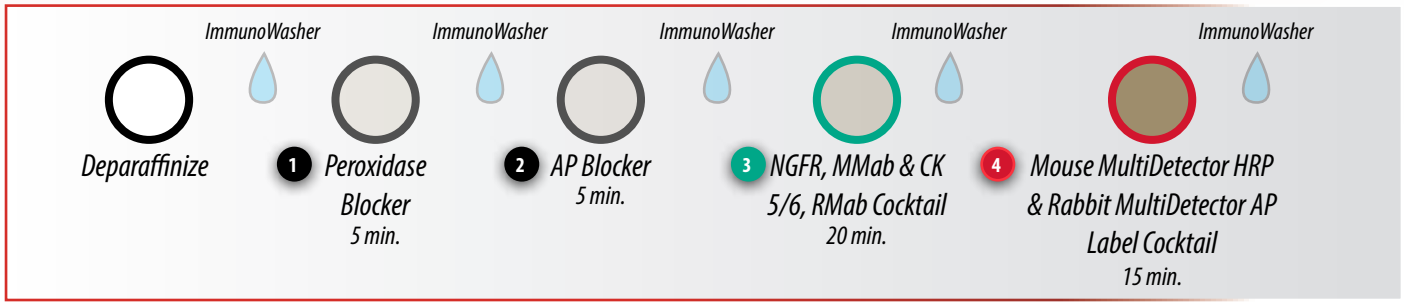
Components	Volume		
	BSB-0353-7 7 ml Kit 70 tests	**BSB-0353-15 15 ml Kit 150 tests**	**BSB-0353-50 50 ml Kit 500 tests**
ImmunoDNA Retriever with Citrate 20X	50 mL	100 mL	200 mL
MultiDetector Peroxidase Blocker	7 mL	15 mL	100 mL
MultiDetector AP Blocker	7 mL	15 mL	100 mL
NGFR MMab & CK 5/6 RMab cocktail	7 mL	15 mL	50 mL
Mouse MultiDetector HRP & Rabbit MultiDetector AP Label cocktail	7 mL	15 mL	50 mL
MultiDetector DAB Buffer-Substrate	7 mL	15 mL	100 mL
MultiDetector DAB Chromogen	1 mL	2 mL	6 mL
MultiDetector ALK Scarlet Buffer-Substrate	7 mL	15 mL	100 mL
MultiDetector Scarlet Chromogen	1 mL	2 mL	6 mL
ImmunoDNA Washer 20X	50 mL	100 mL	200 mL
Fast ChromoProtector	10 mL	20 mL	50 mL
Control Slides	5 slides	10 slides	30 slides

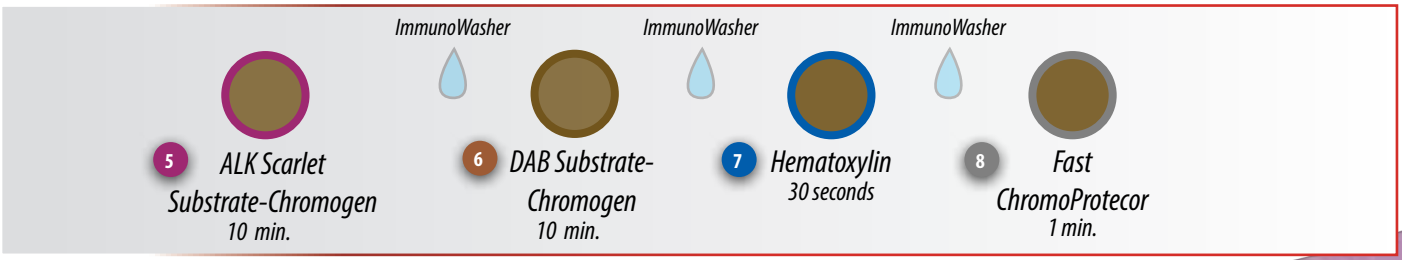
PNI Carcinoma MultiDetector HRP/AP Kit

CK 5/6 & NGFR



Recommended Protocol





HPV MultiDetector HRP/AP Kit

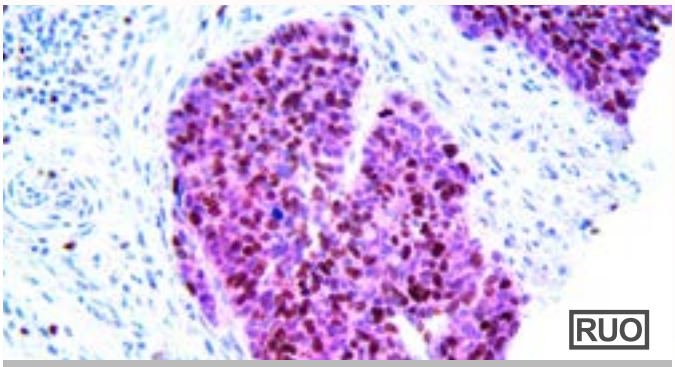
p16 & Ki-67

The HPV MultiDetector HRP/AP Kit dual stain includes a cocktail of Ki67 and p16 antibodies to form a sensitive and specific test for significant cervical lesions. Cervical Intraepithelial Neoplasia (CIN) is the precursor to cervical cancer, the second most common malignancy among women. Colocalized Ki67 and p16 help identify CIN lesions for proper diagnosis and prevention of under- or over-treatment. Detection of nuclear Ki67 with DAB chromogen and nuclear and cytoplasmic p16 with ALK Scarlet provides an easy visualization of the colocalized antibodies for efficient diagnosis on biopsies and liquid cytology samples.

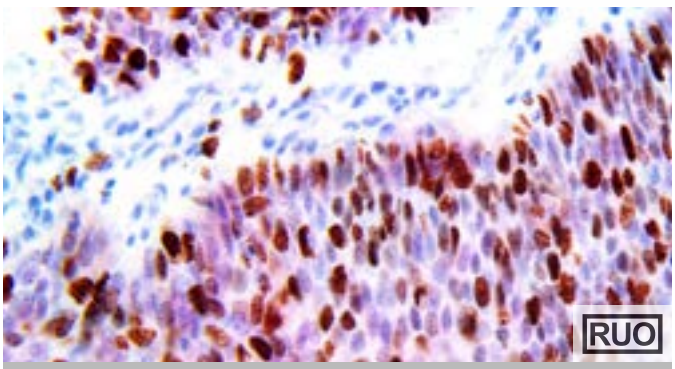
- p16 is a tumor-suppressor gene commonly used to detect squamous and glandular neoplasia in HPV-positive patients
- Ki67 is a nuclear cell proliferation marker, applied to diagnose the grade of abnormal cell growth.
- Non-Biotin, Multidetector Immunohistochemistry Detection Technology
- Micro-polymer detection technology allows for better cell penetration to deliver a highly specific and sensitive signal
- Ready-to-Use, High Sensitivity System especially designed for Immunohistochemistry of formalin-fixed tissues.
- For *in Vitro* Diagnostic Use

HPV MultiDetector HRP/AP Detection Systems

Product Description	Volume	Catalog #
HPV MultiDetector	70 tests	BSB-0354-7
HPV MultiDetector	150 tests	BSB-0354-15
HPV MultiDetector	500 tests	BSB-0354-50



HPV MultiDetector HRP/AP Kit

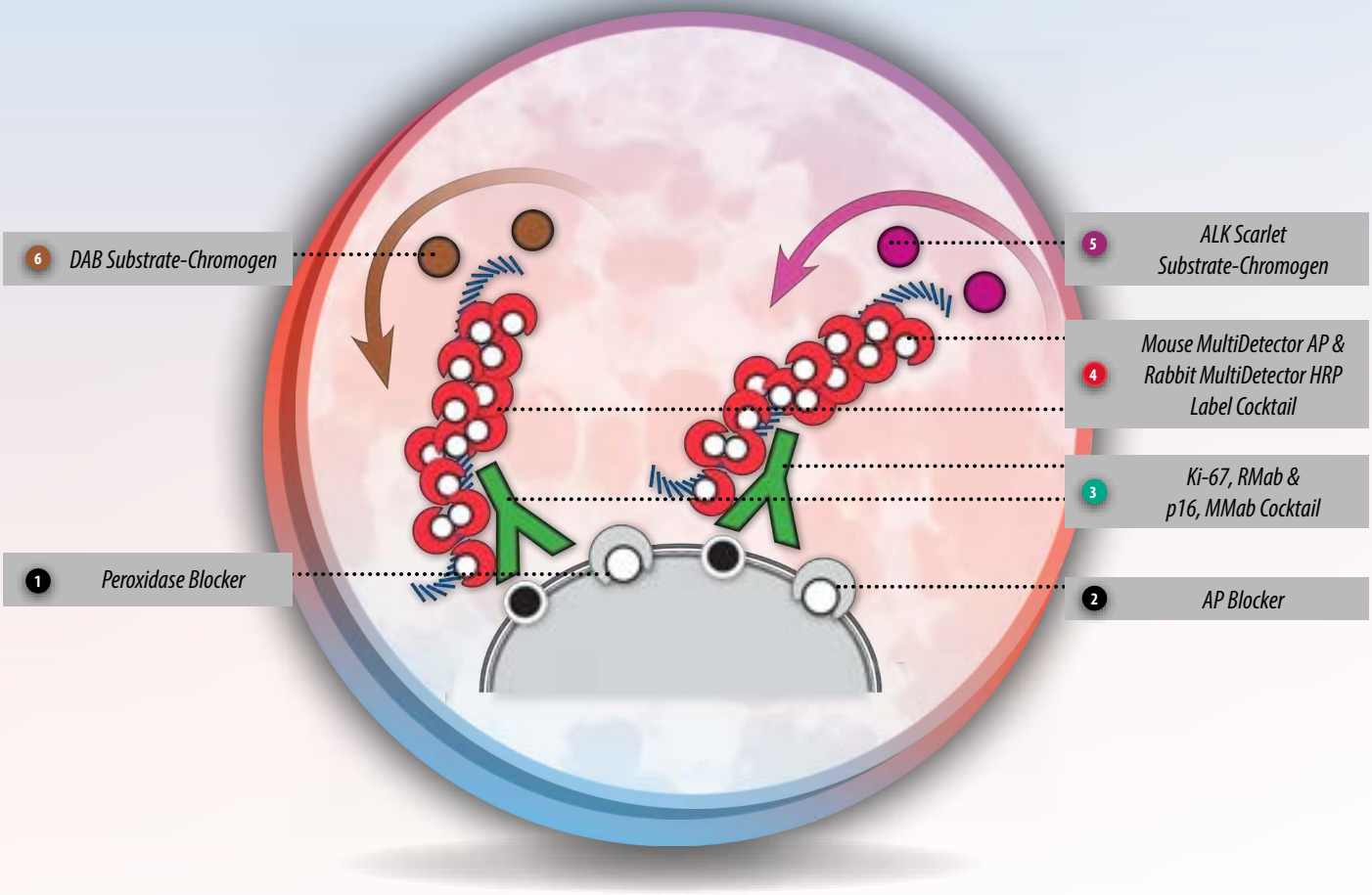


HPV MultiDetector HRP/AP Kit

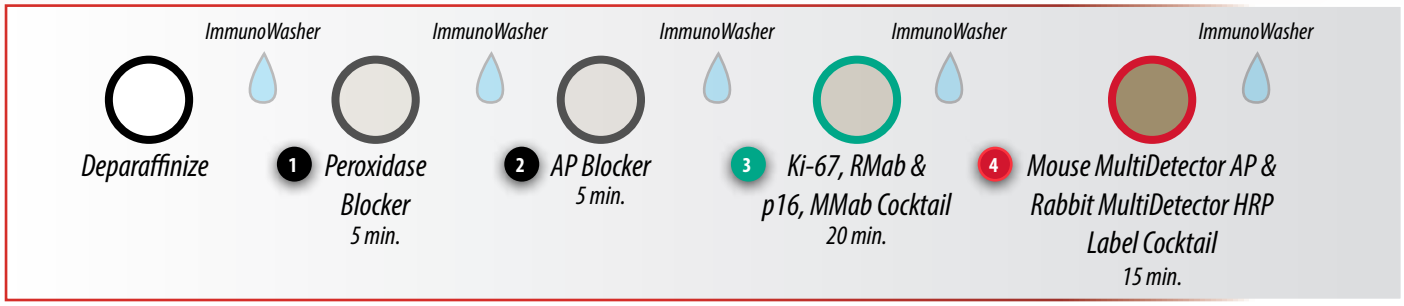
Components	Volume		
	BSB-0354-7 7 ml Kit 70 tests	**BSB-0354-15 15 ml Kit 150 tests**	**BSB-0354-50 50 ml Kit 500 tests**
ImmunoDNA Retriever with Citrate 20X	50 mL	100 mL	200 mL
MultiDetector Peroxidase Blocker	7 mL	15 mL	50 mL
MultiDetector AP Blocker	7 mL	15 mL	50 mL
Ki67 RMab & p16 MMab Cocktail	7mL	15 mL	50 mL
Mouse MultiDetector AP & Rabbit MultiDetector HRP Label cocktail	7mL	15 mL	50 mL
MultiDetector DAB Buffer-Substrate	15 mL	2 x 15 mL	100 mL
MultiDetector DAB Chromogen	1 mL	2 mL	6 mL
MultiDetector ALK Scarlet Buffer-Substrate	7 mL	15 mL	50 mL
MultiDetector Scarlet Chromogen	1 mL	2 mL	6 mL
ImmunoDNA Washer 20X	50 mL	100 mL	200 mL
Fast ChromoProtector	10 mL	20 mL	50 mL
Control Slides: 7-core HPV CLMA	5 slides	10 slides	30 slides

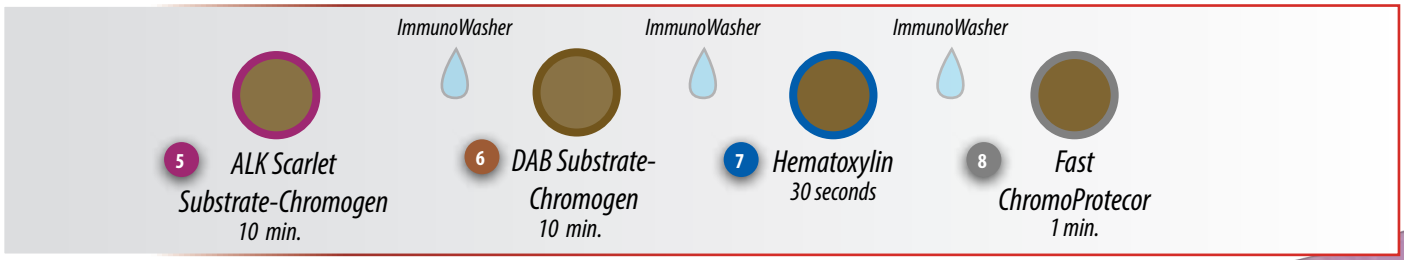
HPV MultiDetector HRP/AP Kit

p16 & Ki-67



Recommended Protocol

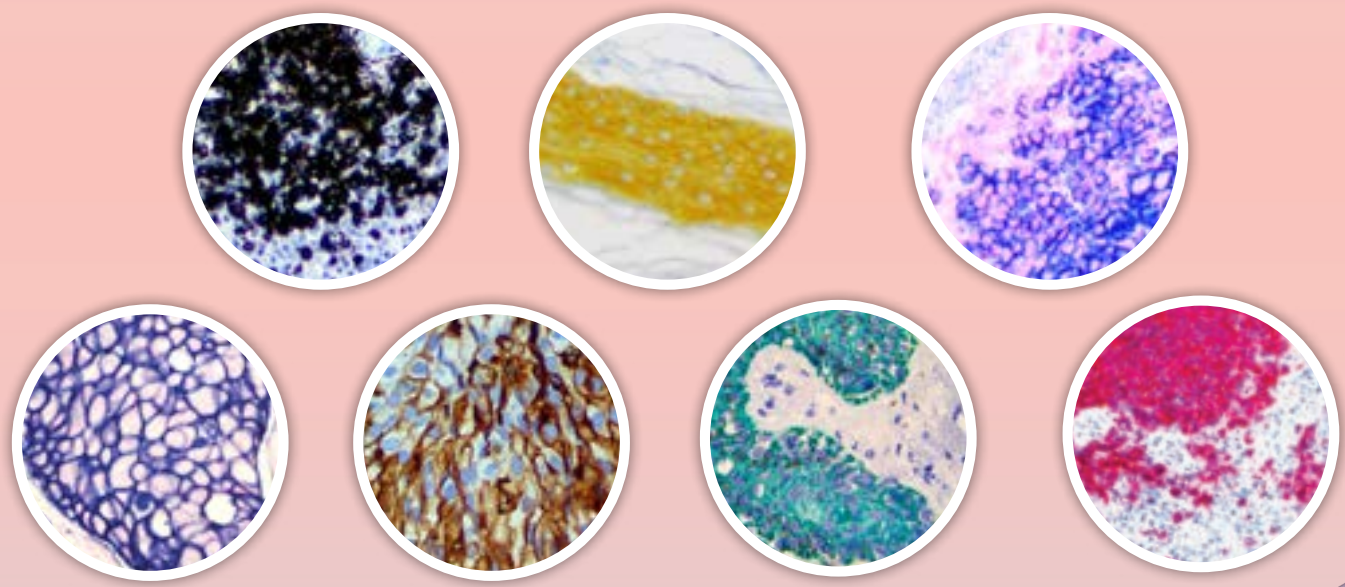




Substrate-Chromogen Systems

11 Colors Available!

For Use In AP or HRP Based Detection Systems.
For use in clinical and research applications.



Bio SB
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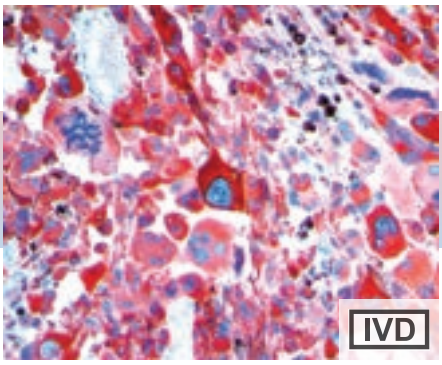
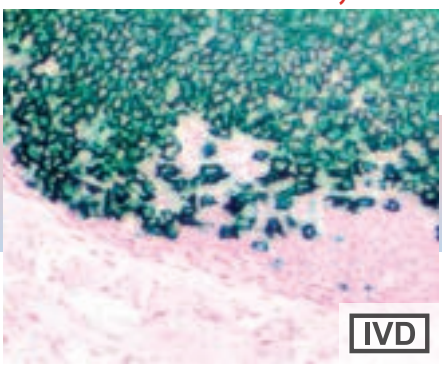
Substrate-Chromogen Systems

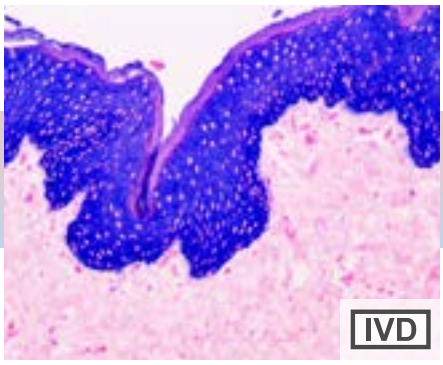
for use with HRP Detection Systems



IHC of S100 Beta on an FFPE Melanoma Tissue with AEC



IHC of CD20 on an FFPE Colon Tissue HRP Green



IHC of CK cocktail on an FFPE Skin Tissue with HRP Blue Plus

- For *in Vitro* Diagnostic Use
- High Sensitivity, Low Background
- AEC HRP Red supplied as Ready-to-Use Format
- DAB Brown, HRP Black, HRP Green and HRP Blue supplied as two components

PolyDetector HRP Yellow kit	
15.0 ml	BSB 0365-15
50.0 ml	BSB 0365-50
100.0 ml	BSB 0365-100
200.0 ml	BSB 0365-200
500.0 ml	BSB 0365-500
1000.0 ml	BSB 0365-1000

PolyDetector Liquid DAB HRP Brown Kit	
15.0 ml	BSB 0015
50.0 ml	BSB 0016
100.0 ml	BSB 0017
200.0 ml	BSB 0018
500.0 ml	BSB 0018A
1000.0 ml	BSB 0018B

PolyDetector HRP Black Kit	
15.0 ml	BSB 0361-15
50.0 ml	BSB 0361-50
100.0 ml	BSB 0361-100
200.0 ml	BSB 0361-200
500.0 ml	BSB 0361-500
1000.0 ml	BSB 0361-1000

PolyDetector HRP Fuchsia kit	
15.0 ml	BSB 0364-15
50.0 ml	BSB 0364-50
100.0 ml	BSB 0364-100
200.0 ml	BSB 0364-200
500.0 ml	BSB 0364-500
1000.0 ml	BSB 0364-1000

PolyDetector HRP Blue Plus Kit	
15.0 ml	BSB 0363-15
50.0 ml	BSB 0363-50
100.0 ml	BSB 0363-100
200.0 ml	BSB 0363-200
500.0 ml	BSB 0363-500
1000.0 ml	BSB 0363-1000

PolyDetector HRP Green Kit	
15.0 ml	BSB 0128
50.0 ml	BSB 0129
100.0 ml	BSB 0130
200.0 ml	BSB 0131
500.0 ml	BSB 0132
1000.0 ml	BSB 0133

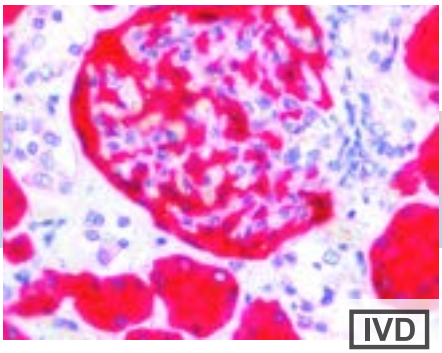
PolyDetector Liquid AEC HRP Red Ready-To-Use	
15.0 ml	BSB 0011
50.0 ml	BSB 0012
100.0 ml	BSB 0013
200.0 ml	BSB 0014
500.0 ml	BSB 0061A
1000.0 ml	BSB 0061

PolyDetector HRP Mulberry kit	
15.0 ml	BSB 0362-15
50.0 ml	BSB 0362-50
100.0 ml	BSB 0362-100
200.0 ml	BSB 0362-200
500.0 ml	BSB 0362-500
1000.0 ml	BSB 0362-1000

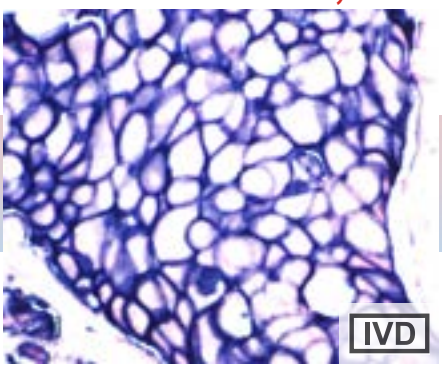
IVD For *in Vitro* Diagnostic Use

Substrate-Chromogen Systems

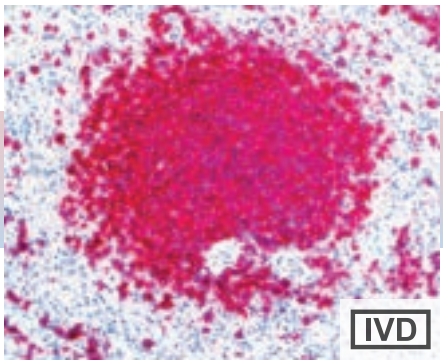
for use with AP Detection Systems



IHC of CD10 on an FFPE Kidney Tissue with ALK Magenta



IHC of Her2 on an FFPE Breast Carcinoma Tissue with ALK Blue



IHC of CD20 on an FFPE Spleen Tissue with ALK Magenta

- For *in Vitro* Diagnostic Use
- High Sensitivity, Low Background
- Environmentally friendly: No solvents used
- Alk Blue and Alk Red supplied as Ready-to-Use Formats
- ALK Scarlet supplied as two components, ALK Magenta supplied as three components

PolyDetector Alk Blue Red Ready-To-Use	
15.0 ml	BSB 0062
50.0 ml	BSB 0063
100.0 ml	BSB 0064
200.0 ml	BSB 0065
1000.0 ml	BSB 0066

PolyDetector Alk Magenta kit	
15.0 ml	BSB 0077
50.0 ml	BSB 0078
100.0 ml	BSB 0079
200.0 ml	BSB 0080
1000.0 ml	BSB 0081

PolyDetector Alk Red Ready-To-Use	
15.0 ml	BSB 0067
50.0 ml	BSB 0068
100.0 ml	BSB 0069
200.0 ml	BSB 0070
1000.0 ml	BSB 0071

PolyDetector Alk Scarlet kit	
15.0 ml	BSB 0138
50.0 ml	BSB 0139
100.0 ml	BSB 0140
200.0 ml	BSB 0141
1000.0 ml	BSB 0142

Compatibility Guide

The Bio SB compatibility guide will help ensure that the correct chromogen, counter-stain, and mounting media is used in any test performed.

KEY
+ = compatible
– = incompatible
A = Aqua Mounter
P = Perma Mounter

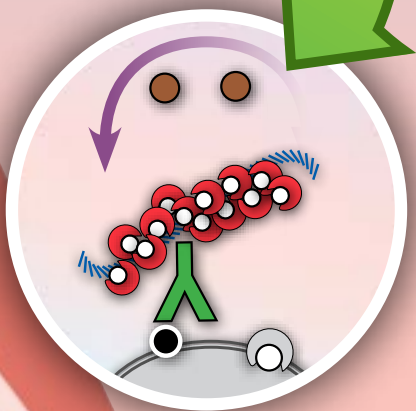
	DAB HRP Brown	AEC HRP Red	HRP Black	HRP Green	HRP Blue Plus	HRP Fuschia	HRP Mulberry	HRP Yellow	ALK Magenta	ALK Scarlet
Methyl Green	+	–	+	–	+/–	-	-	-	+	+
Hematoxylin	+	+	+/–	+/–	–	+	+	+	+	+
Nuclear Fast Red	+/–	–	+	+	+	-	-	-	–	–
Mounting Media	P	A	P	P	A	P	A	A/P	A/P	A/P

IVD For *in Vitro* Diagnostic Use

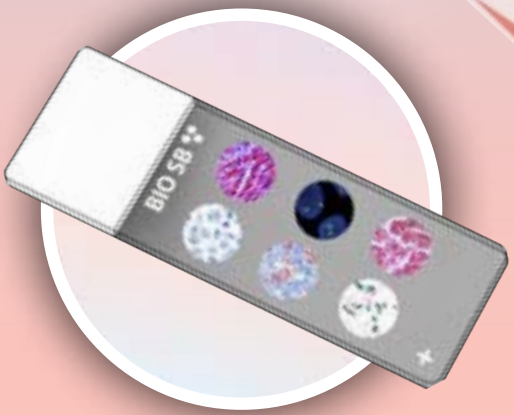
Automated IHC & ISH
TintoStainer Plus
TintoDetector

Deparaffinization & Retrieval
TintoDeparaffinator Citrate & EDTA
TintoRetriever Pressure cooker

Antibodies & Probes
TintoAntibodies



Detection Systems
PolyDetector
Micropolymer IgG Fab'



Tissue & Cell Line Microarrays

Solvent Free Mounting
ChromoProtector
XyGreen PermaMounter

Environmentally Friendly Ancillaries for Imunohistochemistry

Solvent Free Ancillaries for IHC & ISH

Safe, efficient and economical alternatives to traditional solvent containing solutions.
Reduce time from deparafinization to mounting.

Bio SB
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TintoDeparaffinator Citrate and EDTA

Safe, efficient and economical alternatives to traditional deparaffinization. These solvent-free products reduce exposure to toxic solvents like xylenes, toluene and alcohols when handling FFPE tissues for molecular pathology.

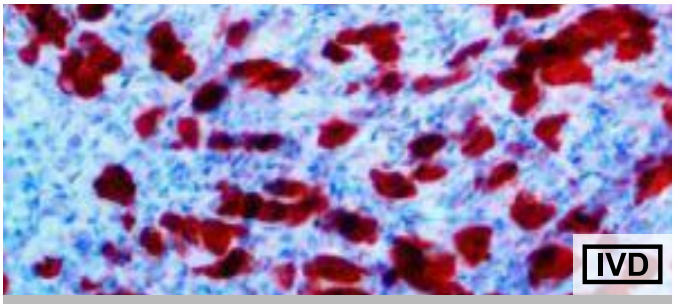
Non-Toxic and Biodegradable!

Reduction of up to 1 hour in the Deparaffinization and Mounting Time used with Xylenes and Alcohol!

Product Description	Volume	Catalog #
TintoDeparaffinator Citrate 20X	100 mL (2 Lt)	BSB 0175
TintoDeparaffinator Citrate 20X	1000 mL (20 Lt)	BSB 0176
TintoDeparaffinator EDTA 20X	100 mL (2 Lt)	BSB 0177
TintoDeparaffinator EDTA 20X	1000 mL (20 Lt)	BSB 0178
TintoDeparaffinator Hot Rinse 20X	100 mL (2 Lt)	BSB 0179
TintoDeparaffinator Hot Rinse 20X	1000 mL (20 Lt)	BSB 0180

ChromoProtector and XyGreen PermaMounter

The Bio SB ChromoProtector helps to dissolve micro-paraffin leftovers and preserve stains of substrate-chromogens that are dissolved or sensitive to fading, like AEC, Fast Red, HRP Blue, HRP Green, ALK Magenta, ALK Scarlet, ALK Red and ALK Brown, when mounted with solvent-based permanent mounting media. The Bio SB ChromoProtector is also suitable to mount substrate-chromogens such as DAB, HRP Black, ALK Blue or others that are resistant to solvents. The XyGreen PermaMounter is a solvent free, non-toxic and biodegradable permanent mounting media that allows permanent mounting of tissues for molecular pathology applications.



*IHC of **ALK-1** on a FFPE Large Anaplastic Lymphoma with **AEC** PermaMounted*

*IHC of **SATB2** on a FFPE Colon Carcinoma with **HRP Blue** PermaMounted*

Non-Toxic and Solvent Free!

Product Description	Volume	Catalog #
XyGreen PermaMounter	15 mL	BSB 0169
XyGreen PermaMounter	50 mL	BSB 0170
XyGreen PermaMounter	100 mL	BSB 0171
ChromoProtector	15 mL	BSB 0151
ChromoProtector	50 mL	BSB 0152
ChromoProtector	100 mL	BSB 0153

Biodegradable!

Featured IHC Ancillaries

Immuno/DNA Retriever with Citrate

The Bio SB Immuno/DNA Retriever with Citrate can be used in IHC, ICC, IF, and ISH, resulting in standardization of the pretreatment procedure to produce consistent & reliable results.

Product Description	Volume	Catalog #
ImmunoRetriever 20X with Citrate	50mL	BSB 0023
ImmunoRetriever 20X with Citrate	200 mL	BSB 0020
ImmunoRetriever 20X with Citrate	500 mL	BSB 0021
ImmunoRetriever 20X with Citrate	1000 mL	BSB 0022

Immuno/DNA Retriever with EDTA

The Bio SB Immuno/DNA Retriever with EDTA can be used in IHC, ICC, IF, and ISH Applications. The Bio SB Immuno/DNA Retriever with EDTA is recommended for tissues that have lower concentrations of antigens or when using low affinity antibodies.

Product Description	Volume	Catalog #
ImmunoRetriever 20X with EDTA	50 mL	BSB 0033
ImmunoRetriever 20X with EDTA	200 mL	BSB 0030
ImmunoRetriever 20X with EDTA	500 mL	BSB 0031
ImmunoRetriever 20X with EDTA	1000 mL	BSB 0032

Antibody Diluent/Protein Blocker

The Bio SB Antibody Diluent/Protein Blocker is designed to dilute & stabilize antibodies while minimizing non specific reactions and promoting specific antigen-antibody binding.

Product Description	Volume	Catalog #
ImmunoDetector Protein Blocker / Antibody Diluent	15 mL	BSB 0113
ImmunoDetector Protein Blocker / Antibody Diluent	50 mL	BSB 0040
ImmunoDetector Protein Blocker / Antibody Diluent	100 mL	BSB 0041
ImmunoDetector Protein Blocker / Antibody Diluent	200 mL	BSB 0114
ImmunoDetector Protein Blocker / Antibody Diluent	1000 mL	BSB 0115

Immuno/DNA Washer

The Bio SB Immuno/DNA Washer is a cost effective washing solution used in-between steps common in IHC, ICC, and IF. The Bio SB Immuno/DNA Washer can be incorporated in capillary gap based or automated IHC protocols.

Product Description	Volume	Catalog #
Immuno/DNA Washer 10X	200 mL	BSB 0029
Immuno/DNA Washer 10X	1000 mL	BSB 0042
Immuno/DNA Washer 20X	200 mL	BSB 0149
Immuno/DNA Washer 20X	1000 mL	BSB 0150

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IHC Ancillaries

Enzyme Retrieval

Product Description	Volume	Catalog #
ImmunoDNA Digestor	15 mL	BSB 0108
ImmunoDNA Digestor	50 mL	BSB 0109
ImmunoDNA Digestor	100 mL	BSB 0110
ImmunoDNA Digestor	200 mL	BSB 0111
ImmunoDNA Digestor	1000 mL	BSB 0112
Mohs Immuno Digestor	15 mL	BSB 0324
Mohs Immuno Digestor	50 mL	BSB 0325
Mohs Immuno Digestor	100 mL	BSB 0326

Negative Controls

Product Description	Volume	Catalog #
Mouse Negative Control	3 mL	BSB 0040A
Mouse Negative Control	6 mL	BSB 0040B
Mouse Negative Control	15 mL	BSB 0040C
Rabbit Negative Control	3 mL	BSB 0041A
Rabbit Negative Control	6 mL	BSB 0041B
Rabbit Negative Control	15 mL	BSB 0041C

Counterstainers

Product Description	Volume	Catalog #
Hematoxylin Counterstainer	15 ml	BSB 0024
Hematoxylin Counterstainer	50 ml	BSB 0025
Hematoxylin Counterstainer	100 ml	BSB 0026
Hematoxylin Counterstainer	200 ml	BSB 0027
Hematoxylin Counterstainer	1000 ml	BSB 0028
Nuclear Fast Red Counterstainer	15 ml	BSB 0116
Nuclear Fast Red Counterstainer	50 ml	BSB 0117
Nuclear Fast Red Counterstainer	100 ml	BSB 0118
Nuclear Fast Red Counterstainer	200 ml	BSB 0119
Nuclear Fast Red Counterstainer	1000 ml	BSB 0120
TintoHematoxylin Automation	15 mL	BSB 0127
TintoHematoxylin Automation	50 mL	BSB 0182
TintoHematoxylin Automation	100 mL	BSB 0183
TintoHematoxylin Automation	200 mL	BSB 0184
TintoHematoxylin Automation	1000 mL	BSB 0185
Pink Hematoxylin Counterstainer	15 mL	BSB-0360-15
Pink Hematoxylin Counterstainer	50 mL	BSB-0360-50
Pink Hematoxylin Counterstainer	100 mL	BSB-0360-100
Pink Hematoxylin Counterstainer	200 mL	BSB-0360-200
Pink Hematoxylin Counterstainer	1000 mL	BSB-0360-1000

Other Mounting Solutions

Product Description	Volume	Catalog #
AquaMounter	15 ml	BSB 0090
AquaMounter	50 ml	BSB 0091
AquaMounter	100 ml	BSB 0092
AquaMounter	500 ml	BSB 0093
PermaMounter	118 ml	BSB 0097
Fast ChromoProtector	15 ml	BSB-0327-15
Fast ChromoProtector	50 ml	BSB-0327-50
Fast ChromoProtector	100 ml	BSB-0327-100
Fast ChromoProtector	200 ml	BSB-0327-200
Fast ChromoProtector	500 ml	BSB-0327-500
Fast ChromoProtector	1000 ml	BSB-0327-1000
FluoroMounter	15 mL	BSB 0157
FluoroMounter	50 mL	BSB 0158
FluoroMounter	100 mL	BSB 0159
FluoroMounter with DAPI	15 mL	BSB 0163
FluoroMounter with DAPI	50 mL	BSB 0164
FluoroMounter with DAPI	100 mL	BSB 0165

IHC Ancillaries

Washers & Detergents

Product Description	Volume	Catalog #
Immuno/DNA Washer 10X	200 ml	BSB 0029
Immuno/DNA Washer 10X	1000 ml	BSB 0042
Immuno/DNA Washer 20X	200 ml	BSB 0149
Immuno/DNA Washer 20X	1000 ml	BSB 0150
Tween 20	100 ml	BSB 0045
Tween 20	500 ml	BSB 0046

Slide Treatment Solutions

Product Description	Volume	Catalog #
CytoLayer Slide Treatment Solution	100 ml	BSB 4026
CytoLayer Slide Treatment Solution	500 ml	BSB 4027
CytoLayer Slide Treatment Solution	1000 ml	BSB 4032

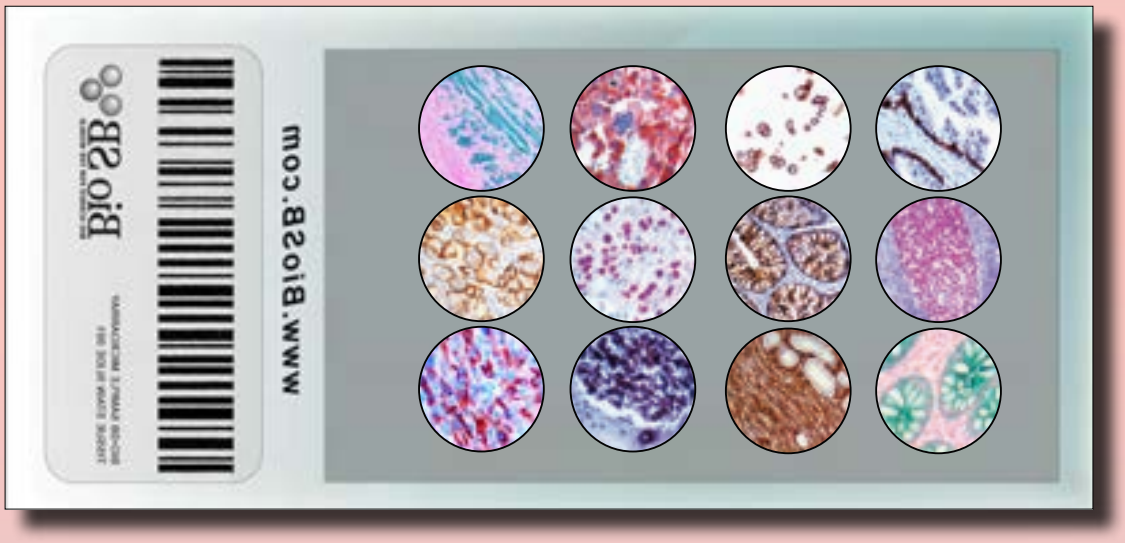
Other Blocking Solutions

Product Description	Volume	Catalog #
Background Blocker	15 mL	BSB 0103
Background Blocker	50 ml	BSB 0104
Background Blocker	100 ml	BSB 0105
Background Blocker	200 ml	BSB 0106
Background Blocker	1000 ml	BSB 0107
PolyDetector Peroxidase Blocker	15 ml	BSB 0050
PolyDetector Peroxidase Blocker	50 ml	BSB 0051
PolyDetector Peroxidase Blocker	100 ml	BSB 0052
PolyDetector Peroxidase Blocker	200 ml	BSB 0053
PolyDetector Peroxidase Blocker	1000 ml	BSB 0054
PolyDetector AP Blocker	15 ml	BSB 0055
PolyDetector AP Blocker	50 ml	BSB 0056
PolyDetector AP Blocker	100 ml	BSB 0057
PolyDetector AP Blocker	200 ml	BSB 0058
PolyDetector AP Blocker	1000 ml	BSB 0059
ImmunoDetector Biotin Blocker	15 ml	BSB 0098
ImmunoDetector Biotin Blocker	50 ml	BSB 0099
ImmunoDetector Biotin Blocker	100 ml	BSB 0100
ImmunoDetector Biotin Blocker	200 ml	BSB 0101
ImmunoDetector Biotin Blocker	1000 ml	BSB 0102


BIO SB

Tissue and Cell Line Microarrays

Tissue Microarrays | Infectious Disease Arrays | IHC & ISH Validated



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Tissue Microarrays and Control Slides

As the diagnostics market continues to grow, researchers and clinicians have a greater need for a wide variety of high quality and cost effective control slides. Control slides are invaluable tools utilized by institutions when validating reagents, qualifying new products, testing protocols or performing research which requires multiple tissue types. Bio SB control slides are cost effective, high quality tissues mounted on Hydrophilic Plus slides which are validated for use in immunohistochemical (IHC) and in situ hybridization (ISH) applications.

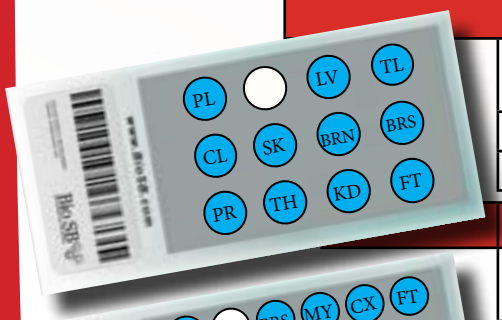
Tissue Microarray Features

- Easy method of antibody validation.
- Cost effective diagnostic control.
- Test a large number of tissue types on one slide.
- Available in 11 or 23 core format.
- Validated for use with over 650 antibodies used in Immunohistochemistry .

Above: Depiction of Normal Human 11 Core TMA

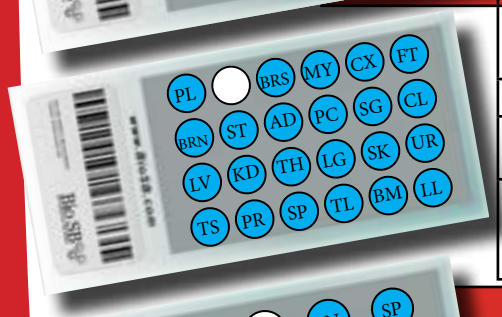
Normal Human Tissue Microarray (NH-TMA), Cancer Human Tissue Microarray (CH-TMA) and Cancer Human Cell Line Microarray (CH-CLMA)

The Normal Human Tissue Microarray, or NH-TMA, Cancer Human Tissue Microarray, or CH-TMA, and Cancer Human Cell Line Microarray, or CH-CLMA, are an excellent way to test and validate an antibody, ISH probes or other reagent on multiple tissues. The Bio SB NH-TMA's and CH-TMA's are available in both 11 or 23-core configurations. The Bio SB NH-TMA's, CH-TMA's and CH-CLMA's are an excellent way for clinics and research labs to save time and money by allowing multiple tissues to be tested on one slide.



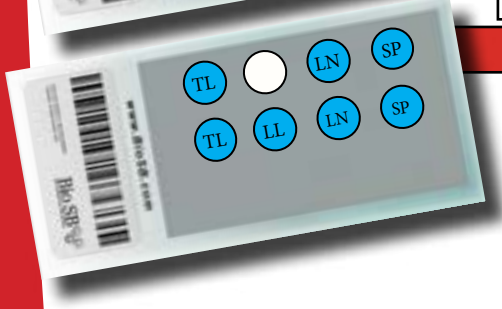
BSB 0297 - 11 Core Normal Human Tissue Microarray (NH-TMA)

PL - Placenta	Blank	LV - Liver	TL - Tonsil
CL - Colon	SK - Skin	BRN - Brain	BRS - Breast
PR - Prostate	TH - Thyroid	KD - Kidney	FT - Fallopian Tube



BSB 0298 - 23 Core Normal Human Tissue Microarray (NH-TMA)

PL - Placenta	Blank	BRS - Breast	MY - Myometrium	CX - Cervix	FT - Fallopian Tube
BRN - Brain	ST - Stomach	AD - Adrenal	PC - Pancreas	SG - Salivary	CL - Colon
LV - Liver	KD - Kidney	TH - Thyroid	LG - Lung	SK - Skin	UR-Urothelial Carcinoma
TS - Testis	PR - Prostate	SP - Spleen	TL - Tonsil	BM - Bone Marrow	LL- Lymphoblastic Lymphoma



BSB 0299 - 7 Core Normal Human Lymphoid Tissue Microarray

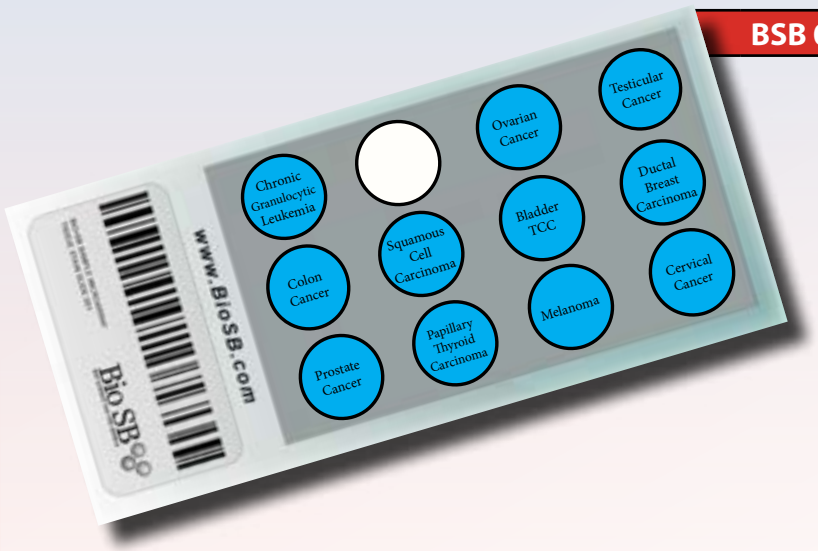
TL - Tonsil	Blank	LN - Lymph Node	SP - Spleen
TL - Tonsil	LL-Lymphoblastic Lymphoma	LN - Lymph Node	SP - Spleen

The maps above outline the various normal tissue types used.
Each slide comes with a "blank" core for easy orientation & interpretation.

Tissue Microarrays and Control Slides

Cancer Human Tissue Microarrays (CH-TMA)

The Human Cancer Tissue Microarrays (CH-TMA) consist of 2 mm cores of cancer human formalin-fixed paraffin-embedded tissues which were assembled in array fashion to allow multiplex molecular pathology analysis and validation of reagents, or to be used as tissue controls for Immunohistochemistry and/or in-situ hybridization (CISH and FISH) applications.



BSB 0230 - 11 Core Cancer Human Tissue Microarray

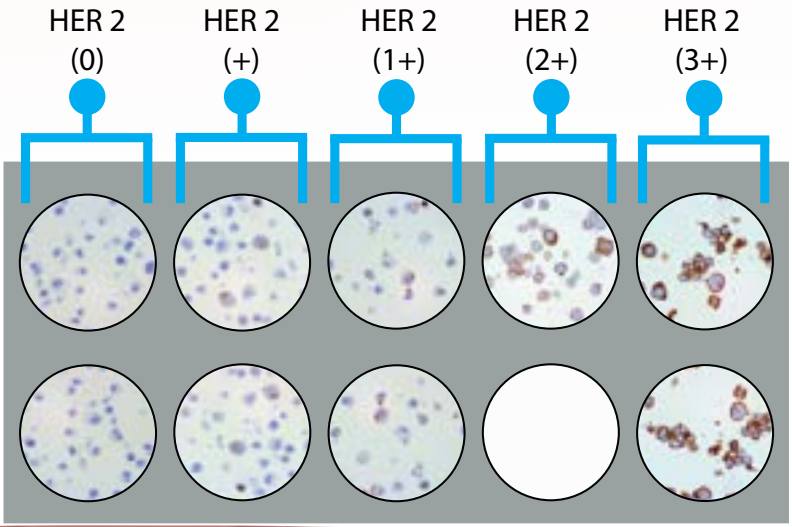
The Human Cancer 11-core TMA contains the following human cancer tissues: Chronic Granulocytic Leukemia, Colon Cancer, Prostate Cancer, Squamous Cell Carcinoma, Papillary Thyroid Carcinoma, Ovarian Cancer, Bladder TCC, Melanoma, Testicular Cancer, Ductal Breast Carcinoma, and Cervical Cancer.

Cancer Human Tissue Microarrays	Catalog #
11-Core Human Cancer TMA	BSB 0230
23-Core Human Cancer TMA	BSB 0231
2-Core Human PIN TMA	BSB-0333-CS

* Tissue selection may vary from lot to lot

Cancer Human Cell Line Microarrays (CH-CLMA)

The Cancer Human Cell Line Microarrays (CH-CLM) consist of 2 mm cores of cancer human formalin-fixed paraffin-embedded cell lines which were assembled in array fashion to allow multiplex molecular pathology analysis and validation of reagents, or to be used as tissue controls for Immunohistochemistry, Immunocytochemistry and/or in-situ hybridization (CISH and FISH) applications.



Above: HER-2 Cell Line Microarray with various signal strengths.

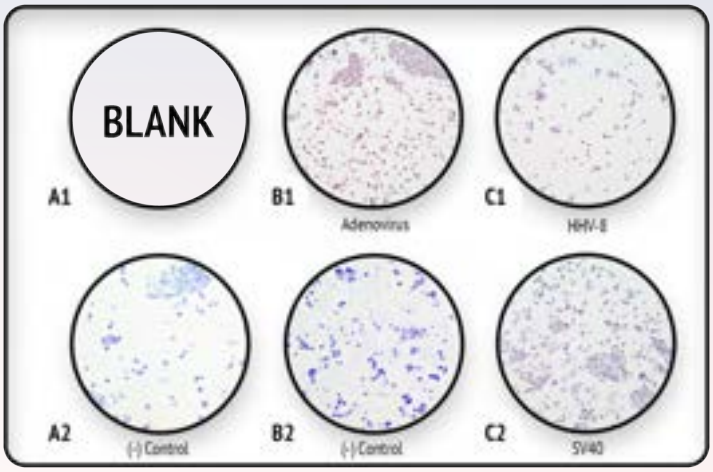
Cell Line Microarrays	Catalog #
3-Core ALK CLMA	BSB 0296
9- Core HER-2 CLMA	BSB 0292
7-Core ER/PR CLMA	BSB 0293
7-Core EGFR CLMA	BSB 0295
9-Core PTEN CLMA	BSB 0300
7-Core PD-L1 CLMA	BSB 0301
5-Core BRAF V600E CLMA	BSB 0305
11-Core Breast Cancer CLMA	BSB 0302
7-Core HPV Cervical Cancer CLMA	BSB 0294
3-Core Lung Cancer CLMA	BSB 0296
3-Core GIST CLMA	BSB 0242
5-Core Melanoma CLMA	BSB 0243
3-Core Neuroblastoma CLMA	BSB 0303
11-Core Immunotherapy CLMA	BSB 0304
31-Core Multi Cancer CLMA	BSB 0244
3-Core Androgen Receptor CLMA	BSB-0334-CS
3-Core ROS1 CLMA	BSB-0335-CS
3-Core IDH1 R132 CLMA	BSB-0336-CS
4-Core MMR CLMA	BSB-0337-CS

Bio SB
BIOSCIENCE FOR THE WORLD

Tissue Microarrays and Control Slides

Infectious Disease Cell Line Microarray (ID-CLMA)

The Bio SB Infectious Disease cell line Microarray, or ID-CLMA is a simple and cost effective way to test and validate infectious disease markers by immunohistochemical (IHC) or in situ hybridization (ISH). The ID-Microarray is available in a 5-core or Individual virus configuration, and includes two areas for tissue mounting. All TMA's include negative controls to reduce interpretation error.

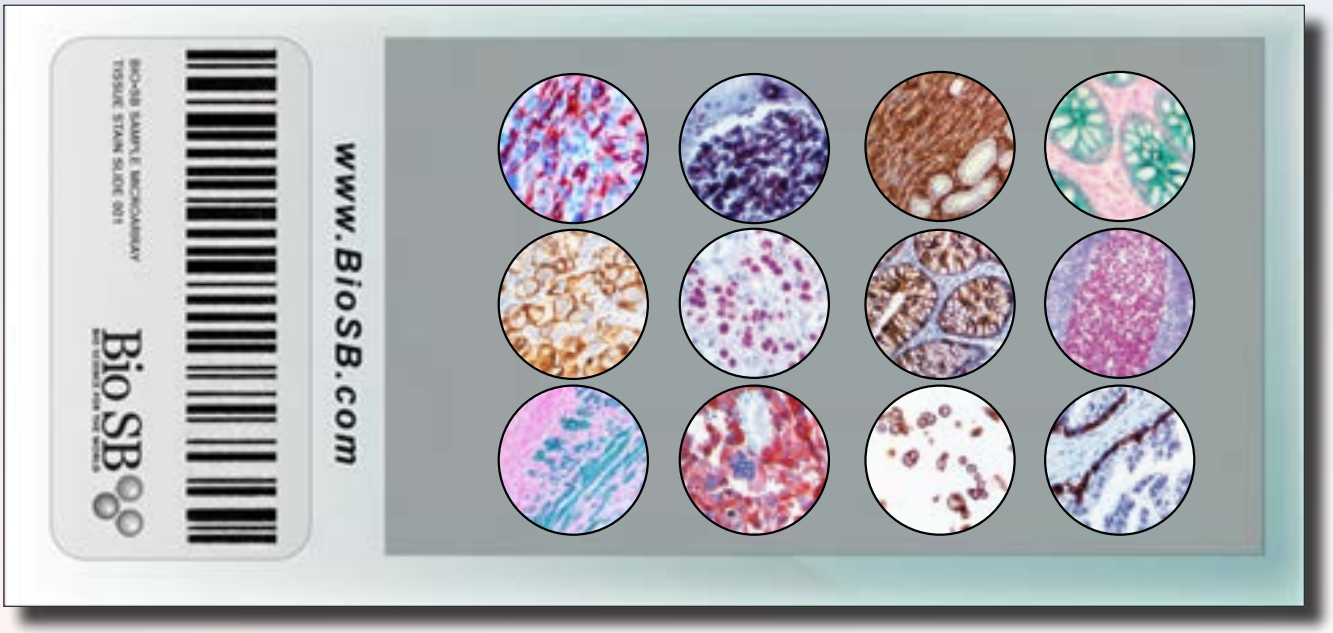


Above: 5-Core Multi-Infectious Cell Line Microarray (BSB 0307).

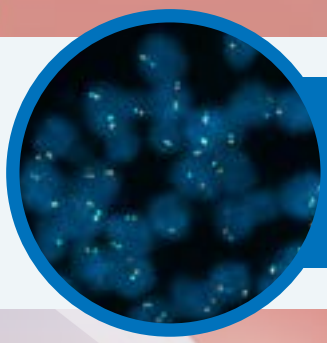
ID-CLMA

- Test multiple infectious disease markers.
- Optimized for IHC & ISH Applications.
- Cost effective solution.
- Test multiple samples at once.
- Two control tissue mounting areas for Manual or Automated IHC/ISH users.

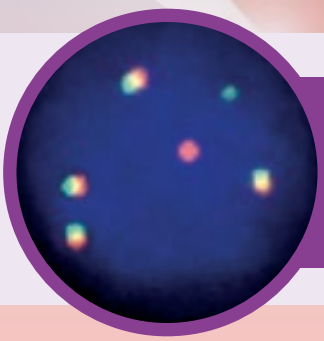
Infectious Disease CLMA's	Catalog #
Multi ID-Array (5-Core)	BSB 0307
Adenovirus ID-Array (2-Core)	BSB 0310
HHV-8 ID-Array (2-Core)	BSB 0309
SV-40 ID-Array (2-Core)	BSB 0308
Treponema TMA (2-Tissue)	BSB-0338-CS
Gram Positive & Negative (3-Tissue)	BSB-0339-CS
Fungus: Aspergillus, Candida, Histoplasma (4-Tissue)	BSB-0340-CS


www.BioSB.com
BIO-SB SAMPLE MICROARRAY
TISSUE STAIN SLIDE 001
BioSB

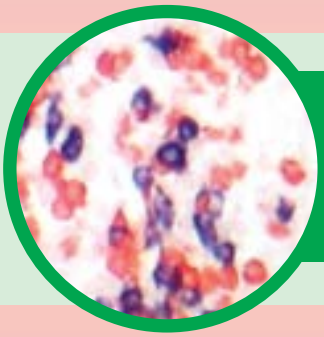

BIO SB



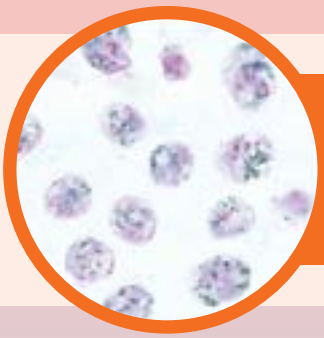
ZytoLight® FISH
Fluorescent in situ Hybridization



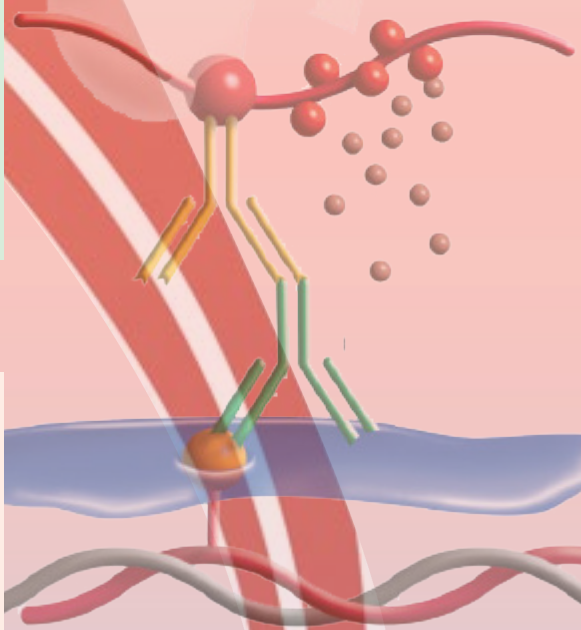
ZytoLight® FlexISH
Fluorescent in situ Hybridization



ZytoFast® Rapid CISH
Chromogenic in situ Hybridization



ZytoDot® CISH
Chromogenic in situ Hybridization



FISH & CISH Products

ZytoLight® FISH | ZytoLight® FlexISH
ZytoDot® CISH | ZytoFast® Rapid CISH

A diverse selection of innovative, high quality and cost effective ISH probes, kits, ancillaries and equipment

ZytoLight® FISH

ZytoLight® FlexISH

ZytoFast® Rapid CISH

ZytoDot® CISH

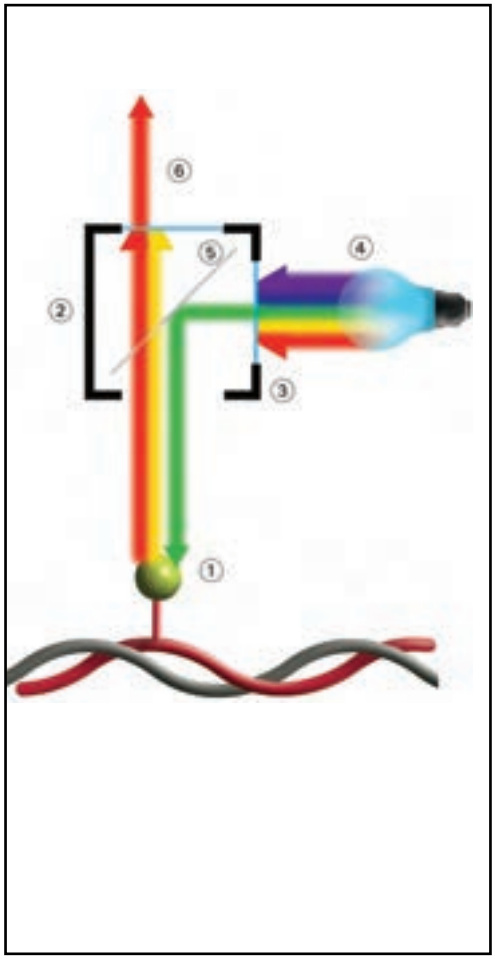
ZytoLight®

Reliable multi-target detection using Fluorescence in situ Hybridization!

ZytoLight® products for Fluorescence in situ Hybridization (FISH) are designed for the identification of genetic aberrations e.g. translocations, deletions, amplifications, and chromosomal aneuploidies associated with tumors and genetic diseases.

INTRODUCTION

ZytoLight® products are designed for the identification of genetic aberrations e.g. translocations, deletions, amplifications, and chromosomal aneuploidies by Fluorescence in situ Hybridization (FISH) in formalin-fixed, paraffin-embedded tissue sections, cell samples, blood or bone marrow smears, and metaphase chromosome spreads.



HIGH SENSITIVITY AND SPECIFICITY

ZytoLight® FISH probes are direct labeled using the unique ZytoLight® Direct Label System II providing improved signal intensity. All ZytoLight® single copy (SPEC™) probes are processed by the unique ZytoLight® Repeat Subtraction Technique resulting in advanced specificity and less background. No further blocking of repetitive sequences is needed!

ZYTOLIGHT® SPEC™ AND CEN™ PROBES

ZytoLight® SPEC ™ probes hybridize to specific, single copy DNA sequences of the human genome. ZytoLight® SPEC™ probes are available for the detection of a variety of chromosomal aberrations associated with tumors and genetic diseases.

ZytoLight® CEN™ probes hybridize to highly repetitive human satellite DNA sequences located at the centromeric regions of chromosomes producing sharp, bright signals specific for each individual chromosome.

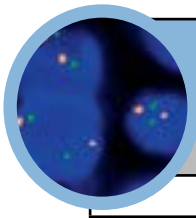
ZYTOLIGHT® KITS – CONVENIENT SOLUTIONS

For making FISH analysis reliable and user-friendly, all ZytoLight® FISH probes can be combined with the ZytoLight® FISH-Tissue Implementation Kit (Z-2028-20). Also available now, specific for FISH analyses on cytology specimens, the ZytoLight® FISH-Cytology Implementation Kit (Z-2099-20). Both Implementation Kits include all necessary pretreatment solutions, wash buffers and DAPI/Antifade solution and a detailed protocol to perform successful FISH experiments. Additionally, for some major targets, complete kits including probes and all necessary reagents are available.

The ZytoLight® system uses directly labeled FISH probes:
1. Eliminating the need to detect the probes with fluorophore-coupled antibodies.
The probes are detected by fluorescence microscopy using appropriate filter sets
2. Due to an exciter filter
3. Full-spectrum light, emitted by the microscope lamp
4. Is reduced to light of a defined wavelength that specifically excites the fluorophore of the probe. This light is reflected onto the specimen by a dichroic mirror
5. The fluorophore emits light of longer wavelengths that passes the mirror. Finally, a barrier filter 6. reduces the emitted light to a defined wavelength that can be detected.

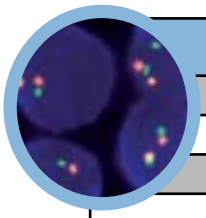
ZytoLight® FISH - Solid Tumor Probes By Application

The ZytoLight line of products is designed for use in detecting translocations, deletions, amplifications and chromosomal aneuploidies by fluorescent in situ hybridization (FISH). ZytoLight products can be used on formalin-fixed paraffin-embedded tissue (FFPE), cell samples, blood/bone marrow smears and metaphase chromosome spreads.



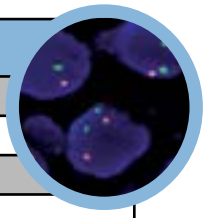
Brain and Neural Tumor Probes

ZytoLights Glioma 1p/19q Probe Set
ZytoLight SPEC 1p36/1q25 Dual Color Probe
ZytoLight SPEC 19q13/19p13 Dual Color Probe
ZytoLight SPEC C19MC/19p13 Dual Color Probe
ZytoLight CDKN2A/CEN 9 Dual Color Probe
ZytoLight EGFR/CEN 7 Dual Color Probe
ZytoLight MET/CEN 7 Dual Color Probe
ZytoLight MYCN/2q11 Dual Color Probe
ZytoLight NTRK2 Dual Color Break Apart Probe
ZytoLight PTEN/CEN 10 Dual Color Probe
ZytoLight SPEC TERT Dual Color Break Apart Probe
ZytoLight TP53/17q22 Dual Color Probe



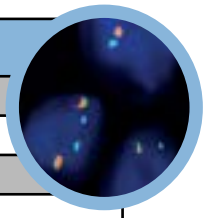
Breast Cancer Probes

ZytoLight SPEC BCL2L1/CEN 20 Dual Color Probe
ZytoLight SPEC CCND1/CEN 11 Dual Color Probe
ZytoLight SPEC EGFR/CEN 7 Dual Color Probe
ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe
ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe Kit
ZytoLight CEN 17/SPEC ERBB2 Dual Color Probe
ZytoLight SPEC ERBB2/D17S122 Dual Color Probe
ZytoLight SPEC ERBB2/TOP2A/CEN 17 Triple Color Probe
ZytoLight SPEC ERBB3/CEN 12 Dual Color Probe
ZytoLight SPEC ERBB4/2q11 Dual Color Probe
ZytoLight SPEC ESR1/CEN 6 Dual Color Probe
ZytoLight SPEC FGFR1/CEN 8 Dual Color Probe
ZytoLight SPEC FGFR2/CEN 10 Dual Color Probe
ZytoLight SPEC MCL1/1p12 Dual Color Probe
ZytoLight SPEC MYC/CEN 8 Dual Color Probe
ZytoLight SPEC PIK3CA/CEN 3 Dual Color Probe
ZytoLight SPEC RREB1/MYB/CEN 6 Triple Color Probe
ZytoLight SPEC VEGFA/CEN 6 Dual Color Probe



Cervical Cancer Probes

ZytoLight SPEC MYC/CEN 8 Dual Color Probe
ZytoLight SPEC PIK3CA/CEN 3 Dual Color Probe
ZytoLight SPEC TERC/CEN 3 Dual Color Probe
ZytoLight SPEC TERT/5q31 Dual Color Probe



Lung Cancer Probes

ZytoLight SPEC ALK/EML4 TriCheck Probe
ZytoLight SPEC ALK Dual Color Break Apart Probe
ZytoLight SPEC ALK/2q11 Dual Color Probe
ZytoLight SPEC BRAF/CEN 7 Dual Color Probe
ZytoLight SPEC CARS Dual Color Break Apart Probe
ZytoLight SPEC CD274,PDCD1LG2/CEN 9 Dual Color Probe
ZytoLight SPEC EGFR/CEN 7 Dual Color Probe
ZytoLight SPEC EML4 Dual Color Break Apart Probe
ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe
ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe Kit
ZytoLight CEN 17/SPEC ERBB2 Dual Color Probe
ZytoLight SPEC ERBB2/D17S122 Dual Color Probe
ZytoLight SPEC FGFR1/CEN 8 Dual Color Probe
ZytoLight SPEC FGFR2 Dual Color Break Apart Probe
ZytoLight SPEC FGFR2/CEN 10 Dual Color Probe
ZytoLight SPEC FGFR3 Dual Color Break Apart Probe
ZytoLight SPEC FGFR3/4p11 Dual Color Probe
ZytoLight SPEC KIF5B Dual Color Break Apart Probe
ZytoLight SPEC KRAS/CEN 12 Dual Color Probe
ZytoLight SPEC MET/CEN 7 Dual Color Probe
ZytoLight SPEC NRG1 Dual Color Break Apart Probe
ZytoLight SPEC NRG1/CD74 TriCheck™ Probe
ZytoLight SPEC NTRK1 Dual Color Break Apart Probe
ZytoLight SPEC NTRK2 Dual Color Break Apart Probe
ZytoLight SPEC NTRK3 Dual Color Break Apart Probe
ZytoLight SPEC PIK3CA/CEN 3 Dual Color Probe
ZytoLight SPEC RICTOR/5q31.1 Dual Color Probe

Bio SB
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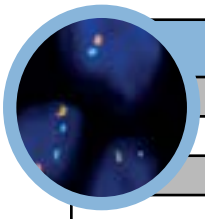
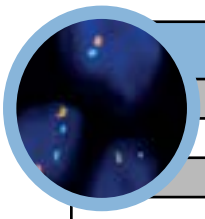
ZytoLight® FISH - Solid Tumor Probes By Application



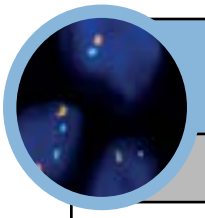
Lung Cancer Probes

- ZytoLight SPEC RET Dual Color Break Apart Probe
- ZytoLight SPEC ROS1 Dual Color Break Apart Probe
- ZytoLight SPEC ROS1/CEN 6 Dual Color Probe
- ZytoLight SPEC SOX2/CEN 3 Dual Color Probe



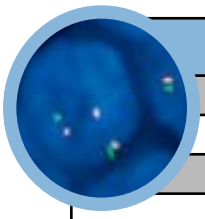
Prostate Cancer Probes

- ZytoLight SPEC ERG Dual Color Break Apart Probe
- ZytoLight SPEC ERG/TMPRSS2 TriCheck™ Probe
- ZytoLight SPEC PTEN/CEN 10 Dual Color Probe
- ZytoLight SPEC RREB1/MYB/CEN 6 Triple Color Probe



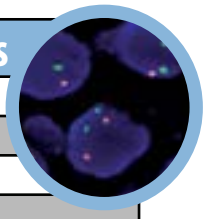
Renal Cell Carcinoma Probes

- ZytoLight SPEC CCND1 SPEC Break Apart/ 2q11/CEN 6 Quadruple Color Probe
- ZytoLight SPEC FHIT/CEN 3 Dual Color Probe
- ZytoLight SPEC CDKN2A/ CEN 3/7/17 Quadruple Color Probe
- ZytoLight SPEC TFE3 Dual Color Break Apart Probe
- ZytoLight SPEC VHL/CEN 3 Dual Color Probe
- ZytoLight SPEC VHL/1p12/CEN 7/17 Quadruple Color Probe



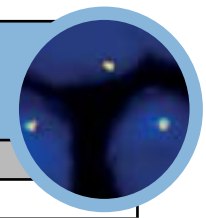
Sarcoma Probes

- ZytoLight SPEC ALK Dual Color Break Apart Probe
- ZytoLight SPEC CDK4/CEN 12 Dual Color Probe
- ZytoLight SPEC CIC Dual Color Break Apart Probe
- ZytoLight SPEC COL1A1 Dual Color Break Apart Probe
- ZytoLight SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe
- ZytoLight SPEC DDIT3 Dual Color Break Apart Probe
- ZytoLight SPEC ETV6 Dual Color Break Apart Probe
- ZytoLight SPEC EWSR1 Dual Color Break Apart Probe
- ZytoLight SPEC EWSR1/FLI1 TriCheck Probe
- ZytoLight SPEC FOXO1 Dual Color Break Apart Probe
- ZytoLight SPEC FOXO1/PAX3 Dual Color Single Fusion Probe
- ZytoLight SPEC FOXO1/PAX3 TriCheck Probe
- ZytoLight SPEC FOXO1/PAX7 Dual Color Single Fusion Probe
- ZytoLight SPEC FUS Dual Color Break Apart Probe
- ZytoLight SPEC JAZF1 Dual Color Break Apart Probe



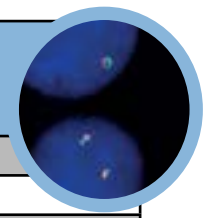
Sarcoma Probes

- ZytoLight MDM2/CEN 12 Dual Color Probe
- ZytoLight MDM4/1p12 Dual Color Probe
- ZytoLight SPEC MYC/CEN 8 Dual Color Probe
- ZytoLight SPEC NR4A3 Dual Color Break Apart Probe
- ZytoLight SPEC NTRK3 Dual Color Break Apart Probe
- ZytoLight SPEC PDGFB Dual Color Break Apart Probe
- ZytoLight SPEC PHF1 Dual Color Break Apart Probe
- ZytoLight SPEC SMARCB1/22q12 Dual Color Probe
- ZytoLight SPEC SS18 Dual Color Break Apart Probe
- ZytoLight SPEC SS18/SSX1 TriCheck Probe
- ZytoLight SPEC TFE3 Dual Color Break Apart Probe
- ZytoLight SPEC USP6 Dual Color Break Apart Probe
- ZytoLight SPEC VEGFA/CEN 6 Dual Color Probe
- ZytoLight SPEC SPEC WT1 Dual Color Break Apart Probe
- ZytoLight SPEC WWT1 Dual Color Break Apart Probe
- ZytoLight SPEC YWHAE Dual Color Break Apart Probe



Salvary Gland Sarcoma Probes

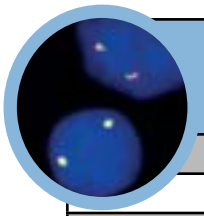
- ZytoLight SPEC ETV6 Dual Color Break Apart Probe
- ZytoLight SPEC EWSR1 Dual Color Break Apart Probe
- ZytoLight SPEC MAML2 Dual Color Break Apart Probe
- ZytoLight SPEC MYB Dual Color Break Apart Probe
- ZytoLight SPEC NTRK3 Dual Color Break Apart Probe
- ZytoLight SPEC NTRK3 Dual Color Break Apart Probe
- ZytoLight SPEC NUTM1 Dual Color Break Apart Probe
- ZytoLight SPEC SPEC WT1 Dual Color Break Apart Probe



Gastrointestinal Cancer Probes

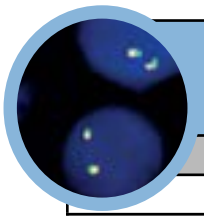
- ZytoLight SPEC BRAF Dual Color Break Apart Probe
- ZytoLight SPEC CCND1/CEN 11 Dual Color Probe
- ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe
- ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe Kit
- ZytoLight CEN 17/SPEC ERBB2 Dual Color Probe
- ZytoLight SPEC ERBB2/D17S122 Dual Color Probe
- ZytoLight SPEC KRAS/CEN 12 Dual Color Probe
- ZytoLight SPEC MDM2/CEN 12 Dual Color Probe
- ZytoLight SPEC RREB1/MYB/CEN 6 Triple Color Probe

ZytoLight® FISH - Hematology Specific Probes By Application



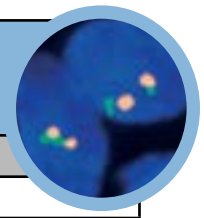
Acute Lymphoblastic Leukemia (ALL) Probes

ZytoLights SPEC ABL1 Dual Color Break Apart Probe
ZytoLight SPEC ABL2 Dual Color Break Apart Probe
ZytoLight SPEC CRLF2 Dual Color Break Apart Probe
ZytoLight SPEC CSF1R Dual Color Break Apart Probe
ZytoLight SPEC ETV6 Dual Color Break Apart Probe
ZytoLight SPEC ETV6/RUNX1 Dual Color Dual Fusion Probe
ZytoLight SPEC KMT2A Dual Color Break Apart Probe
ZytoLight SPEC MEF2D/BCL9 TriCheckTM Probe
ZytoLight SPEC MYB Dual Color Break Apart Probe
ZytoLight SPEC NUP214 Dual Color Break Apart Probe
ZytoLight SPEC PNUP98 Dual Color Break Apart Probe
ZytoLight SPEC PDGFRA/FIP1L1 TriCheck Probe
ZytoLight SPEC SPI1 Dual Color Break Apart Probe
ZytoLight SPEC ZNF384 Dual Color Break Apart Probe



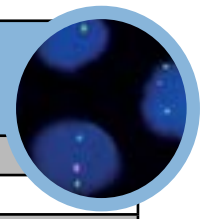
Acute Myelogenous Leukemia (AML) Probes

ZytoLight CEN 8 Probe
ZytoLight SPEC ABL2 Dual Color Break Apart Probe
ZytoLight SPEC CBFB Dual Color Break Apart Probe
ZytoLight SPEC CREBBP Dual Color Break Apart Probe
ZytoLight SPEC CSF1R/D5S23,D5S721 Dual Color Probe
ZytoLight SPEC CUX1/EZH2/CEN 7 Triple Color Probe
ZytoLight SPEC EGR1/5p15 Dual Color Probe
ZytoLight SPEC EGR1/D5S23, D5S721 Dual Color Probe
ZytoLight SPEC FGFR1 Dual Color Break Apart Probe
ZytoLight SPEC GATA2/MECOM Dual Color Dual Fusion Probe
ZytoLight SPEC KMT2A Dual Color Break Apart Probe
ZytoLight SPEC NUP98 Dual Color Break Apart Probe
ZytoLight SPEC NUP214 Dual Color Break Apart Probe
ZytoLight SPEC PDGFRA/FIP1L1 TriCheck Probe
ZytoLight SPEC PDGFRB Dual Color Break Apart Probe
ZytoLight SPEC PML/RARA Dual Color Dual Fusion Probe
ZytoLight SPEC PTPRT/20q11 Dual Color Probe
ZytoLight SPEC RUNX1/RUNX1T1 Dual Color Dual Fusion Probe



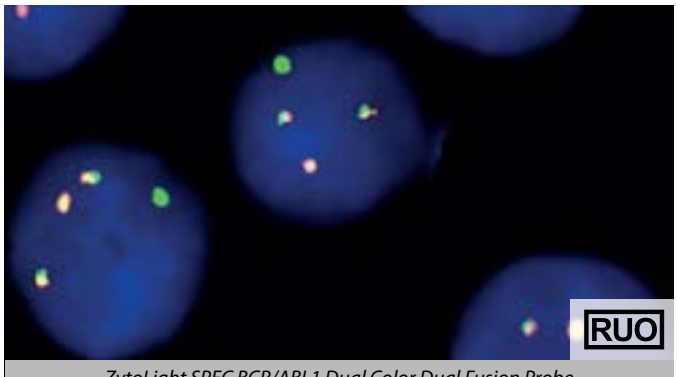
Chronic Lymphocytic Leukemia (CLL) Probes

ZytoLight SPEC BCL2 Dual Color Break Apart Probe
ZytoLight SPEC CCND1 Dual Color Break Apart Probe
ZytoLight SPEC CCND1/CEN 11 Dual Color Probe
ZytoLight SPEC D13S319/13q34/CEN 12 Triple Color Probe
ZytoLight SPEC D13S319/13q34 Dual Color Probe
ZytoLight SPEC MYB/CEN 6 Dual Color Probe
ZytoLight SPEC MYC/CEN 8 Dual Color Probe
ZytoLight SPEC RB1/13q12 Dual Color Probe
ZytoLight SPEC TP53/ATM Dual Color Probe
ZytoLight SPEC TP53/CEN 17 Dual Color Probe



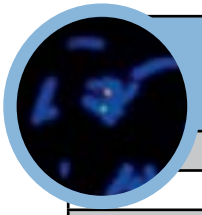
Chronic Myelogenous Leukemia (CML) Probes

ZytoLight CEN 8 Probe
ZytoLight SPEC ABL1 Dual Color Break Apart Probe
ZytoLight SPEC BCR/ABL1 Dual Color Dual Fusion Probe
ZytoLight SPEC PDGFRB Dual Color Break Apart Probe
ZytoLight SPEC TP53/17q22 Dual Color Probe



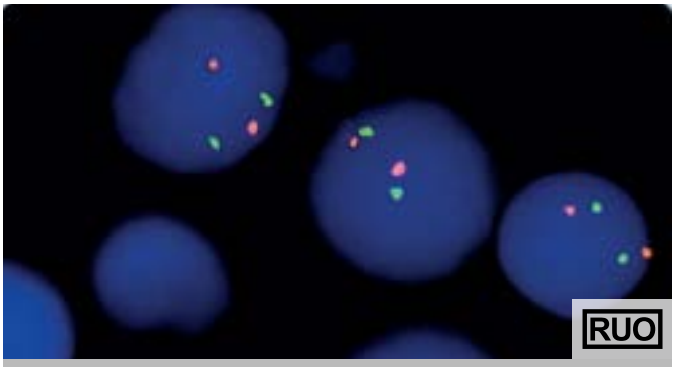
ZytoLight SPEC BCR/ABL1 Dual Color Dual Fusion Probe
Bone marrow biopsy tissue section with translocation affecting the BCR/ABL1 loci as indicated by one separate orange signal, one separate green signal and two orange/green fusion signals.

ZytoLight® FISH - Hematology Specific Probes By Application

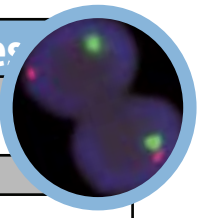


Non-Hodgkin Lymphoma Probes

ZytoLight SPEC 11q gain/loss Triple Color Probe
ZytoLight SPEC BCL2 Dual Color Break Apart Probe
ZytoLight SPEC BCL2/CEN 18 Dual Color Probe
ZytoLight SPEC BCL2/IGH Dual Color Dual Fusion Probe
ZytoLight SPEC BCL6 Dual Color Break Apart Probe
ZytoLight SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe
ZytoLight SPEC CCND1 Dual Color Break Apart Probe
ZytoLight SPEC CCND1/CEN 11 Dual Color Probe
ZytoLight SPEC CCND1/IGH Dual Color Dual Fusion Probe
ZytoLight SPEC FGFR3 Dual Color Break Apart Probe
ZytoLight SPEC IGK Dual Color Break Apart Probe
ZytoLight SPEC IGL Dual Color Break Apart Probe
ZytoLight SPEC IRF4,DUSP22 Dual Color Break Apart Probe
ZytoLight SPEC IGH Dual Color Break Apart Probe
ZytoLight SPEC MALT1 Dual Color Break Apart Probe
ZytoLight SPEC MYC Dual Color Break Apart Probe
ZytoLight SPEC MYC/IGH Dual Color Dual Fusion Probe

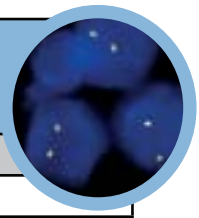


ZytoLight SPEC BCL2/CEN 18 Dual Color Probe
Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.



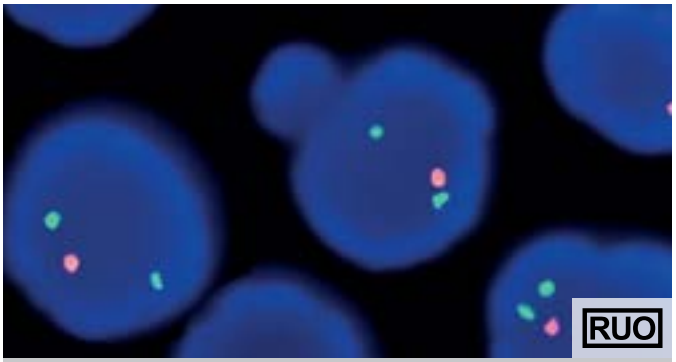
Multiple Myeloma Probes

ZytoLight CCND1 Dual Color Break Apart Probe
ZytoLight CCND1/CEN 11 Dual Color Probe
ZytoLight SPEC CCND1/IGH Dual Color Dual Fusion Probe
ZytoLight SPEC CKS1B/CDKN2C Dual Color Probe
ZytoLight SPEC FGFR3 Dual Color Break Apart Probe
ZytoLight SPEC FGFR3/IGH Dual Color Dual Fusion Probe
ZytoLight SPEC IGH Dual Color Break Apart Probe
ZytoLight SPEC MAF/IGH Dual Color Dual Fusion Probe
ZytoLight SPEC MAFB/IGH Dual Color Dual Fusion Probe
ZytoLight SPEC RB1/13q12 Dual Color Probe
ZytoLight SPEC TP53/CEN 17 Dual Color Probe

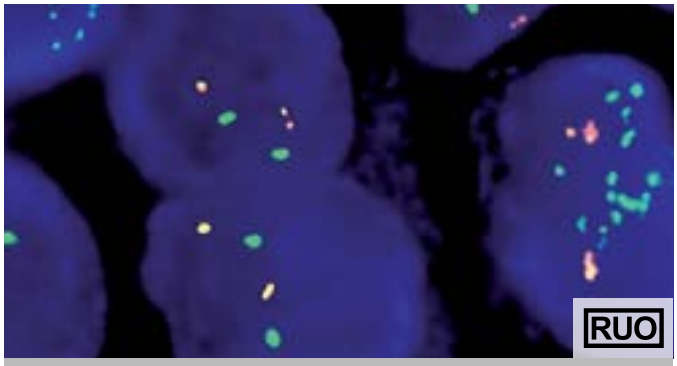


Myelodysplastic Syndrome (MDS) Probes

ZytoLight CEN 8 Probe
ZytoLight SPEC CREBBP Dual Color Break Apart Probe
ZytoLight SPEC CSF1R/D5S23,D5S721 Dual Color Probe
ZytoLight SPEC CUX1/EZH2/CEN 7 Triple Color Probe
ZytoLight SPEC EGR1/5p15 Dual Color Probe
ZytoLight SPEC EGR1/D5S23, D5S721 Dual Color Probe
ZytoLight SPEC ETV6 Dual Color Break Apart Probe
ZytoLight SPEC NUP98 Dual Color Break Apart Probe
ZytoLight SPEC NUP214 Dual Color Break Apart Probe
ZytoLight SPEC PDGFRB Dual Color Break Apart Probe
ZytoLight SPEC PTPRT/20q11 Dual Color Probe
ZytoLight SPEC TERT/5q31 Dual Color Probe

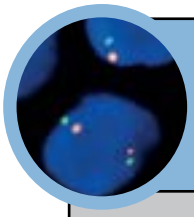


ZytoLight SPEC TP53/CEN 17 Dual Color Probe
Probe hybridized to bone marrow tissue section with deletion of the TP53 gene as indicated by one orange signal and two green signals in each nucleus.



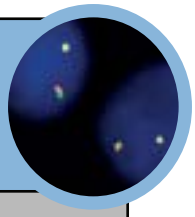
ZytoLight SPEC TERT/5q31 Dual Color Probe
Probe hybridized to melanoma tissue section showing normal cells as indicated by two green and two orange signals in each nucleus and cells with TERT gene amplification as indicated by multiple green signals per nucleus.

ZytoLight® FISH - Genetic Probes By Application



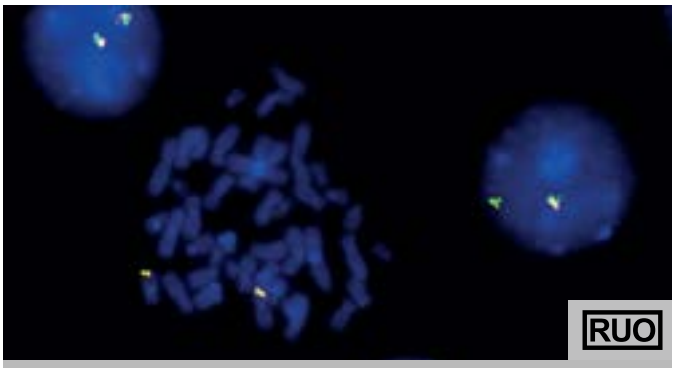
Sex Mismatched Bone-Marrow Transplantant Management Probes

ZytoLight CEN X Probe
ZytoLight CEN X/Y Dual Color Probe
ZytoLightCEN X/Yq12 Dual Color Probe
ZytoLight CEN Y (DYZ3) Probe
ZytoLight CEN Yq12 Probe

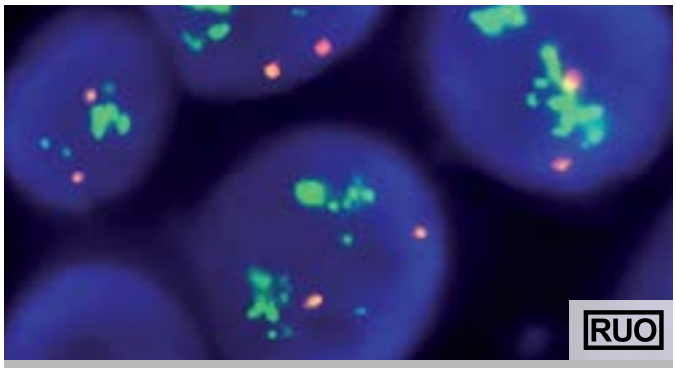


Prenatal, Postnatal and Preimplantation Genetics Probes

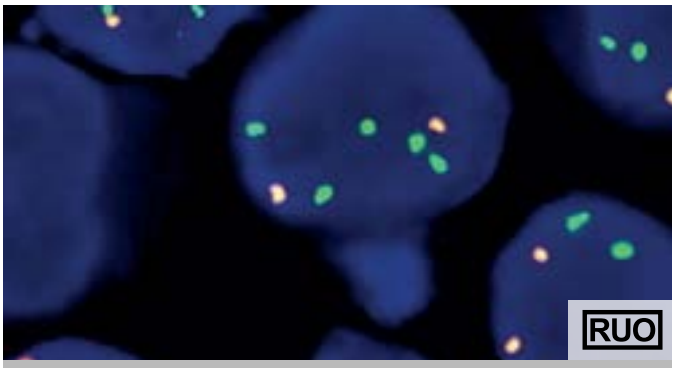
ZytoLight Aneuploidy Panel 18/X/Y and 13/21
ZytoLight Aneuploidy Panel X/Y and 13/18/21
ZytoLight SPEC 13q12 Probe
ZytoLight SPEC 13/CEN 18/SPEC 21 Triple Color Probe
ZytoLight SPEC 13/21 Dual Color Probe
ZytoLight CEN 18 Probe
ZytoLight SPEC 18/CEN X/Y Triple Color Probe
ZytoLight SPEC 21q22 Probe
ZytoLight SPEC 21/CEN X/Yq12 Triple Color Probe
ZytoLight CEN X Probe
ZytoLight CEN X/Y Dual Color Probe
ZytoLight CEN X/Yq12 Dual Color Probe
ZytoLight CEN Y (DYZ3) Probe
ZytoLight CEN Yq12 Probe



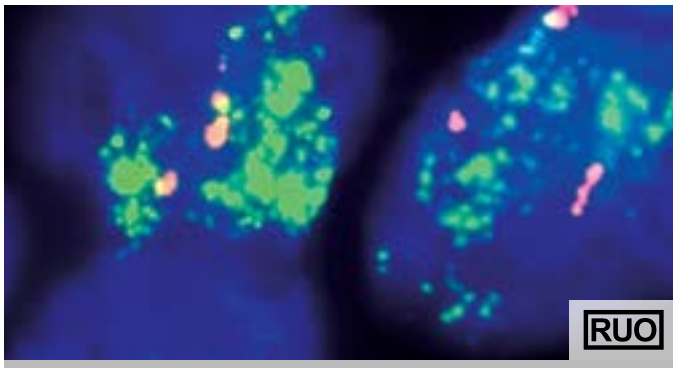
ZytoLight SPEC NUP214 Dual Color Break Apart Probe
Probe hybridized to normal interphase cells as indicated by two orange/ green fusion signals per nucleus and to metaphase chromosomes of a normal cell.



ZytoLight SPEC ERBB2/CEN17 Dual Color Probe
Probe hybridized to a breast carcinoma tissue section, ERBB2 gene cluster (green), CEN 17 (orange).



ZytoLight SPEC PIK3CA/CEN 3 Dual Color Probe
Probe hybridized to human breast cancer cell line with amplification of the PIK3CA gene as indicated by multiple green signals in each nucleus.

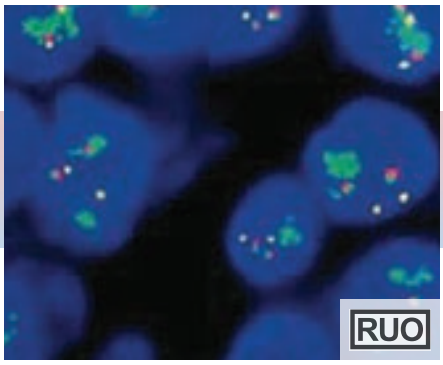


ZytoLight SPEC MDM2/CEN 12 Dual Color Probe
Probe hybridized to liposarcoma tissue section with amplification of the MDM2 gene (green), CEN 12 (orange).

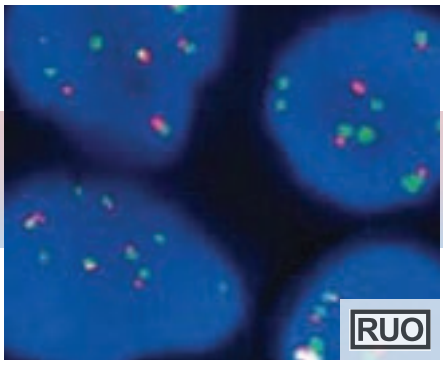
Bio SB
BIOSCIENCE FOR THE WORLD

ZytoLight®

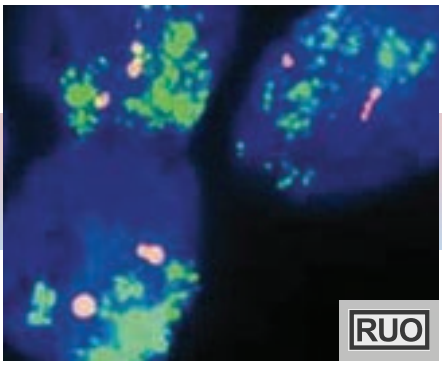
Reliable multi-target detection using Fluorescence in situ Hybridization!



FISH of HER-2 neu on an FFPE Breast Carcinoma



FISH of EGFR on an FFPE Colon Carcinoma



FISH of MDM2 on an FFPE Liposcarcinoma

ZytoLight Single Color Probes

Catalog #	Product Description	VOLUME
Z-2001-200	ZytoLight CEN 3 Probe	200 µl
Z-2002-200	ZytoLight CEN 6 Probe	200 µl
Z-2003-200	ZytoLight CEN 7 Probe	200 µl
Z-2004-200	ZytoLight CEN 8 Probe	200 µl
Z-2004-50	ZytoLight CEN 8 Probe	50 µl
Z-2005-200	ZytoLight CEN 11 Probe	200 µl
Z-2006-200	ZytoLight CEN 17 Probe	200 µl
Z-2007-200	ZytoLight CEN 18 Probe	200 µl
Z-2008-200	ZytoLight CEN X Probe	200 µl
Z-2010-200	ZytoLight CEN Yq12 Probe	200 µl
Z-2049-200	ZytoLight SPEC 2q11 Probe	200 µl
Z-2050-200	ZytoLight CEN 12 Probe	200 µl
Z-2067-200	ZytoLight CEN 9 Probe	200 µl
Z-2079-200	ZytoLight CEN 10 Probe	200 µl
Z-2083-200	ZytoLight SPEC 4p11 Probe	200 µl
Z-2085-200	ZytoLight SPEC 13q12 Probe	200 µl
Z-2086-200	ZytoLight SPEC 21q22 Probe	200 µl
Z-2101-200	ZytoLight SPEC 1p12 Probe	200 µl
Z-2123-200	ZytoLight CEN Y (DYZ3) Probe	200 µl

ZytoLight Dual Color Probes

Catalog #	Product Description	VOLUME
Z-2013-200	ZytoLight SPEC MDM2/CEN 12 Dual Color Probe	200 µl
Z-2013-50	ZytoLight SPEC MDM2/CEN 12 Dual Color Probe	50 µl
Z-2014-200	ZytoLight SPEC MAML2 Dual Color Break Apart Probe	200 µl
Z-2014-50	ZytoLight SPEC MAML2 Dual Color Break Apart Probe	50 µl
Z-2015-200	ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe	200 µl
Z-2015-50	ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe	50 µl
Z-2016-200	ZytoLight CEN X/Yq12 Dual Color Probe	200 µl
Z-2016-50	ZytoLight CEN X/Yq12 Dual Color Probe	50 µl
Z-2018-200	ZytoLight SPEC FOX01/PAX3 Dual Color Probe	200 µl
Z-2018-50	ZytoLight SPEC FOX01/PAX3 Dual Color Probe	50 µl
Z-2019-200	ZytoLight SPEC FOX01/PAX7 Dual Color Probe	200 µl
Z-2019-50	ZytoLight SPEC FOX01/PAX7 Dual Color Probe	50 µl
Z-2033-200	ZytoLight SPEC EGFR/CEN 7 Dual Color Probe	200 µl
Z-2033-50	ZytoLight SPEC EGFR/CEN 7 Dual Color Probe	50 µl
Z-2056-200	ZytoLight SPEC ERBB3/CEN 12 Dual Color Probe	200 µl
Z-2057-200	ZytoLight SPEC ERBB4/2q11 Dual Color Probe	200 µl
Z-2062-200	ZytoLight SPEC FHIT/CEN 3 Dual Color Probe	200 µl
Z-2063-200	ZytoLight SPEC CDKN2A/CEN 9 Dual Color Probe	200 µl
Z-2063-50	ZytoLight SPEC CDKN2A/CEN 9 Dual Color Probe	50 µl
Z-2069-200	ZytoLight SPEC ESR1/CEN 6 Dual Color Probe	200 µl
Z-2069-50	ZytoLight SPEC ESR1/CEN 6 Dual Color Probe	50 µl
Z-2071-200	ZytoLight SPEC CCND1/CEN 11 Dual Color Probe	200 µl
Z-2071-50	ZytoLight SPEC CCND1/CEN 11 Dual Color Probe	50 µl
Z-2072-200	ZytoLight SPEC FGFR1/CEN 8 Dual Color Probe	200 µl
Z-2072-50	ZytoLight SPEC FGFR1/CEN 8 Dual Color Probe	50 µ
Z-2074-200	ZytoLight SPEC MYCN/2q11 Dual Color Probe	200 µl
Z-2074-50	ZytoLight SPEC MYCN/2q11 Dual Color Probe	50 µl
Z-2075-200	ZytoLight SPEC 1p36/1q25 Dual Color Probe	200 µl
Z-2075-50	ZytoLight SPEC 1p36/1q25 Dual Color Probe	50 µl
Z-2076-200	ZytoLight SPEC 19q13/19p13 Dual Color Probe	200 µl

ZytoLight Dual Color Probes

Catalog #	Product Description	VOLUME
Z-2076-50	ZytoLight SPEC 19q13/19p13 Dual Color Probe	50 µl
Z-2077-200	ZytoLight SPEC CEN 17/SPEC ERBB2 Dual Color Probe	200 µl
Z-2077-50	ZytoLight SPEC CEN 17/SPEC ERBB2 Dual Color Probe	50 µl
Z-2078-200	ZytoLight SPEC PTEN/CEN 10 Dual Color Probe	200 µl
Z-2078-50	ZytoLight SPEC PTEN/CEN 10 Dual Color Probe	50 µl
Z-2080-200	ZytoLight SPEC MDM4/1p12 Dual Color Probe	200 µl
Z-2082-200	ZytoLight SPEC FGFR3/CEN 4 Dual Color Probe	200 µl
Z-2084-200	ZytoLight SPEC VHL/CEN 3 Dual Color Probe	200 µl
Z-2087-200	ZytoLight SPEC MET/CEN 7 Dual Color Probe	200 µl
Z-2087-50	ZytoLight SPEC MET/CEN 7 Dual Color Probe	50 µl
Z-2090-200	ZytoLight SPEC MYC Dual Color Break Apart Probe	200 µl
Z-2090-50	ZytoLight SPEC MYC Dual Color Break Apart Probe	50 µl
Z-2091-200	ZytoLight SPEC TERT/5q31 Dual Color Probe	200 µl
Z-2091-50	ZytoLight SPEC TERT/5q31 Dual Color Probe	50 µl
Z-2092-200	ZytoLight SPEC MYC/CEN 8 Dual Color Probe	200 µl
Z-2092-50	ZytoLight SPEC MYC/CEN 8 Dual Color Probe	50 µl
Z-2096-200	ZytoLight SPEC EWSR1 Dual Color Break Apart Probe	200 µl
Z-2096-50	ZytoLight SPEC EWSR1 Dual Color Break Apart Probe	50 µl
Z-2097-200	ZytoLight SPEC S18 Dual Color Break Apart Probe	200 µl
Z-2097-50	ZytoLight SPEC SS18 Dual Color Break Apart Probe	50 µl
Z-2100-200	ZytoLight SPEC DDT3 Dual Color Break Apart Probe	200 µl
Z-2100-50	ZytoLight SPEC DDT3 Dual Color Break Apart Probe	50 µl
Z-2103-200	ZytoLight SPEC CDK4/CEN 12 Dual Color Probe	200 µl
Z-2103-50	ZytoLight SPEC CDK4/CEN 12 Dual Color Probe	50 µl
Z-2105-200	ZytoLight SPEC MYC/IGH Dual Color Dual Fusion Probe	200 µl
Z-2105-50	ZytoLight SPEC MYC/IGH Dual Color Dual Fusion Probe	50 µl
Z-2107-200	ZytoLight SPEC EGR1/5p15 Dual Color Probe	200 µl
Z-2107-50	ZytoLight SPEC EGR1/5p15 Dual Color Probe	50 µl
Z-2108-200	ZytoLight SPEC CCND1 Dual Color Break Apart Probe	200 µl
Z-2108-50	ZytoLight SPEC CCDN1 Dual Color Break Apart Probe	50 µl
Z-2109-200	ZytoLight SPEC TFE3 Dual Color Break Apart Probe	200 µl
Z-2109-50	ZytoLight SPEC TFE3 Dual Color Break Apart Probe	50 µl
Z-2110-200	ZytoLight SPEC IGH Dual Color Break Apart Probe	200 µl
Z-2110-50	ZytoLight SPEC IGH Dual Color Break Apart Probe	50 µl
Z-2111-200	ZytoLight SPEC BCR/ABL1 Dual Color Dual Fusion Probe	200 µl
Z-2111-50	ZytoLight SPEC BCR/ABL1 Dual Color Dual fusion Probe	50 µl
Z-2112-200	ZytoLight SPEC RUNX1/RUNX1T1 Dual Color Dual Fusion Probe	200 µl
Z-2112-50	ZytoLight SPEC RUNX1/RUNX1T1 Dual Color Dual Fusion Probe	50 µl
Z-2113-200	ZytoLight SPEC PML/RARA Dual Color Dual Fusion Probe	200 µl
Z-2113-50	ZytoLight SPEC PML/RARA Dual Color Dual Fusion Probe	50 µl
Z-2114-200	ZytoLight SPEC BCL2/IGH Dual Color Dual Fusion Probe	200 µl
Z-2114-50	ZytoLight SPEC BCL2/IGH Dual Color Dual Fusion Probe	50 µl
Z-2115-200	ZyotLight SPEC KRAS/CEN 12 Dual Color Probe	200 µl
Z-2116-200	ZytoLight SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe	200 µl
Z-2116-50	ZytoLight SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe	50 µl
Z-2119-200	ZytoLight SPEC PDGFB Dual Color Break Apart Probe	200 µl
Z-2119-50	ZytoLight SPEC PDGFB Dual Color Break Apart Probe	50 µl
Z-2120-200	ZytoLight CEN Y/X Dual Color Probe	200 µl
Z-2121-200	ZytoLight SPEC COL1A1 Dual Color Break Apart Probe	200 µl
Z-2122-200	ZytoLight SPEC FGFR2/CEN 10 Dual Color Probe	200 µl
Z-2124-200	ZytoLight SPEC ALK Dual Color Break Apart Probe	200 µl
Z-2124-50	ZytoLight SPEC ALK Dual Color Break Apart Probe	50 µl
Z-2125-200	ZytoLight SPEC CCND1/IGH Dual Color Dual Fusion Probe	200 µl
Z-2125-50	ZytoLight SPEC CCND1/IGH Dual Color Dual Fusion Probe	50 µl

RUO For Research Use Only

For research use only in the United States.

ZytoLight®

Reliable multi-target detection using Fluorescence in situ Hybridization!

ZytoLight Dual Color Probes

Catalog #	Product Description	VOLUME
Z-2127-200	ZytoLight SPEC SOX2/CEN 3 Dual Color Probe	200 µl
Z-2130-50	ZytoLight SPEC FUS Dual Color Break Apart Probe	50 µl
Z-2131-50	ZytoLight SPEC KIF5B Dual Color Break Apart Probe	50 µl
Z-2132-50	ZytoLight SPEC JAZF1 Dual Color Break Apart Probe	50 µl
Z-2136-50	ZytoLight SPEC EML4 Dual Color Break Apart Probe	50 µl
Z-2137-50	ZytoLight SPEC CARS Dual Color Break Apart Probe	50 µl
Z-2138-200	ZytoLight SPEC ERG Dual Color Break Apart Probe	200 µl
Z-2139-50	ZytoLight SPEC FOX01 Dual Color Break Apart Probe	50 µl
Z-2140-200	ZytoLight SPEC PIK3CA/CEN 3 Dual Color Probe	200 µl
Z-2142-50	ZytoLight SPEC WT1 Dual Color Break Apart Probe	50 µl
Z-2143-200	ZytoLight SPEC MYB Dual Color Break Apart Probe	200 µl
Z-2143-50	ZytoLight SPEC MYB Dual Color Break Apart Probe	50 µl
Z-2144-200	ZytoLight SPEC ROS1 Dual Color Break Apart Probe	200 µl
Z-2144-50	ZytoLight SPEC ROS1 Dual Color Break Apart Probe	50 µl
Z-2145-50	ZytoLight SPEC NR4A3 Dual color Break Apart Probe	50 µl
Z-2146-200	ZytoLight SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe	200 µl
Z-2146-50	ZytoLight SPEC BIRC3/MALT1 Dual Color Dual Fusion Probe	50 µl
Z-2148-200	ZytoLight SPEC RET Dual Color Break Part Probe	200 µl
Z-2148-50	ZytoLight SPEC RET Dual Color Break Apart Probe	50 µl
Z-2151-50	ZytoLight SPEC USP6 Dual Color Break Part Probe	50 µl
Z-2153-200	ZytoLight SPEC TP53/CEN 17 Dual Color Probe	200 µl
Z-2153-50	ZytoLight SPEC TP53/CEN 17 Dual Color Probe	50 µl
Z-2157-50	ZytoLight SPEC ETV6/RUNX1 Dual Color Dual Fusion Probe	50 µl
Z-2157-200	ZytoLight SPEC ETV6/RUNX1 Dual Color Dual Fusion Probe	200 µl
Z-2159-200	ZytoLight SPEC TP53/ATM Dual Color Probe	200 µl
Z-2159-50	ZytoLight SPEC TP53/ATM Dual Color Probe	50 µl
Z-2161-200	ZytoLight SPEC ALK/2q11 Dual Color Probe	200 µl
Z-2162-200	ZytoLight SPEC ROS1/CEN 6 Dual Color Probe	200 µl
Z-2164-200	ZytoLight SPEC 13/21 Dual Color Probe	200 µl
Z-2165-200	ZytoLight SPEC RB1/13q12 Dual Color Probe	200 µl
Z-2165-50	ZytoLight SPEC RB1/13q12 Dual Color Probe	50 µl
Z-2167-200	ZytoLight SPEC NTRK1 Dual Color Break Apart Probe	200 µl
Z-2167-50	ZytoLight SPEC NTRK1 Dual Color Break Apart Probe	50 µl
Z-2168-200	ZytoLight SPEC FGFR1 Dual Color Break Apart Probe	200 µl
Z-2168-50	ZytoLight SPEC FGFR1 Dual Color Break Apart Probe	50 µl
Z-2169-200	ZytoLight SPEC FGFR2 Dual Color Break Apart Probe	200 µl
Z-2170-200	ZytoLight SPEC FGFR3 Dual Color Break Apart Probe	200 µl
Z-2170-50	ZytoLight SPEC FGFR3 Dual Color Break Apart Probe	50 µl
Z-2171-200	ZytoLight SPEC BCL2L1/CEN 20 Dual Color Probe	200 µl
Z-2173-200	ZytoLight SPEC MCL1/1p12 Dual Color Probe	200 µl
Z-2174-50	ZytoLight SPEC BCL2/CEN 18 Dual Color Break Apart Probe	50 µl
Z-2175-50	ZytoLight SPEC YWHAE Dual Color Break Apart Probe	50 µl
Z-2176-200	ZytoLight SPEC ETV6 Dual Color Break Apart Probe	200 µl
Z-2176-50	ZytoLight SPEC ETV6 Dual Color Break Apart Probe	50 µl
Z-2177-200	ZytoLight SPEC BCL6 Dual Color Break Apart Probe	200 µl
Z-2177-50	ZytoLight SPEC BCL6 Dual Color Break Apart Probe	50 µl
Z-2178-50	ZytoLight SPEC SMARCB1/22q12 Dual Color Probe	50 µl
Z-2179-200	ZytoLight SPEC CD274 PDCD1LG2/CEN 9 Dual Color Probe	200 µl
Z-2179-50	ZytoLight SPEC CD274 PDCD1LG2/CEN 9 Dual Color Probe	50 µl
Z-2181-200	ZytoLight SPEC NRG1 Dual Color Break Apart Probe	200 µl
Z-2189-200	ZytoLight SPEC BRAF Dual Color Break Apart Probe	200 µl
Z-2190-50	ZytoLight SPEC ERBB2/D17S122 Dual Color Probe	50 µl
Z-2190-200	ZytoLight SPEC ERBB2/D17S122 Dual Color Probe	200 µl
Z-2191-200	ZytoLight SPEC BRAF/CEN 7 Dual Color Probe	200 µl
Z-2192-200	ZytoLight SPEC BCL2 Dual Color Break Apart Probe	200 µl
Z-2192-50	ZytoLight SPEC BCL2 Dual Color Break Apart Probe	50 µl
Z-2193-200	ZytoLight SPEC KMT2A Dual Color Break Apart Probe	200 µl
Z-2193-50	ZytoLight SPEC KMT2A Dual Color Break Apart Probe	50 µl
Z-2195-200	ZytoLight SPEC VEGFA/CEN 6 Dual Color Probe	200 µl
Z-2196-200	ZytoLight SPEC MALT1 Dual Color Break Apart Probe	200 µl
Z-2196-50	ZytoLight SPEC MALT1 Dual Color Break Apart Probe	50 µl
Z-2197-50	ZytoLight SPEC PDGFRB Dual Color Break Apart Probe	50 µl
Z-2198-50	ZytoLight SPEC TP53/17q22 Dual Color Break Apart Probe	50 µl
Z-2199-50	ZytoLight SPEC ABL1 Dual Color Break Apart Probe	50 µl
Z-2200-50	ZytoLight SPEC ABL2 Dual Color Break Apart Probe	50 µl
Z-2201-50	ZytoLight SPEC CRLF2 Dual Color Break Apart Probe	50 µl
Z-2202-50	ZytoLight SPEC CSF1R Dual Color Break Apart Probe	50 µl
Z-2205-200	ZytoLight SPEC NTRK2 Dual Color Break Apart Probe	200 µl
Z-2205-50	ZytoLight SPEC NTRK2 Dual Color Break Apart Probe	50 µl
Z-2206-200	ZytoLight SPEC NTRK3 Dual Color Break Apart Probe	200 µl
Z-2206-50	ZytoLight SPEC NTRK3 Dual Color Break Apart Probe	50 µl
Z-2207-50	ZytoLight SPEC CBFB Dual Color Break Apart Probe	50 µl
Z-2208-200	ZytoLight SPEC NUTM1 Dual Color Break Apart Probe	200 µl
Z-2210-50	ZytoLight SPEC IRF4, DUSP22 Dual Color Break Apart Probe	50 µl
Z-2211-50	ZytoLight SPEC EGR1/D5S23,D5S721 Dual Color Probe	50 µl

ZytoLight Dual Color Probes

Catalog #	Product Description	VOLUME
Z-2212-50	ZytoLight SPEC WWTR1 Dual Color Break Apart Probe	50 µl
Z-2213-50	ZytoLight SPEC PTPRT/20q11 Dual Color Probe	50 µl
Z-2215-50	ZytoLight SPEC PHF1 Dual Color Break Apart Probe	50 µl
Z-2265-50	ZytoLight SPEC NUP214 Dual Color Break Apart Probe	50 µl
Z-2266-50	ZytoLight SPEC NUP98 Dual Color Break Apart Probe	50 µl
Z-2267-50	ZytoLight SPEC CREBBP Dual Color Break Apart Probe	50 µl
Z-2268-50	ZytoLight SPEC CSF1R/D5S23,D5S721 Dual Color Probe	50 µl
Z-2270-50	ZytoLight SPEC MAF/IGH Dual Color Dual Fusion Probe	50 µl
Z-2271-50	ZytoLight SPEC MAFB/IGH Dual Color Dual Fusion Probe	50 µl
Z-2273-50	ZytoLight SPEC TERT Dual Color Break Apart Probe	50 µl
Z-2274-50	ZytoLight SPEC C19MC/19p13 Dual Color Probe	50 µl
Z-2275-50	ZytoLight SPEC ZNF384 Dual Color Break Apart Probe	50 µl
Z-2276-50	ZytoLight SPEC CKS1B/CDKN2C Dual Color Probe	50 µl
Z-2278-200	ZytoLight SPEC RICTOR/5q31.1 Dual Color Probe	200µl
Z-2280-50	ZytoLight SPEC D13S319/13q34 Dual Color Probe	50 µl
Z-2281-50	ZytoLight SPEC MYB/CEN 6 Dual Color Probe	50 µl
Z-2282-50	ZytoLight SPEC FGFR3/IGH Dual Color Dual Fusion Probe	50 µl
Z-2284-200	ZytoLight SPEC TERC/CEN 3 Dual Color Probe	200µl
Z-2285-50	ZytoLight SPEC CIC Dual Color Break Apart Probe	50 µl
Z-2286-50	ZytoLight SPEC IGL Dual Color Break Apart Probe	50 µl
Z-2288-50	ZytoLight SPEC IGK Dual Color Break Apart Probe	50 µl
Z-2287-50	ZytoLight SPEC GATA2/MECOM Dual Color Dual Fusion Probe	50 µl
Z-2291-50	ZytoLight SPEC SPI1 Dual Color Break Apart Probe	50 µl
Z-2294-50	ZytoLight SPEC JAK2 Dual Color Break Apart Probe	50 µl
Z-2296-50	ZytoLight SPEC ATM/CEN 12 Dual Color Probe	50 µl
Z-2297-50	ZytoLight SPEC ATM/CEN 11 Dual Color Probe	50 µl
Z-2299-50	ZytoLight SPEC DiGeorge/Phelan McDermid Dual Color Probe	50 µl
Z-2302-50	ZytoLight Williams-Beuren Dual Color Probe	50 µl

ZytoLight Triple Color Probes

Catalog #	Product Description	VOLUME
Z-2093-200	ZytoLight SPEC HER2/TOP2A/CEN 17 Triple Color Probe	200 µl
Z-2093-50	ZytoLight SPEC HER2/TOP2A/CEN 17 Triple Color Probe	50 µl
Z-2095-200	ZytoLight SPEC 13/CEN 18/SPEC 21 Triple Color Probe	200 µl
Z-2095-50	ZytoLight SPEC 13/CEN 18/SPEC 21 Triple Color Probe	50 µl
Z-2117-200	ZytoLight SPEC ALK/EML4 TriCheck Probe	200 µl
Z-2117-50	ZytoLight SPEC ALK/EML4 TriCheck Probe	50 µl
Z-2135-200	ZytoLight SPEC ERG/TMPRSS2 TriCheck Probe	200 µl
Z-2152-200	ZytoLight SPEC RREB1/MYB/CEN 6 Triple Color Probe	200 ul
Z-2152-50	ZytoLight SPEC RREB1/MYB/CEN 6 Triple Color Probe	50 µl
Z-2160-200	ZytoLight CLL II Probe SPEC D13S319/13q34/CEN 12 Triple Color Probe	200 ul
Z-2160-50	ZytoLight SPEC D13S319/13q34/CEN 12 Triple Color Probe	50 µl
Z-2163-200	ZytoLight SPEC 18/CEN X/Y Triple Color Probe	200 ul
Z-2180-200	ZytoLight SPEC 12/CEN X/Yq12 Triple Color Probe	200 ul
Z-2183-50	ZytoLight SPEC EWSR1/FLI1 TriCheck Probe	50 µl
Z-2184-50	ZytoLight SPECS S18/SSX1 TriCheck Probe	50 µl
Z-2185-50	ZytoLight SPEC FOXO1/PAX3 TriCheck Probe	50 µl
Z-2194-200	ZytoLight SPEC NRG/CD74 TriCheck Color Probe	200 ul
Z-2209-50	ZytoLight SPEC PDGFRA/FIP1L1 TriCheck Color Probe	50 µl
Z-2214-50	ZytoLight SPEC CUX1/EZH2/CEN 7 Triple Color Probe	50 µl
Z-2216-50	ZytoLight SPEC 11q gain/loss Triple Color Probe	50 µl
Z-2277-50	ZytoLight SPEC MEF2D/BCL9 TriCheck Probe	50 µl
Z-2289-50	ZytoLight SPEC DiGeorge Triple Color Probe	50 µl
Z-2307-50	ZytoLight SPEC 4p11/CEN 10/17 Triple Color Probe	50 µl

ZytoLight Quad Color Probes

Catalog #	Product Description	VOLUME
Z-2081-50	ZytoLight SPEC CDKN2A/CEN 3/7/17 Quadruple Color Probe	50 µl
Z-2081-200	ZytoLight SPEC CDKN2A/CEN 3/7/17 Quadruple Color Probe	200 µl
Z-2102-200	ZytoLight SPEC VHL/1p12/CEN 7/17 Quadruple Color Probe	200 µl
Z-2118-200	ZytoLight SPEC CCND1 Break Apart/2q11/CEN 6 Quadruple Color Probe	200 µl
Z-2305-200	ZytoLight SPEC Bladder Cancer Quadruple Color Probe	50 µl
Z-2305-50	ZytoLight SPEC Bladder Cancer Quadruple Color Probe	200 µl

ZytoLight FISH Kits

Catalog #	Product Description	VOLUME
Z-2020-20	ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe Kit	20
Z-2020-5	ZytoLight SPEC ERBB2/CEN 17 Dual Color Probe Kit	5
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit	20
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit	5
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit	20

RUO For Research Use Only

For research use only in the United States.

100 tests per ml considering 10µl per test

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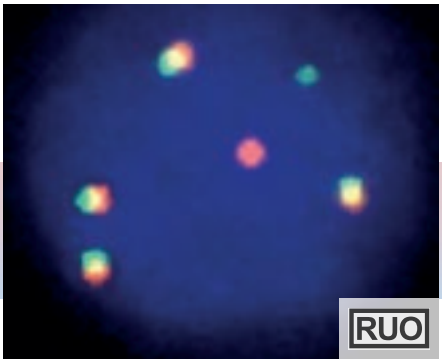
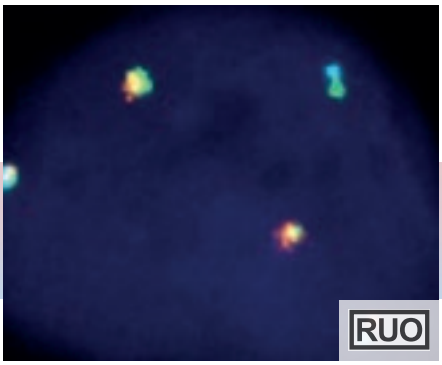
FlexISH®

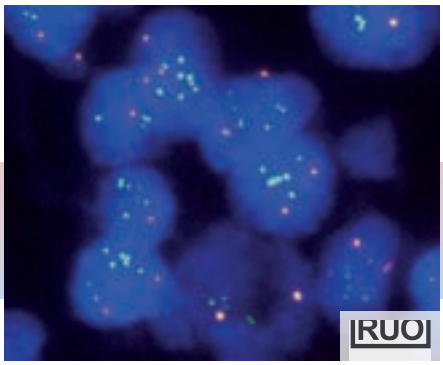
FlexISH brings flexibility to your FISH



FlexISH of ALK/ROS1 DistinguISH Probe with ALK Positivity on Lung Cancer



FlexISH of ALK/ROS1 DistinguISH Probe with ROS1 Positivity on Lung Cancer



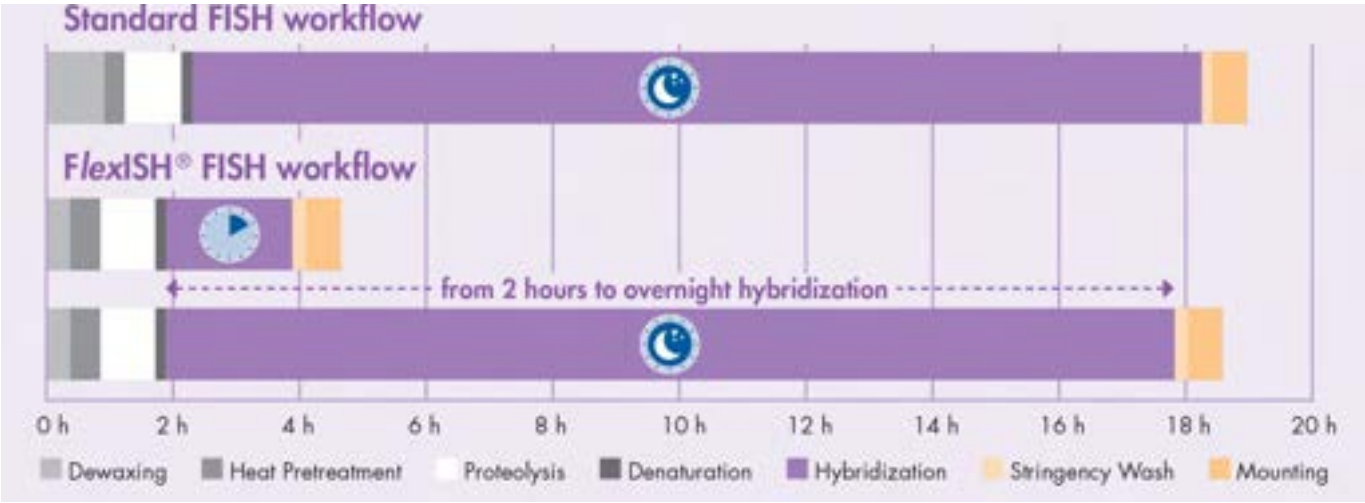
FlexISH of ERBB2/CEN 17 on Breast Cancer

INTRODUCTION

With a hybridization temperature of 37°C the FlexISH protocol is fully compatible with routine workflows in pathology laboratories. In a recent comparison study, overnight and short hybridization periods showed excellent correlation between the FISH results obtained with FlexISH, ZytoLight and PathVysion ERBB2 probes.Short hybridization time does not negatively affect the performance, specimen quality or diagnostic results.

IMPORTANCE OF ERBB2 TESTING

Breast cancer is the most commonly diagnosed cancer among women worldwide. It is estimated that 1.7 million new cases are diagnosed per year, accounting for 25% of all new cancer cases in women. The ptoto-oncogene ERBB2 is amplified in in approximately 20% of all breast cancers and is correlated with a poor prognosis. Breast cancer patients harboring ERBB2 amplification are addressed for a targeted therapy with trastuzumab (Herceptin), a humanized monoclonal antibody directed against the extracellular portion of the ERBB2 protein. This treatment is associated with significantly prolonged overall survival and time of tumor progression.



FlexISH Tissue Implementation Kit

Catalog #	Product Description	VOLUME
Z-2182-5	FlexISH-Tissue Implementation Kit	5
Z-2182-20	FlexISH-Tissue Implementation Kit	20

FlexISH Probes

Catalog #	Product Description	VOLUME
Z-2166-50	FlexISH ERBB2/CEN 17 Dual Color Probe	50 µl
Z-2166-200	FlexISH ERBB2/CEN 17 Dual Color Probe	200 µl
Z-2203-50	FlexISH ALK/ROS1 DistinguISH Probe	50 µl
Z-2203-200	FlexISH ALK/ROS1 DistinguISH Probe	200 µl
Z-2269-50	FlexISH RET/KIF5B TriCheck Probe NEW	50 µl
Z-2269-200	FlexISH RET/KIF5B TriCheck Probe NEW	200 µl
Z - 2283-200	FlexISH BCL2/BCL6 DistinguISH Probe	200 µl
Z - 2283-50	FlexISH BCL2/BCL6 DistinguISH Probe	50 µl

FlexISH Probes

Catalog #	Product Description	VOLUME
Z-2293-50	FlexISH MYC/IGH TriCheck Probe	50 µl
Z-2295-50	FlexISH IGK/IGL DistinguISH Probe	50 µl

FlexISH®

FlexISH brings flexibility to your FISH

ALK/ROS1 DISTINGUISH PROBE: ONE PROBE - TWO TARGETS

The FLexISH ALK/ROS1 DistingISH Probe is designed to simultaneously detect ALK and ROS1 rearrangements. Additionally, this innovative probe design enables the user to discriminate between possible aberrations affecting the chromosomal regions harboring either the ALK ROS1 gene. Rearrangements affecting the ALK or the ROS1 gene locus are frequently found in non-small cell lung cancer (NSCLC). The specific analysis of ROS1 and ALK rearrangements in NSCLC patients is a very effective and reliable tool for the diagnosis and selection of treatment with e.g. the tyrosine kinase inhibitor crizontinib.

RELIABLE RESULTS OBTAINABLE IN 1 DAY

With the use of the FlexISH ERBB@/CEN 17 Dual Color Probe, or ALK ROS1 DistinguISH Probe in combination with the FlexISH Tissue Implementation Kit reliable results can be obtained already within 4.5 hours. The FlexISH protocol can also be incorporated into the routin workflow with overnight hybridization providing the highest flexibility.

FlexISH Workflow Schedule:

Dewaxing

Heat Pretreatment

Pepsin Digestion

Probe Application & Denaturation

120 min. — **Adapt Hybridization Time to Your Needs** — **Overnight**

Mouting

Strigency Wash

Analysis

Bio SB
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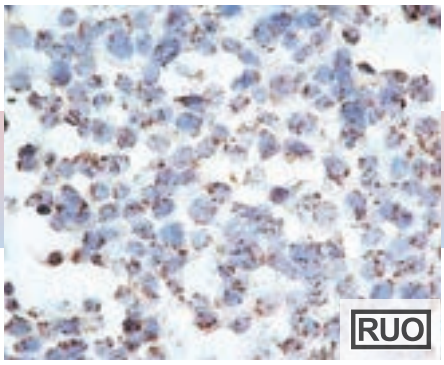
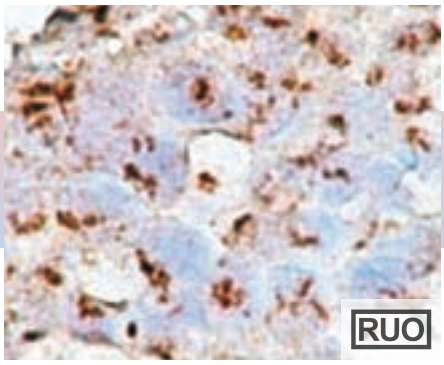
ZytoDot®

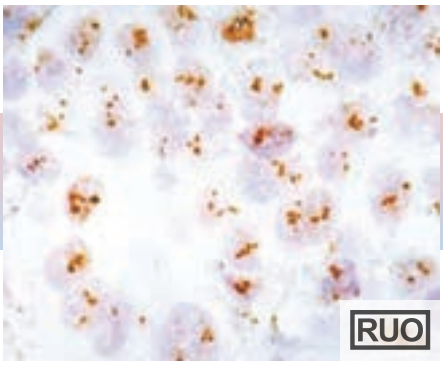
Reliable and simple detection of genomic alterations using light microscopy!



CISH of HER-2 neu on an FFPE Breast Carcinoma



CISH of FGR1 on an FFPE Prostate Carcinoma



CISH of TOPO2A on an FFPE Breast Carcinoma

INTRODUCTION

The ZytoDot® products are designed for the detection of aneuploidies and gene amplifications by Chromogenic in situ Hybridization (CISH) in formalin-fixed, paraffin-embedded tissue sections, cell samples, blood or bone marrow smears, and metaphase chromosome spreads.

CISH: A RELIABLE ALTERNATIVE TO FISH

High concordance between CISH and FISH ranging from 92-100% has been shown by numerous international studies for HER2 amplification.

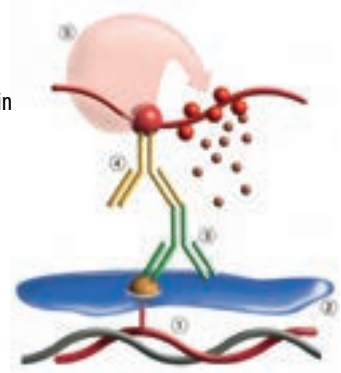
ADVANTAGES OF CISH OVER FISH

- Quick and easy interpretation of results comparable to IHC
- Simultaneous observation of tissue morphology and CISH signals
- Storage of slides at room temperature - CISH signals are permanent
- No costly fluorescent microscope needed

HIGH SIGNAL-TO-NOISE RATIO

The ZytoDot® probes are processed by the unique ZytoVision® Repeat Subtraction Technique resulting in advanced specificity and less background. No further blocking of repetitive sequences is needed!

The ZytoDot® system uses Digoxigenin-labeled probes
1. Which are, after blocking
2. Detected using a Mouse-anti-Digoxigenin antibody
3. This antibody is detected by a polymerized HRP-Goat-anti-Mouse antibody
4. The enzymatic reaction of DAB
5. Leads to the formation of strong permanent brown signals that can be visualized by light microscopy using a 40x objective.

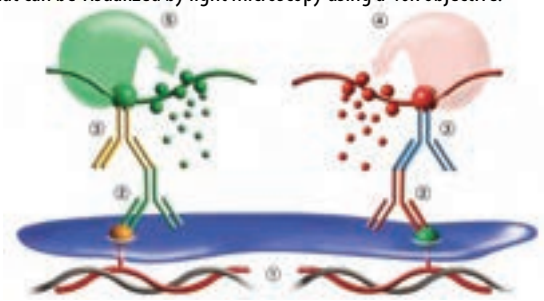


ADVANTAGES OF ZYTODOT® 2C™

- Simultaneous observation of tissue morphology and CISH signals at 40x using light microscopy
- Two targets detected simultaneously
- High contrasting distinct red and green signals
- Quick and easy interpretation of results comparable to IHC
- Standardized and complete kits
- No costly fluorescent microscope needed

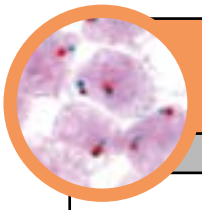
The well established ZytoDot® 2C™ system has been carefully revised to optimize its handling and performance. Handling steps were reduced by approx. 25% due to an optimized protocol including less antibody & washing steps and 2-component chromogenic substrates. This means a reduction by approx. 20% on day 1 and by approx. 50% on day 2! Procedure time is reduced to approx. 1¾ h per day due to shortened incubation times and less antibody & washing steps! Re-designed chromogenic substrates and improved antibody-cocktails lead to stronger signals while showing less background staining and occur even in sub-optimal pre-treated tissue sections.

The ZytoDot® 2C™ system uses DIG- and DNP-labeled probe cocktails targting different genomic sections (see diagram)
1. Which are detected using a Mouse-anti-DIG/Rabbitanti-DNP cocktail
2. These antibodies are detected by a unique cocktail of polymerized HRP-Goat-anti-Mouse/AP-Goat-anti-Rabbit antibodies
3. The enzymatic reaction of AP-Red
4. and HRP-Green
5. leads to the formation of strong permanent red respectively green signals that can be visualized by light microscopy using a 40x objective.



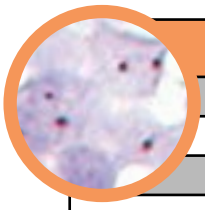
ZytoDot® CISH - Solid Tumor Probes By Application

Like ZytoFast, the ZytoDot line is optimized for use on formalin-fixed paraffin-embedded (FFPE) tissues or cell samples. Results can be easily interpreted via light microscopy.



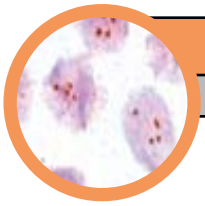
Brain and Neural Tumor Probes

ZytoDot 2C Glioma 1p/19q Probe Set
ZytoDot 2C SPEC 1p36/1q25 Probe
ZytoDot 2C SPEC 19q13/19p13 Probe
ZytoDot 2C SPEC CDKN2A/CEN 9 Probe
ZytoDot SPEC EGFR Probe
ZytoDot 2C SPEC EGFR/CEN 7 Probe
ZytoDot 2C SPEC MET/CEN 7 Probe
ZytoDot SPEC MYCN Probe
ZytoDot 2C SPEC PTEN/CEN 10 Probe



Breast Cancer Probes

ZytoDot EGFR Probe
ZytoDot 2C EGFR/CEN 7 Probe
ZytoDot ERBB2 Probe
ZytoDot ERBB2 Probe Kit
ZytoDot 2C ERBB2/CEN 17 Probe
ZytoDot 2CERBB2/CEN 17 Probe Kit
ZytoDot 2C ERBB2/D17S122 Probe
ZytoDot ESR1 Probe
ZytoDot 2C FGFR1/CEN 8 Probe
ZytoDot 2C FGFR2/CEN 10 Probe
ZytoDot MYC Probe
ZytoDot 2C TOP2A/CEN 17 Probe

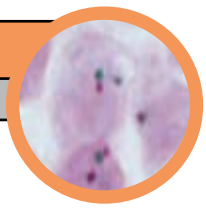


Cervical Cancer Probes

ZytoDot SPEC MYC Probe

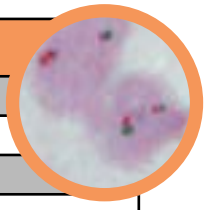
Gastrointestinal Cancer

ZytoDot SPEC ERBB2 Probe
ZytoDot SPEC ERBB2 Probe
ZytoDot 2C SPEC ERBB2/CEN 17 Probe
ZytoDot 2C SPEC ERBB2/CEN 17 Probe Kit
ZytoDot 2C SPEC ERBB2/D17S122 Probe
ZytoDot 2C MDM2 Probe
ZytoDot 2C SPEC MDM2/CEN 12 Probe



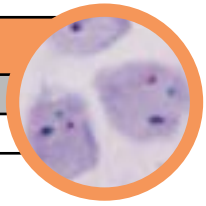
Salivary Gland Carcinoma

ZytoDot SPEC EWSR Break Apart Probe



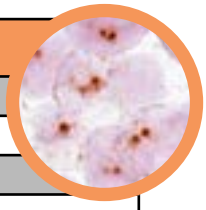
Sarcoma Probes

ZytoDot 2C SPEC ALK Break Apart Probe
ZytoDot 2C SPEC CDK4/CEN 12 Probe
ZytoDot 2C DDIT3 Break Apart Probe
ZytoDot 2C EWSR1 Break Apart Probe
ZytoDot 2C FOXO1 Break Apart Probe
ZytoDot 2C FUS Break Apart Probe
ZytoDot MDM2 Probe
ZytoDot 2C MDM2/CEN 12 Probe
ZytoDot SPEC MYC Probe
ZytoDot 2C SS18 Break Apart Probe
ZytoDot 2C SPEC USP6 Break Apart Probe



Prostate Cancer Probes

ZytoDot 2C SPEC ERG Break Apart Probe
ZytoDot 2C SPEC PTEN/CEN 10 Probe



Lung Cancer Probes

ZytoDot 2C SPEC ALK Break Apart Probe
ZytoDot 2C SPEC EML4 Break Apart Probe
ZytoDot SPEC EGFR Probe
ZytoDot 2C SPEC EGFR/CEN 7 Probe
ZytoDot SPEC ERBB2 Probe
ZytoDot SPEC ERBB2 Probe Kit
ZytoDot 2C SPEC ERBB2/CEN 17 Probe
ZytoDot 2C SPEC ERBB2/CEN 17 Probe Kit
ZytoDot 2C SPEC ERBB2/D17S122 Probe
ZytoDot 2C SPEC FGFR1/CEN 8 Probe
ZytoDot 2C SPEC FGFR2/CEN 10 Probe
ZytoDot 2C SPEC MET/CEN 7 Probe
ZytoDot 2C SPEC RET Break Apart Probe
ZytoDot 2C SPEC ROS1 Break Apart Probe

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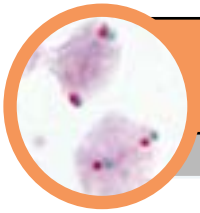
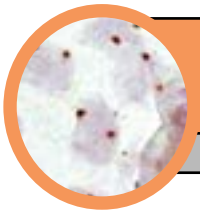
ZytoDot® CISH - Hematology Specific Probes By Application



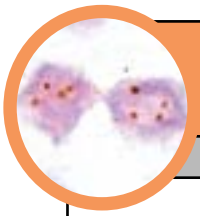
Acute Lymphoblastic Leukemia (ALL) Probes

- ZytoDot 2C CDKN2A/CEN 9 Probe



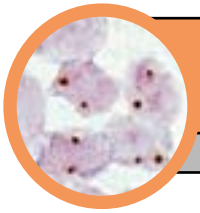
Acute Myelogenous Leukemia (AML) Probes

- ZytoDot CEN 8 Probe



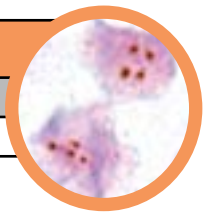
Chronic Lymphocytic Leukemia (CLL) Probes

- ZytoDot 2C SPEC BCL2 Break Apart Probe
- ZytoDot 2C SPEC CCND1 Probe
- ZytoDot SPEC MYC Probe



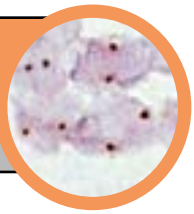
Chronic Myelogenous Leukemia (CML) Probes

- ZytoDot CEN 8 Probe



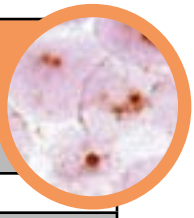
Multiple Myeloma Probes

- ZytoDot SPEC CCND1 Probe
- ZytoDot 2C SPEC IGH Break Apart Probe



Myelodysplastic Syndrome (MDS) Probes

- ZytoDot CEN 8 Probe



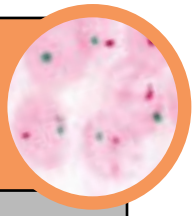
Non-Hodgkin Lymphoma Probes

- ZytoDot 2C SPEC BCL2 Break Apart Probe
- ZytoDot 2C SPEC BCL6 Break Apart Probe
- ZytoDot 2C SPEC CCND1 Break Apart Probe
- ZytoDot 2C SPEC IGH Break Apart Probe
- ZytoDot 2C SPEC MALT1 Break Apart Probe
- ZytoDot 2C MYC Break Apart Probe

ZytoDot® CISH - Genetic Probes By Application

Sex Mismatched Bone-Marrow Transplantant Management Probes

- ZytoDot CEN X Probe
- ZytoDot CEN Yq12 Probe
- ZytoDot 2C CEN X/Y Probe



Prenatal, Postnatal, and Preimplantation Genetics Probes

- ZytoDot SPEC 21q22 Probe
- ZytoDot CEN X Probe
- ZytoDot CEN Yq12 Probe
- ZytoDot 2C CEN X/Y Probe

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ZytoDot®

Reliable and simple detection of genomic alterations using light microscopy!

ZytoDot® products for Chromogenic in situ Hybridization (CISH) are designed for the detection of a euploidies and gene amplifications associated with tumors and genetic diseases using an IHC-like procedure and light microscopy.

ZytoDot Single Color Probes

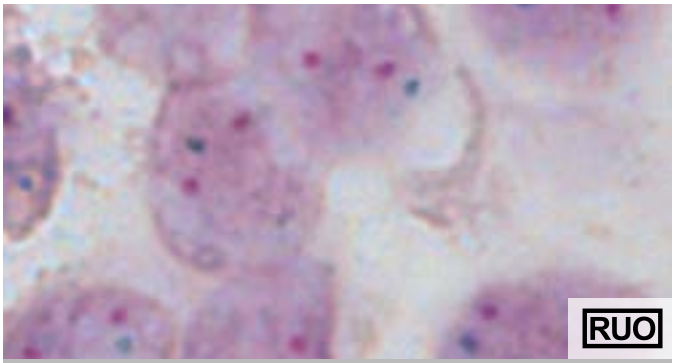
Catalog #	Product Description	VOLUME
C-3001-400	ZytoDot SPEC ERBB2 Probe	400 µl
C-3002-400	ZytoDot CEN 6 Probe	400 µl
C-3006-400	ZytoDot CEN 17 Probe	400 µl
C-3007-400	ZytoDot SPEC EGFR Probe	400 µl
C-3008-400	ZytoDot CEN 7 Probe	400 µl
C-3012-400	ZytoDot SPEC MDM2 Probe	400 µl
C-3013-400	ZytoDot SPEC MYC Probe	400 µl
C-3014-400	ZytoDot CEN 12 Probe	400 µl
C-3016-400	ZytoDot CEN 8 Probe	400 µl
C-3020-400	ZytoDot CEN Yq12 Probe	400 µl
C-3025-400	ZytoDot CEN X Probe	400 µl
C-3026-400	ZytoDot SPEC 21q22 Probe	400 µl
C-3029-400	ZytoDot SPEC MYCN Probe	400 µl
C-3035-400	ZytoDot SPEC 1p12 Probe	400 µl
C-3045-400	ZytoDot CEN 3 Probe	400 µl
C-3051-400	ZytoDot SPEC 2q11 Probe	400 µl
C-3052-400	ZytoDot SPEC 13q12 Probe	400 µl

ZytoDot Dual Color Probes

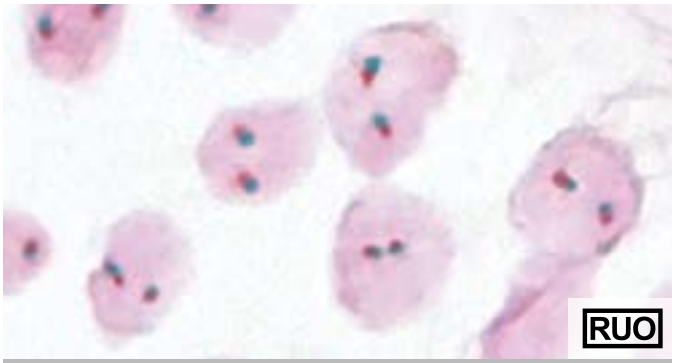
Catalog #	Product Description	VOLUME
C-3032-100	ZytoDot 2C SPEC ERBB2/CEN 17 Probe	100 µl
C-3032-400	ZytoDot 2C SPEC ERBB2/CEN 17 Probe	400 µl
C-3033-100	ZytoDot 2C SPEC EGFR/CEN 7 Probe	100 µl
C-3033-400	ZytoDot 2C SPEC EGFR/CEN 7 Probe	400 µl
C-3036-100	ZytoDot 2C SPEC 1p36/1q25 Probe	100 µl
C-3036-400	ZytoDot 2C SPEC 1p36/1q25 Probe	400 µl
C-3037-100	ZytoDot 2C SPEC 19q13/19p13 Probe	100 µl
C-3037-400	ZytoDot 2C SPEC 19q13/19p13 Probe	400 µl
C-3040-400	ZytoDot 2C SPEC TOPO2A/CEN 17 Probe	400 µl
C-3043-100	ZytoDot 2C SPEC EWSR1 Break Apart Probe	100 µl
C-3046-100	ZytoDot 2C SPEC SS18 Break Apart Probe	100 µl
C-3047-100	ZytoDot 2C SPEC DDIT3 Break Apart Probe	100 µl
C-3048-400	ZytoDot 2C CEN X/Y Probe	400 µl
C-3049-100	ZytoDot 2C SPEC MDM2/CEN12 Probe	100 µl
C-3049-400	ZytoDot 2C SPEC MDM2/CEN12 Probe	400 µl
C-3050-400	ZytoDot 2C SPEC FGFR1/CEN8 Probe	400 µl
C-3053-400	ZytoDot 2C SPEC PTEN/CEN 10 Probe	400 µl
C-3054-100	ZytoDot 2C SPEC FUS Break Apart Probe	100 µl
C-3055-100	ZytoDot 2C SPEC ALK Break Apart Probe	100 µl
C-3055-400	ZytoDot 2C SPEC ALK Break Apart Probe	400 µl
C-3056-400	ZytoDot 2C SPEC FGFR 2/CEN 10 Probe	400 µl
C-3057-400	ZytoDot 2C SPECMET/CEN 7 Probe	400 µl
C-3058-400	ZytoDot 2C SPEC ERG Break Apart Probe	400 ul
C-3059-400	ZytoDot 2C SPEC EML4 Break Apart Probe	400 ul
C-3062-400	ZytoDot 2C SPEC CDK4/CEN 12 Probe	400 ul
C-3063-100	ZytoDot 2C SPEC ROS1 Break Apart Probe	100 ul
C-3063-400	ZytoDot 2C SPEC ROS1 Break Apart Probe	400 ul
C-3064-100	ZytoDot 2C SPEC RET Break Apart Probe	100 ul
C-3064-400	ZytoDot 2C SPEC RET Break Apart Probe	400 ul
C-3065-100	ZytoDot 2C SPEC FOXO1 Break Apart Probe	100 ul
C-3066-400	ZytoDot 2C SPEC MYC Break Apart Probe	400 ul
C-3067-400	ZytoDot 2C SPEC CDKN2A/CEN 9 Probe	400 ul
C-3068-100	ZytoDot 2C SPEC ERBB2/D17S122 Probe	100 ul
C-3071-100	ZytoDot 2C SPEC IGH Break Apart Probe	100 ul
C-3072-100	ZytoDot 2C SPEC MALT1 Break Apart Probe	100 ul
C-3073-100	ZytoDot 2C SPEC BCL2 Break Apart Probe	100 ul
C-3074-100	ZytoDot 2C SPEC BCL6 Break Apart Probe	100 ul
C-3075-100	ZytoDot 2C SPEC CCND1 Break Apart Probe	100 ul
C-3076-10	ZytoDot 2C Glioma 1p/19q Probe Set NEW	
C-3076-40	ZytoDot 2C Glioma 1p/19q Probe Set NEW	
C-3077-100	ZytoDot 2C SPEC USP6 Break Apart Probe NEW	100µl
C-3078-100	ZytoDot 2C SPEC NTRK1 Break Apart Probe NEW	100µl

ZytoDot CISH Kits

Catalog #	Product Description	VOLUME
C-3003-40	ZytoDot SPEC ERBB2 Probe Kit	40
C-3005-40	ZytoDot CISH Polymer Detection Kit	40
C-3018-40	ZytoDot CISH Implementation Kit	40
C-3022-10	ZytoDot 2C SPEC ERBB2/CEN 17 Probe Kit	10
C-3022-40	ZytoDot 2C SPEC ERBB2/CEN 17 Probe Kit	40
C-3028-40	ZytoDot 2C CISH Polymer Detection Kit	40
C-3044-10	ZytoDot 2C CISH Implementation Kit	10
C-3044-40	ZytoDot 2C CISH Implementation Kit	40



ZytoDot 2C SPEC PTEN/CEN 10 Probe
Probe hybridized to prostate cancer tissue section with deletion of the PTEN gene as indicated by one green signal.



ZytoLight SPEC IGH Break Apart Probe
Probe hybridized to normal interphase cells as indicated by two red/green fusion signals per nucleus.

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100 tests per ml considering 10µl per test

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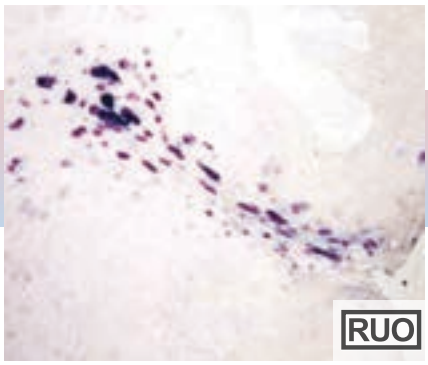
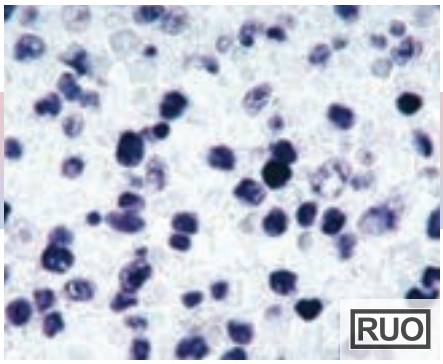
ZytoFast®

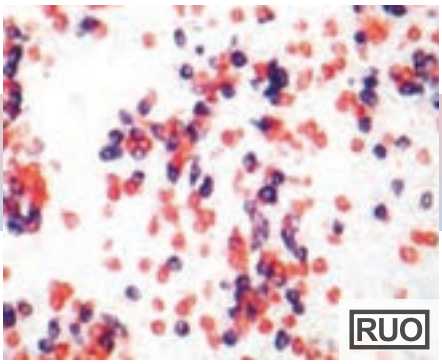
Achieving Chromogenic in situ Hybridization results in just 4 hours!



CISH of HPV on an FFPE Cervical Cancer



CISH of EBV on an FFPE Hodgkin's Lymphoma



CISH of Ig-Kappa/Lambda on an FFPE Tonsil Tissue

INTRODUCTION

The ZytoFast® products are designed for outstandingly fast detection and discrimination of human pathogen viruses, e.g. HPV, EBV, CMV, and the determination of lymphocyte clonality by detecting Ig-k and Ig-l light chain RNA by Chromogenic in situ Hybridization (CISH) in formalin-fixed, paraffin-embedded tissue sections and cell samples.

ZYTOFAST®: OUTSTANDINGLY FAST CISH

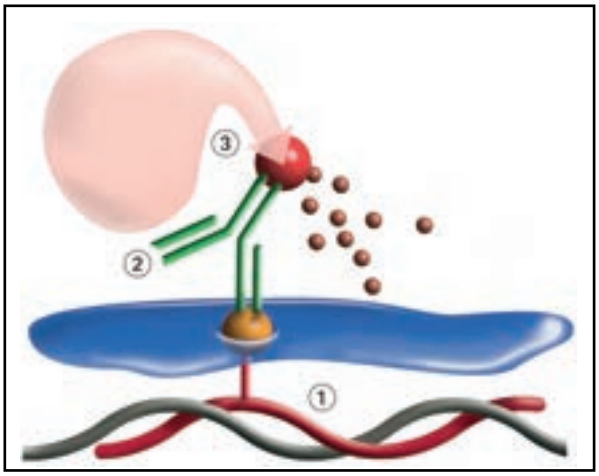
Optimized protocols and faster tissue penetration due to short oligonucleotide probes of the ZytoFast® system make the ZytoFast® CISH procedure outstandingly fast. Single color results can be achieved within just 4 hours, with hands-on time being only about 2 hours!

HIGH SENSITIVITY AND SPECIFICITY

All ZytoFast® probes are tagged using the unique ZytoFast® HighTag System providing improved signal intensity! High specificity without risk of cross-hybridizations is obtained due to optimized oligonucleotide probes.

ADVANTAGES OF CISH

- Simultaneous observation of tissue morphology and CISH signals
- No risk of false positives due to mispriming or contamination as with PCR
- Easy method comparable to IHC
- No costly equipment needed
- Ability to test archival specimens
- High sensitivity and specificity



ZYTOFAST® KITS – USER FRIENDLY SOLUTIONS

CISH analysis has been made reliable and user friendly because for many targets complete kits are available, including all necessary pretreatment solutions, wash buffers, antibodies, chromogenic substrates, positive and negative control probes as well as a detailed protocol to perform successful CISH experiments. Additionally, all ZytoFast® probes are available separately. Thus, if an increased sensitivity is demanded, the Digoxigenin-labeled probes can be combined easily with any ZytoFast® PLUS CISH Implementation Kit.

The ZytoFast® system uses oligonucleotide probes tagged with Biotin or Digoxigenin 1. Which are detected using enzyme-conjugated antibodies or streptavidin targeting the tags 2. The enzymatic reaction of chromogenic substrates 3. e.g. BCIP/NBT or AEC, leads to the formation of strong color precipitates that can be visualized by light microscopy.

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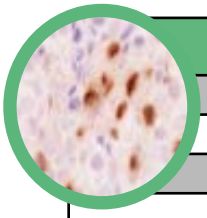
ZytoFast®

Achieving Chromogenic in situ Hybridization results in just 4 hours!

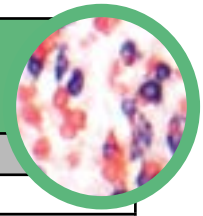
ZytoFast allows users to implement CISH technologies into the laboratory with minimal effort and reduced hands-on time. The ZytoFast line of products allows for the rapid detection of human pathogens and lymphocyte clonality on FFPE tissues and cell samples. ZytoFast CISH results can be generated in as little as 4 hours, and viewed under a standard light microscope.

ZytoFast® CISH - Solid Tumor Probes By Application



Cervical Cancer Probes
Digoxigenin-labeled
ZytoFast HPV type 6/11 Probe
ZytoFast HPV type 16/18 Probe
ZytoFast HPV type 31/33 Probe
ZytoFast HPV 16/18/31/33/35/39/45/51/52/56/58/59/66/68/82 High-Risk (HR) Types Probe
ZytoFast HPV type 6/11/16/18/31/33/35/39/45/51/52/56/58/59/66/68/82 Screening Probe

ZytoFast® CISH - Hematology Specific Probes By Application



Lymphoma, Other Probes
Digoxigenin-labeled
ZytoFast human Ig-kappa Probe
ZytoFast human Ig-lambda Probe
Digoxigenin/Biotin-labeled
ZytoFast human Ig-kappa/Ig-lambda Probe
ZytoFast human Ig-kappa/Ig-lambda CISH Kit
ZytoFast human Ig-kappa/Ig-lambda Permanent CISH Kit

ZytoFast Complete Kits (Digoxigenin/Biotin labeled)

Catalog #	Product Description	VOLUME
T-1005-40	ZytoFast human Ig-kappa/Ig-lambda CISH Kit	40
T-1105-40	ZytoFast human Ig-kappa/Ig-lambda Permanent CISH Kit	40

ZytoFast Biotin & Digoxigenin Labeled Probes (Digoxigenin/Biotin labeled)

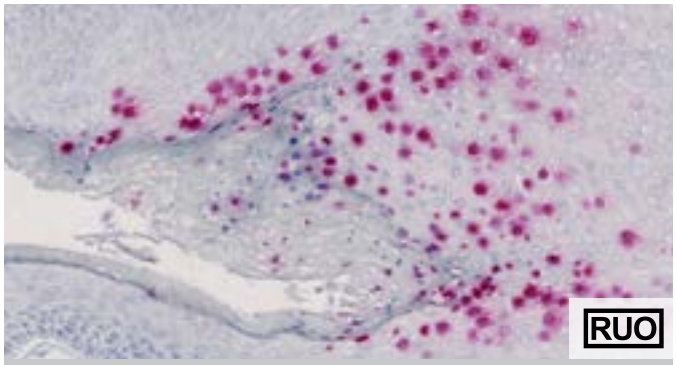
Catalog #	Product Description	VOLUME
T-1017-400	ZytoFast human Ig-kappa/Ig-lambda Probe	400 µl

ZytoFast Digoxigenin Labeled Probes (Digoxigenin labeled)

Catalog #	Product Description	VOLUME
T-1053-400	ZytoFast DNA (+) Control Probe	400 µl
T-1054-400	ZytoFast DNA (-) Control Probe	400 µl
T-1055-400	ZytoFast HPV type 6/11 Probe	400 µl
T-1056-400	ZytoFast HPV type 16/18 Probe	400 µl
T-1057-400	ZytoFast HPV type 31/33 Probe	400 µl
T-1113-400	ZytoFast CMV Probe	400 µl
T-1114-400	ZytoFast EBV Probe (Digoxigenin labeled)	400 µl
T-1115-400	ZytoFast human Ig-kappa Probe	400 µl
T-1116-400	ZytoFast human Ig-lambda Probe	400 µl
T-1119-400	ZytoFast RNA (-) Control Probe	400 µl
T-1120-400	ZytoFast RNA (+) Control Probe (Dioxigenin labeled)	400 µl
T-1140-400	ZytoFast HPV High-Risk (HR) Types Probe 16/18/31/33/35/39/45/51/52/56/58/59/66/68/82	400 µl
T-1144-400	ZytoFast HPV Screening Probe 6/11/16/18/31/33/35/39/45/51/52/56/58/59/66/68/82	400 µ

ZytoFast CISH Detections Systems for the Detection of Digoxigenin Probes

Catalog #	Product Description	VOLUME
T-1061-40	ZytoFast PLUS CISH Implementation Kit AP-NBT/BCIP	40
T-1063-40	ZytoFast PLUS CISH Implementation Kit HRP-DAB	40
T-1151-40	ZytoFast PLUS CISH Implementation Kit AP-Permanent Red	40



ZytoFast HPV type 6/11 Probe
Probe Hybridized to HPV infected cervix tissue, detected with the ZytoFast PLUS CISH Implementation Kit AP-Permanent Red.

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100 tests per ml considering 10µl per test

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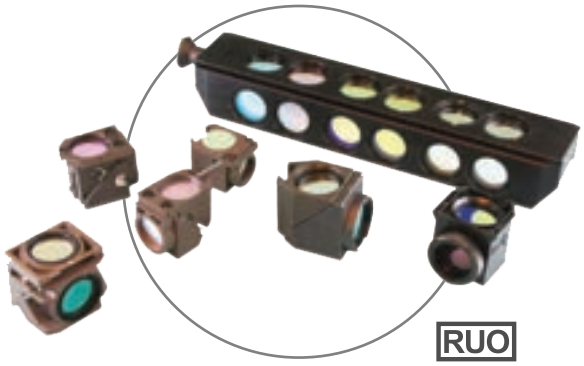
Ancillaries and Equipment for FISH & CISH



Ancillaries for FISH & CISH

Catalog #	Product Description	VOLUME
AB-0001-30	Mouse-anti-DIG	30 ml
AB-0001-4	Mouse-anti-DIG	4 ml
AB-0002-4	Anti-Mouse-HRP-Polymer	4 ml
AB-0011-4	Rabbit-anti-DIG	4 ml
AB-0013-4	HRP/AP-Polymer-Mix	4 ml
AB-0014-4	Anti-DIG/DNP-Mix	4 ml
AB-0015-4	Anti-Biotin/DIG-Mix	4 ml
BS-0001-4	Blocking Solution	4 ml
BS-0002-8	ZyBlack Quenching Solution	4 ml
CS-0001-20	Mayer's Hematoxylin Solution	20 ml
CS-0002-20	Nuclear Blue Solution	20 ml
CS-0003-20	Nuclear Red Solution	20 ml
CS-0004-20	Nuclear Green Solution	20 ml
E-4005-125	Fixogum Rubber Cement	125 g
E-4005-50	Fixogum Rubber Cement	50 g
E-4007-2	HER2 Control Slide Set	1
ES-0001-1000	Pepsin Solution	1000 ml
ES-0001-4	Pepsin Solution	4 ml
ES-0001-50	Pepsin Solution	50 ml
ES-0001-8	Pepsin Solution Set	2 x 4 ml
ES-0002-4	Cytology Pepsin Solution	4 ml
ES-0002-50	Cytology Pepsin Solution	50 ml
ES-0007-50	VisionArray HPV PreCise Master Mix	50 ml
ES-0008-50	VisionArray MYCO PreCise Master Mix	50 ml
MT-0004-4	Mounting Solution (alcoholic)	50 ml
MT-0007-0.8	DAPI/DuraTect™-Solution	.08 ml
MT-0008-0.8	DAPI/DuraTect™-Solution (ultra)	.08 ml
PT-0001-1000	Heat Pretreatment Solution Citric	2 x 500 ml
PT-0002-500	Heat Pretreatment Solution EDTA	500 ml
PT-0006-100	Formaldehyde Dilution Buffer Set	2 x 50ml
WB-0001-500	Wash Buffer SSC	500 ml
WB-0002-50	25x Wash Buffer A	50 ml
WB-0003-50	20x SSC Solution	50 ml
WB-0004-1000	PBS/Tween	1 tabl.
WB-0005-50	20x Wash Buffer TBS	50 ml
WB-0007-500	Cytology Stringency Wash Buffer SSC	500 ml
WB-0008-500	Cytology Wash Buffer SSC	500 ml
WB-0010-500	5x FlexISH Wash Buffer	500 ml

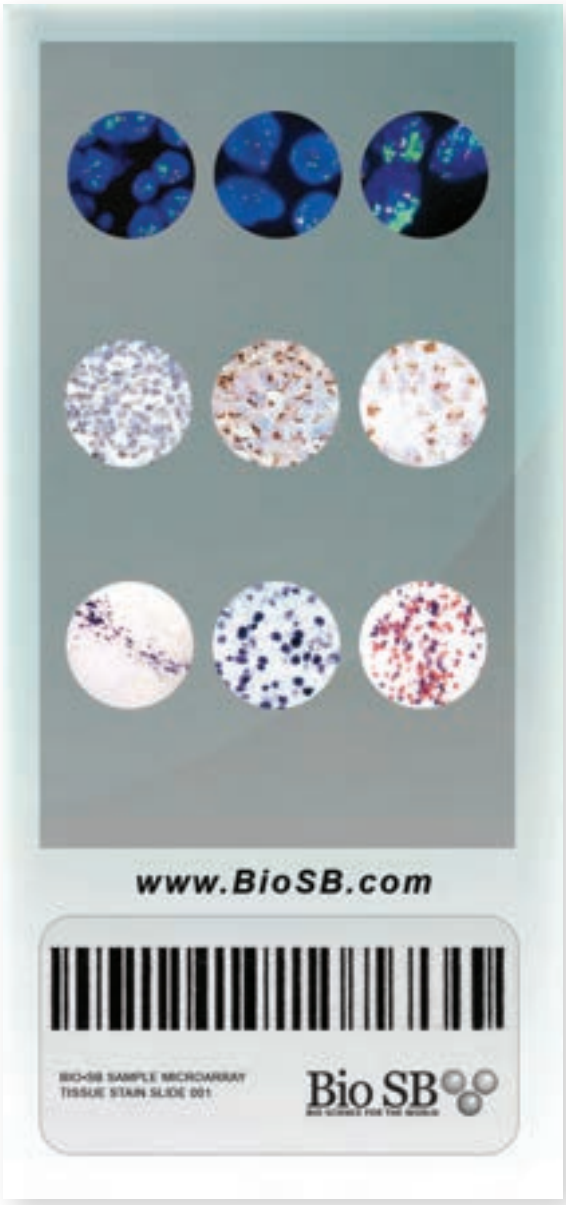
Equipment

Catalog #	Product Description	VOLUME
E-4010-1	DAPI/ZyGreen/ZyOrange Triple Bandpass Filter Set	1
E-4012-1	ZyGreen Single Bandpass Filter Set v2	1
E-4013-1	ZyOrange Single Bandpass Filter Set v2	1
E-4016-1	ZyGreen/ZyOrange Dual Bandpass Filter Set v2	1
E-4017-1	ZyRed Single Bandpass Filter Set v2	1
E-4026-1	ZyBlue Single Bandpass Filter Set v2	1
E-4027-1	ZyGold Single Bandpass Filter Set v2	1
E-4028-1	ZyBlue/ZyGreen/ZyOrange Triple Bandpass Filter Set	1
E-4030-1	DAPI Single Bandpass Filter Set v2	1
E-4111-1	ZEISS Fluorescence Filter Holder "FL EC P&C"	1
E-4113-1	ZEISS Fluorescence Filter Holder "FL"	1
E-4121-1	OLYMPUS Fluorescence Filter Holder "U-MF 2"	1
E-4122-1	OLYMPUS Fluorescence Filter Holder "U-FF"	1
E-4131-1	LEICA Fluorescence Filter Holder "DM K"	1
E-4141-1	NIKON Fluorescence Filter Holder "C-FL"	1

RUO For Research Use Only

For research use only in the United States.

100 tests per ml considering 10µl per test


www.BioSB.com
BIO-SB SAMPLE MICROARRAY
TISSUE STAIN SLIDE 001
Bio SB


TintoDetector
ImmunoDNA System
Bio SB

Equipment & Slides

Semi-Manual and Automated Equipment for Immunohistochemistry (IHC), Immunocytochemistry (ICC), Immunofluorescence (IF) and In Situ Hybridization (FISH & CISH)

TintoStainer Plus Automatic IHC Stainer

Product Description	Catalog #
TintoStainer Plus Automated System	BSB-7400
TintoChamber (pack of 50)	BSB-7450
Tinto Mixing Station Kit	BSB-7453
TintoReagent Container 7mL	BSB-7454
TintoReagent Container 30mL	BSB-7457
TintoSlide Tray	BSB-7464
TintoReagent Rack	BSB-7465

Technical Specifications

Slide Capacity:
30 slides

Temperature Control:
Room temperature ~ 100°C

Reagent Container Capacity:
7ml and 30 ml

Number of Reagent Containers:
36

Bulk Reagent Container Capacity:
2.5L

Hazardous Waste Container Capacity:
2.5L

External Bulk Waste Container Capacity:
18L

Operating Voltage:
100~240V 50/60Hz

Power Consumption:
1200VA

Operation Temperature:
5 °C~35 °C

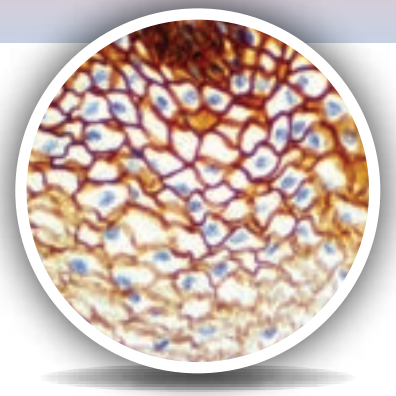
Operating Humidity:
10~80% RH

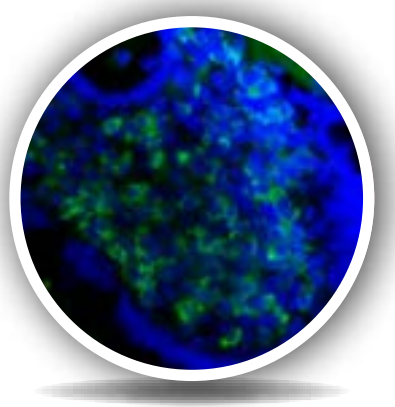
Weight
200KG

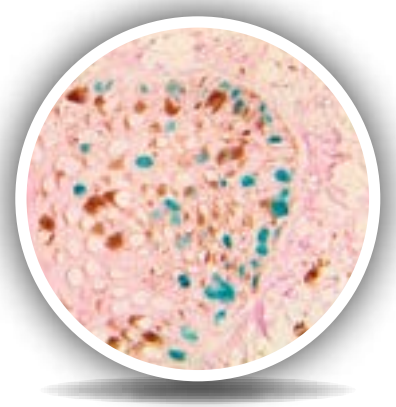
Dimensions (WxDxH):
750x800x1300mm

BIO SB TINTOSTAINER PLUS AUTOMATIC IHC STAINER

Affordable | Efficient | Reliable







Automated System for Anatomical Pathology

Bio SB
BIOSCIENCE FOR THE WORLD

TintoStainer Plus Automatic IHC Stainer

- Fully automated immunohistochemical system. Completes the whole process from depraffinization to counterstain, improving work efficiency in the laboratory.
- For all tissue types: paraffin sections, frozen sections, and cell specimens.
- Multiple applications: Immunohistochemistry (IHC), Mohs IHC (TintoFast IHC), Immunocytochemistry (ICC), Immunofluorescence (IF) on FFPE, frozen tissues and cell preperations.

High Efficiency Procedure

- Patented sweeping cap gap reagent motion results in better sensitivity and reproducibility.
- Three independent slide trays with up to 10 slides for a total capacity of 30 slides.
- Walkaway fully automated staining from deparaffinization to counterstaining.
- Barcoding identification of slides and reagents.
- Each slide is thermally monitored for precise temperature control.
- 650+ IHC, Mohs and IF IVD antibodies, detection systems and ancillaries available.
- Full service professional support network.

Low Reagent Consumption

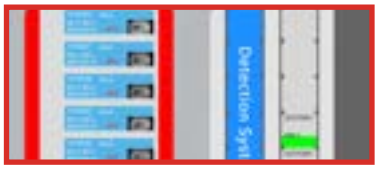
- Low reagent consumption makes tests more cost effective.

Sensitive Detection System

- Unique monomeric anti-mouse and anti rabbit Fab' and micropolymer conjugated to enzymes allow for easier tisue penetration which increase sensitivity and reproducibility.
- Universal IHC micropolymer detection systems, with accurate and reliable detection suitable for all antibodies.

High Performance

- Optimized staining procedures based on different types of antibody properties.
- Real-time operation status monitoring of instruments and slides.
- Teflon coated titanium allow needle to avoid cross contamination.



Left: Easy to operate user interface.

Patented Technology

- Sweeping Cap Gap Reagent Motion technology results in better sensitivity, reproducibility and homogenous signals.
- High quality and consistent results with minimal reagent use.

Bio SB
BIOSCIENCE FOR THE WORLD

TintoDetector — Capillary Gap System for ICC, IHC, CISH & FISH

The Bio SB TintoDetector is a compact molecular pathology system which allows for full implementation of immunohistochemical (IHC), immunocfluorescence (IF), chromogenic in-situ hybridization (CISH) and fluorescent in-situ hybridization (FISH) protocols in your diagnostic laboratory.

The Bio SB TintoDetector is intended for laboratories which require flexibility in their diagnostic needs, yet may not require high volume slide output offered by automated systems, such as the Bio SB TintoStainer.

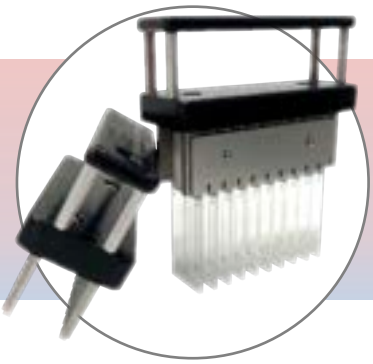
The Bio SB TintoDetector is an open system that allows for the use of any detection system or reagent. The TintoDetector paired with accessories like the Bio SB TintoRetriever pressure cooker and Bio SB TintoDetector slide holder allows laboratories to implement a wide variety of lab protocols at a low cost.

- 8 staining dishes for reagents
- Built in incubator (RT to 110° C)
- 3 temperature presets
- Stainless steel durable construction
- Xylene resistant
- Chromogen resistant
- Small bench footprint
- Supports ICC protocols
- Supports IHC protocols
- Supports CISH protocols
- Supports FISH protocols
- Open System

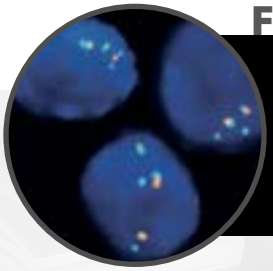
TintoDetector Systems and Accessories

Product Description	Catalog #
TintoDetector Complete System	BSB 7000
TintoDetector Staining System - Without Incubator	BSB 7001
TintoDetector Incubator	BSB 7002
TintoDetector Slide Holder for Cap Gap Slides	BSB 7003
TintoDetector 30-well Reagent Holder (Pack of 5)	BSB 7004
TintoDetector Slide Holder for Hydrophilic Plus Slides	BSB 7035
TintoDetector Absorbent Pads (Box of 10)	BSB 7036

TintoDetector — Capillary Gap System for ICC, IHC, CISH & FISH



Sample TintoDetector Lab Applications

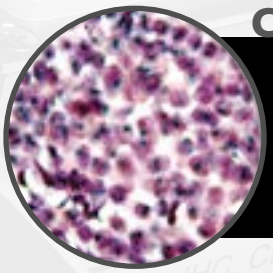


FISH

SPEC ALK/EML4 Tricheck™ Triple color FISH Kit

Bio SB Catalog Number
Z-2117-200

SPEC ALK/EML4 Tricheck™ is an innovative Triple color probe used in the detection of ALK/EML4 rearrangements and translocation on human lung tissue.



CISH

HER2/CEN17 Dual color CISH Kit

Bio SB Catalog Number
C-3032-400

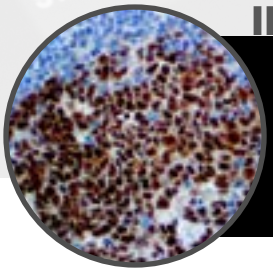
The Dual color HER2/CEN17 CISH kit is used in the detection and amplification of human HER2 gene and alpha satellites of Chromosome 17 on human breast tissue.

ICC

Ki67 Robbit Monoclonal Clone: EP5

Bio SB Catalog Number
BSB 5713

The Bio SB Ki-67 Rabbit monoclonal antibody can be used in both immunocyto-chemical detection of Ki67 protein. In this example, Ki67 is used to determine Ki67 positivity in cell culture derived Caski cells.



IHC

bcl-6 Rabbit Monoclonal Clone: RBT-bcl6

Bio SB Catalog Number
BSB 5083

The bcl-6 rabbit monoclonal antibody is used in the immunohistochemical detection of bcl-6 trascriptional regulator gene on FFPE and frozen specimens.

Bio SB offers a complete line of IHC, ICC, CISH and FISH technologies for the molecular pathology laboratory. Not sure which technologies fit your needs? Contact Bio SB to help you implement the right technologies.

TintoDetector Features and Applications

The Bio SB TintoDetector system is a capillary gap based system which can be used for Immunohistochemistry (IHC), Immunocytochemistry (ICC), ImmunoFluorescence (IF), Fluorescent in-situ hybridization (FISH), and Chromogenic in-situ hybridization (CISH) applications. The TintoDetector is an open system, and reagents from any supplier can be used.

The Bio SB TintoDetector is comprised of several components, which can be found in the diagram below (Figure 1.1). The components of the TintoDetector include…

1. TintoDetector System (Qty: 1) ..... BSB 7000
2. TintoDetector Incubator (Qty: 1) ..... BSB 7002
3. TintoDetector 30-Well Reagent Holder (Qty: 5) ..... BSB 7004
4. TintoDetector Absorbent Pads (Qty: 10) ..... BSB 7036
5. TintoDetector Slide Holder (Qty: 1, See Figure 1.2) ..... BSB 7003
6. Probe On Plus Slides (Box of 72) ..... BSB 7006
7. Probe On Slides (Box of 72) ..... BSB 7007
8. Plastic Staining Dish (Qty: 8) ..... BSB 7009

Figure 1.1

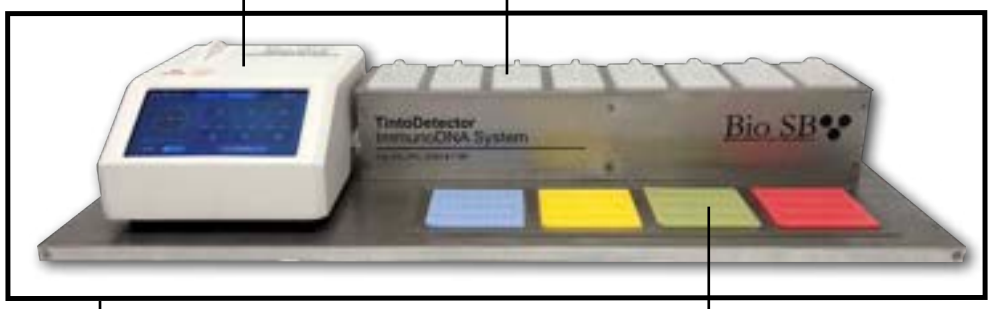


Figure 1.2

TintoDetector Features and Applications

TintoDetector Components

Incubator

See Figure 2.1

The TintoDetector Incubator is capable of reaching temperatures up to 110°C, and is capable of storing 3 temperature presets. The incubator is used to apply varying temperatures typically used in CISH and FISH protocols that involve heat retrieval, denaturing of nucleic acids, probe hybridization, stringency washs, and other steps related to CISH/FISH implementation.

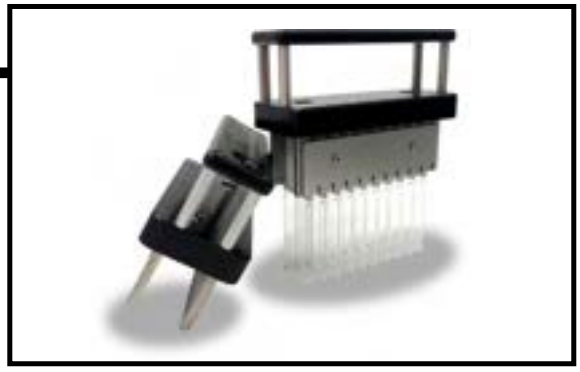
Figure 2.1

TintoDetector Slide Holder

See Figure 2.2

The TintoDetector Slide Holder is an extremely durable capillary gap slide holder that is capable of holding 20 capillary gap slides, and easily fits into the TintoDetector Incubator. The TintoDetector Slide holder can be used for all IHC, ICC, IF, CISH, and FISH applications.

Figure 2.2

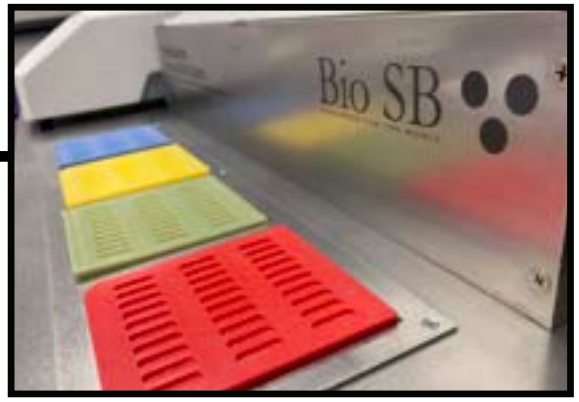


TintoDetector 30 Well Reagent Holder

See Figure 2.3

The TintoDetector 30-Well Reagent Holder allows for the application of up to 200 microliters of reagent to a paired set of slides. The 30-well reagent holders can be used to apply any reagent used in IHC, ICC, IF, CISH and FISH protocols.

Figure 2.3



TintoDetector Features and Applications

TintoDetector Components, Continued

Figure 2.4

Staining Dish Rack

See Figure 2.4

All TintoDetector staining dishes are capable of holding xylene and alcohol as well as any washes, buffers, or special stains for use in IHC, ICC, IF, CISH, and FISH protocols. All staining dishes are capable of holding 200 mL of reagent.

TintoDetector Specifications

TintoDetector Dimensions	36in. x 16in. x 11in. (91cm. x 41cm. x 28cm.)
TintoDetector Weight	31 pounds (14kg)
TintoDetector Incubator Voltage Requirements	110 Volt / 220 Volt
Supported Protocols	IHC, ICC, IF, CISH and FISH

Guidelines

Ensure that TintoDetector is placed in a well ventilated area, as the built in incubator must have access to free air-flow to ensure proper operating temperatures are reached. When operating incubator, ensure that humidity chamber (located on back left of unit) is filled with up to 10 mL of distilled water.

Ensure unit is placed on a level surface.

Always use proper safety guidelines when working with toxic and flammable reagents in your laboratory. All protocols listed within the TintoDetector manual are guidelines only, and are meant as a sample application of the TintoDetector. Always reference the supplier protocol before using the TintoDetector.

TintoDetector Features and Applications

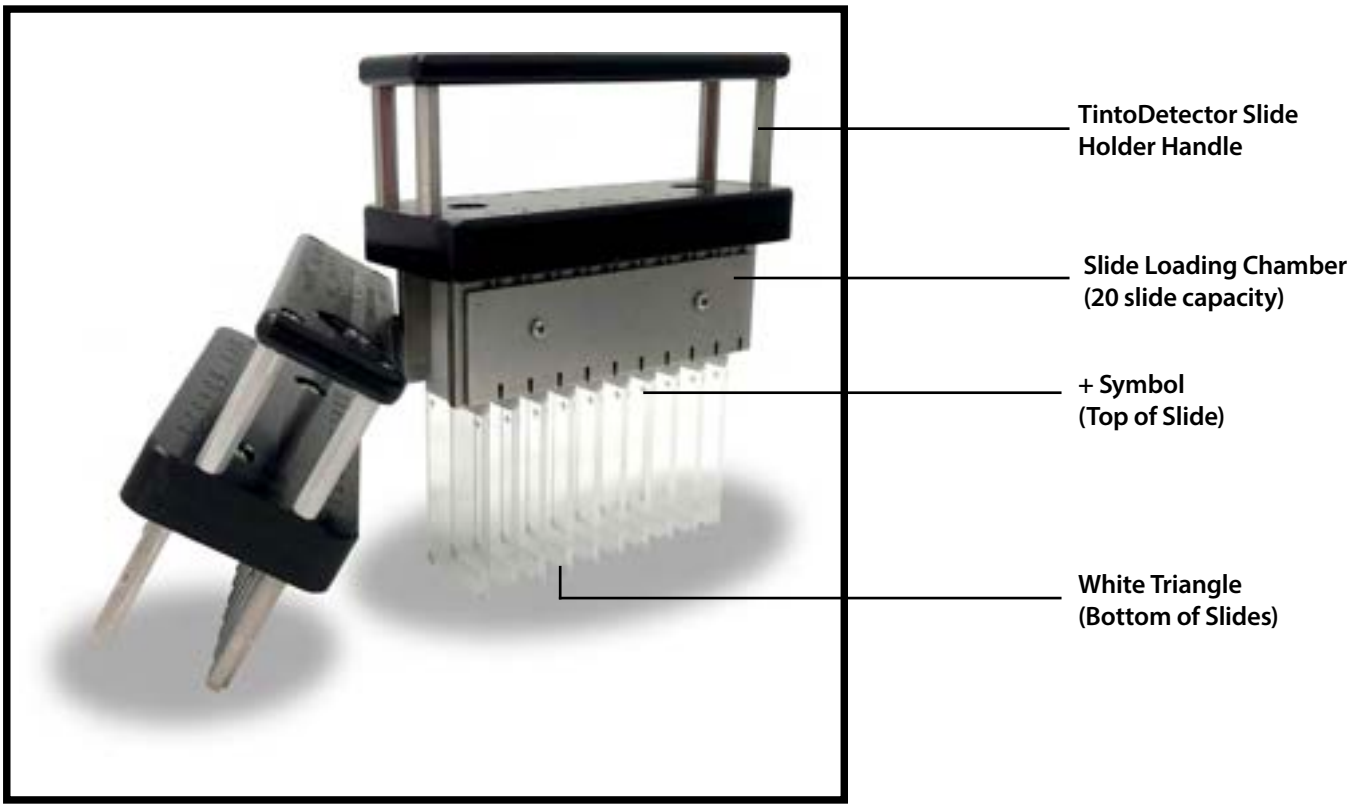
TintoDetector Slide Holder

See Figure 3.2

The TintoDetector System uses a specially designed capillary gap slide with raised white triangles at the bottom of the slide (see figure 3.2). When using the TintoDetector Slide Holder, ensure that the following procedures are followed…

- Slides are paired face to face.
- If a single slide or odd number must be used, pair with a blank slide.
- Insert slides so that portion of slide with white triangle faces downward when unit is held.
- Ensure that Probe On or Probe On Plus Slides are used.
- Ensure all bottom edges of slides are aligned to ensure proper capillary gap action.

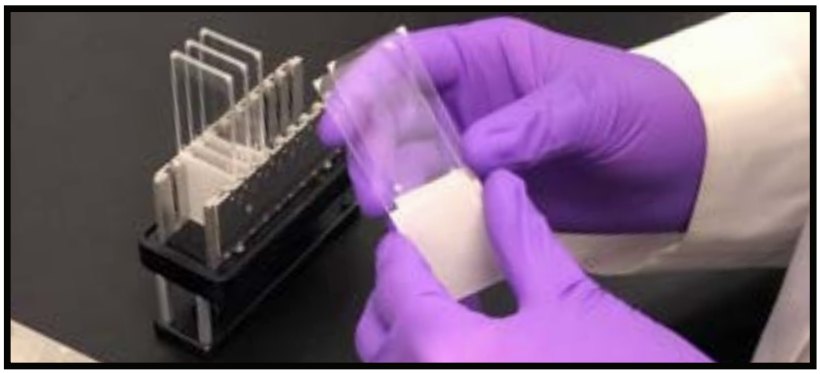
Figure 3.2

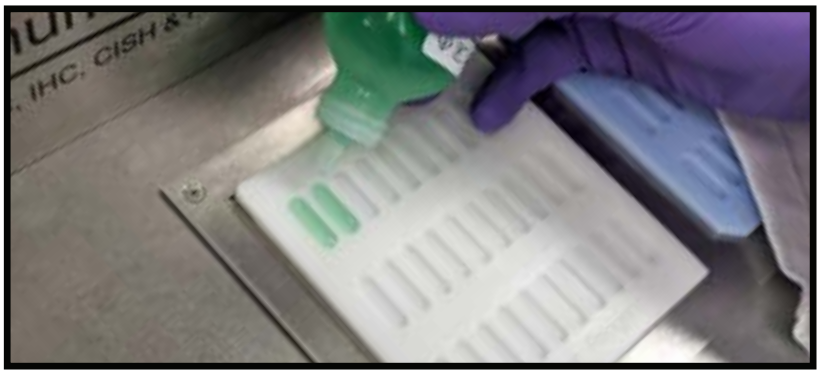


TintoDetector Features and Applications

Step 1 - Slider Holder

Load slides in TintoDetector Holder, face to face and properly ordered. Make sure the raised white traingles are facing each other.



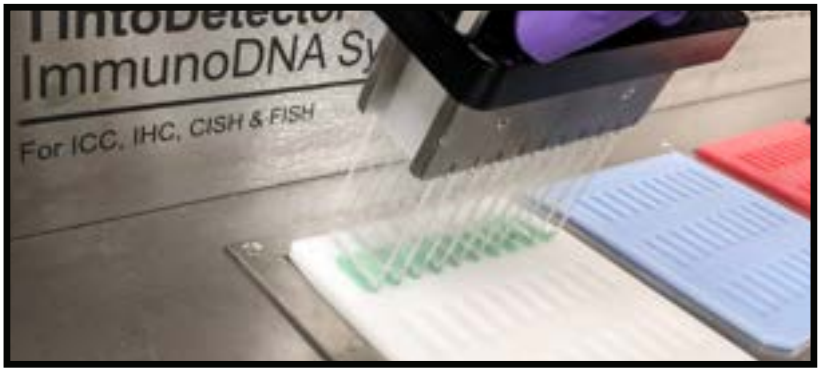


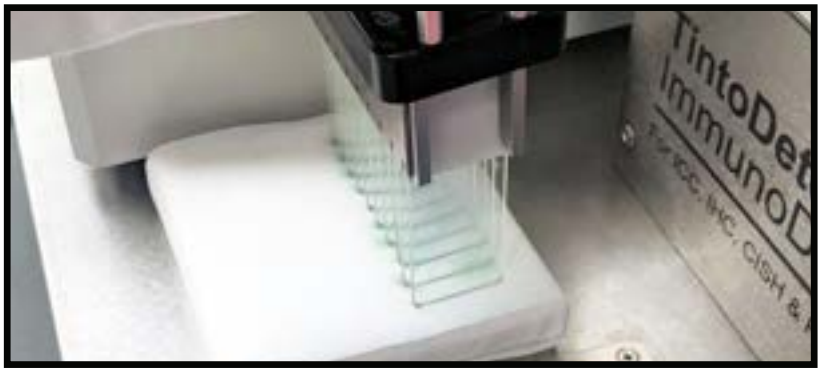
Step 1 - Reagent

Apply reagent to TintoDetector 30-well Reagent Holder. Each reagent well can hold about
200 µl of reagent.

Step 2 - Application

Place TintoDetector slide holder over 30-well reagent holder, ensuring that reagents line up with slides. Press slide holder gently against reagent holder. Capillary gap action will draw reagent. Transfer TintoDetector Slide Holder to Incubator.

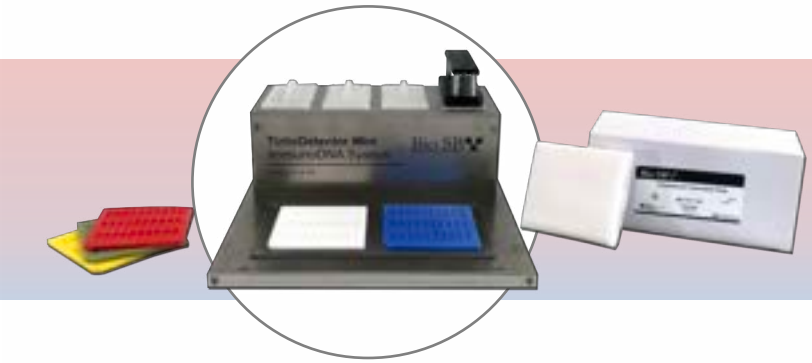




Step 3 - Rinse

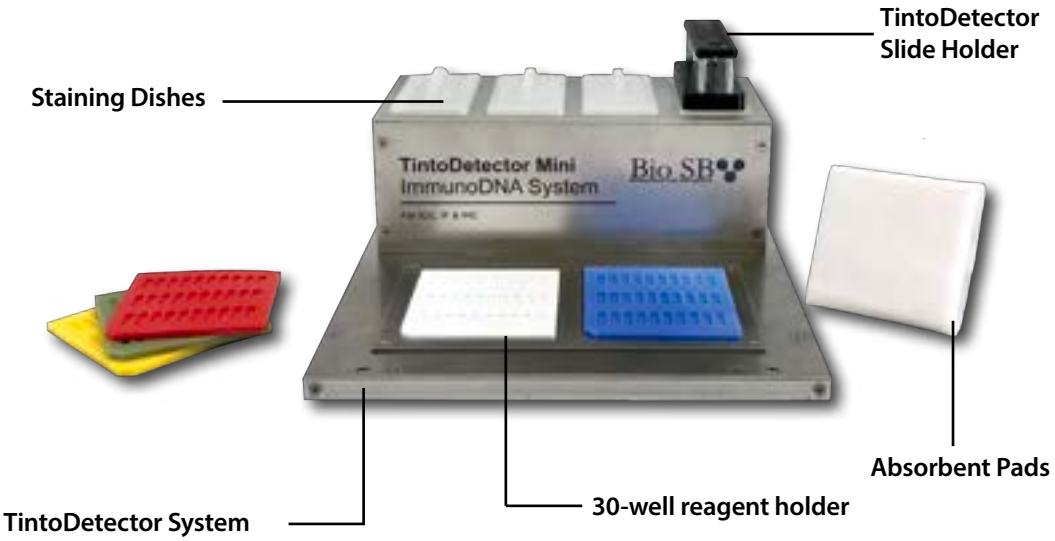
After the reagent incubation, eliminate the used reagent into an absorbent pad by gently pressing the slides on the absorbent pad to drain the liquid. Draw washing buffer into the capillary space and repeat the washing process 3 to 5 times. After washing proceed to draw the next step reagent before another incubation.

TintoDetector Mini



The Bio SB TintoDetector Mini is a compact molecular pathology system which allows for the full implementation of immunohistochemical (IHC), Immunocytochemistry (ICC) and Immunofluorescence (IF) protocols. Ideal for use in diagnostic or research laboratories looking for a cost-effective, semi-automated and open platform.

The Bio SB TintoDetector system consists of a durable stainless steel housing, TintoDetector Slide Handle, four solution dishes, 5 30-well reagent holders and 1 package of TintoDetector Pads. With a compact footprint, ease of use and versatility, the TintoDetector offers flexible protocol implementation at a competitive price.



TintoDetector Mini Systems and Accessories

Product Description	Catalog #
TintoDetector Mini Complete System	BSB 7085
TintoRetriever Pressure Cooker	BSB 7015
TintoDetector Slide Holder for Cap Gap Slides	BSB 7003
TintoDetector 30-well Reagent Holder, Pack of 5	BSB 7004
TintoDetector Abdsorbent Pads, Box of 10	BSB 7036
TintoDetector Cap Gap Plus Slides, Box of 72	BSB 7006

TintoRetriever Pressure Cooker

Affordable, Precision Heat Epitope and Nucleic Acid Retrieval

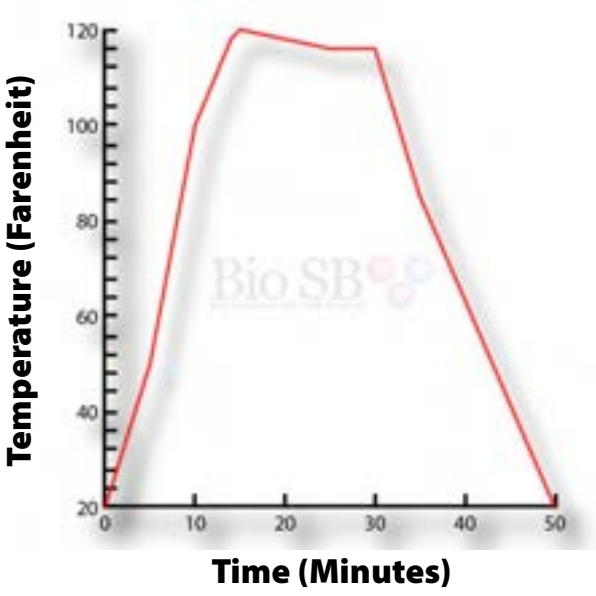
Bio SB Epitope & Nucleic Acid Retrieval

Bio SB presents a wide array of epitope and nucleic acid retrieval solutions for clinical and research pathology labs worldwide. All of our ancillaries and nucleic acid/epitope retrieval solutions are cost effective, quality reagents that are widely accepted in the molecular pathology industry. Additionally all products are manufactured according to ISO 13485:2016 and FDA cGMP 820 guidelines.

Bio SB TintoRetriever Pressure Cooker

The Bio SB TintoRetriever Pressure Cooker is a precision controlled heat source capable of maintaining a constant and reliable temperature while minimizing the potential for evaporation of the working solution. The TintoRetriever Pressure cooker can be used for both ISH and IHC applications.

Most formalin fixed tissues require an antigen or nucleic acid retrieval step prior to immunochemical or insitu hybridization staining. The retrieval process breaks some of the methylene bridges that cross-link proteins and nucleic acids in formalin fixed tissue and allows antibodies or DNA/RNA probes to bind to unmasked epitopes or nucleic acids. Conventional methods of epitope retrieval such as microwaves or water baths lead to non-uniform heat distribution or use a large amount of retrieval solution. The TintoRetriever pressure cooker is a solution for laboratories looking for a comprehensive, cost effective, and reliable retrieval system.



TintoRetriever Pressure Cooker

- Cost effective
- Fast epitope retrieval
- Uniform and reproducible heat retrieval
- Built in temperature gauge for validation
- Supports CISH/FISH nucleic acid retrieval
- Supports IHC, ICC and IF epitope retrieval
- Accessories and replacement parts available!

Above: TintoRetriever Pressure Cooker Bundle, Includes 4 Plastic Staining Dishes, 4 Slide Holders, 1 Staining Dish Support, 200 ml ImmunoRetriever 20X Citrate, 200 ml ImmunoRetirevier 20X EDTA.

TintoRetriever Pressure Cooker Systems

Product Description	Catalog #
TintoRetriever Digital Pressure Cooker **Bundle**	BSB 7015
TintoRetriever Digital Pressure Cooker	BSB 7008

TintoRetriever Pressure Cooker Accessories

Product Description	Catalog #
Staining Dish Support	BSB 7086
Plastic Staining Dish	BSB 7009
Slide Holder, 24 places	BSB 7010
TintoRetriever Slide Thermometers, Pack of 5	BSB 7005

Left: Staining Dish Support, holds 96 slides total!

TintoRetriever Pressure Cooker

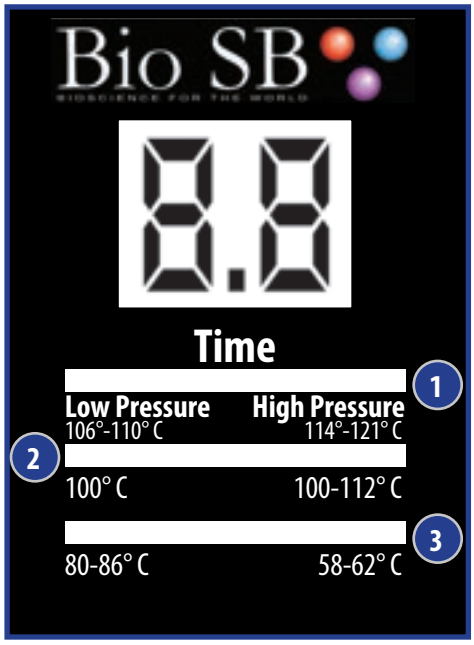
Using the Bio SB TintoRetriever Pressure Cooker in the Laboratory

The TintoRetriever is a rapid epitope and nucleic acid retrieval system which can be used in a variety of applications in the modern pathology lab.

The Bio SB TintoRetriever comes pre-programmed with 6 temperature settings that can be used for deparaffinization, epitope retrieval, or nucleic acid retrieval (ISH).

IHC Epitope Retrieval & ISH Nucleic Acid Retrieval 1

For formalin-fixed paraffin-embedded (FFPE) tissue sections, the High Pressure setting with a time of 15 minutes is recommended for thorough heat permeabilization of tissue. We recommend using Bio SB Immuno/DNA Retriever with Citrate or Immuno/DNA Retriever with EDTA for IHC/ISH protocols.



Tissue Microarrays 2

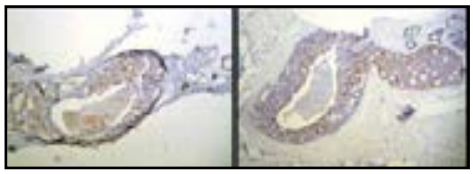
Tissue Microarrays (or TMA's) typically need gentler epitope retrieval methods than those used with whole tissue sections. At Bio SB, our 11-core NH-TMA (BSB 0297) and 23-core NH-TMA's (BSB 0298) undergo epitope retrieval using the 100°C Setting. Additionally, the Bio SB TintoRetriever PT module has gentler epitope retrieval settings (BSB 7030), and may be ideal for labs that utilize TMA's.

Deparaffinization, Retrieval and Hydration#1 or #2 3

For non-toxic deparaffinization, retrieval and hydration, we recommend the Bio SB TintoDeparaffiinator Citrate or EDTA 20X, as substitutes of solvents lile xylenes, toulenes and alcohols.

Tissues prone to detachment

Should tissues detach after using the "High Pressure" setting, it is recommended that tissues are mounted using Bio SB Hydrophilic Plus Slides (BSB 7028). Hydrophilic Plus Slides prevent tissue detachment while promoting reagent dispersion.



Tissue Detachment on a Hydrophobic Slide (Left) vs. Hydrophilic Slide (Right)

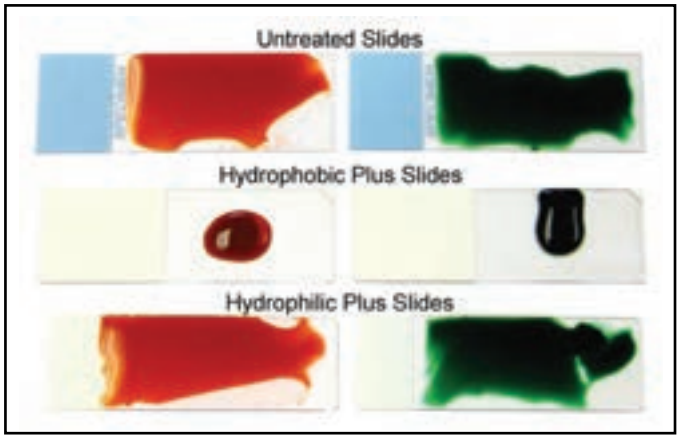
Hydrophilic Plus Slides for Molecular Pathology

The Hydrophilic Plus Slides are novel positively charged hydrophilic slides that prevent tissue detachment after thermal permeabilization and prior to IHC, ICC, CISH or FISH protocols.

- The Hydrophilic Plus glass slides carry approximately three-times the number of positive charges compared to the commercial positively-charged slides
- The Hydrophilic Plus glass slides are strongly hydrophilic
- The Hydrophilic Plus glass slides display improved tissue-adhesion characteristics compared to other commercially available slides
- All commercially available positively-charged microscope slides were found to be hydrophobic.

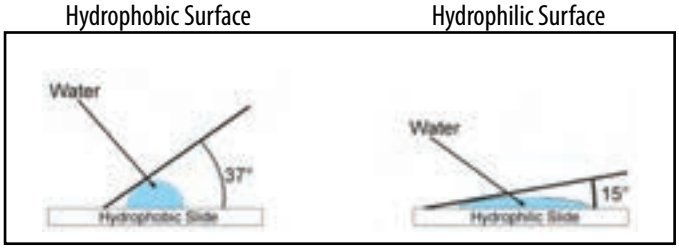
Characteristics of Hydrophilic Slides

Water Distribution and Surface Contact Angles for Untreated, Hydrophobic and Hydrophilic Slides



A 200ul drop of colored TBS was spread over the total working area of the different microscope slides (estimated at 1100mm^2). The TBS spread over 85% of the working surface of untreated microscope slides and over 86.5% of the Bio SB Hydrophilic Plus slides.In contrast, TBS was only able to cover 15% of working surface of the Prob On Plus slides. These results demonstrated the hydrophilic nature of the Hydrophilic Plus slide surface.

WATER TO SLIDE SURFACE CONTACT ANGLE

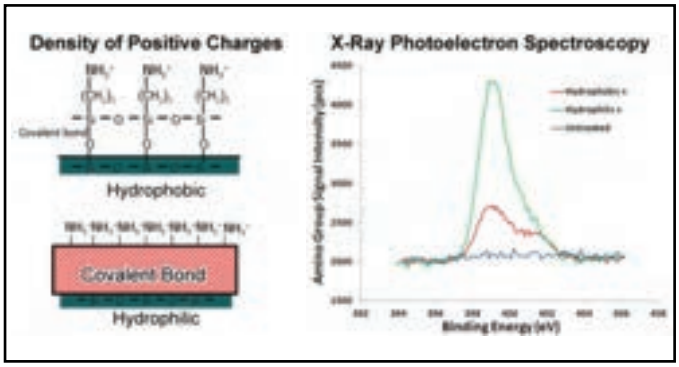


Hydrophobicity and hydrophilidity were assessed by measuring the contact angles of water drops on microscope slide surfaces; the smaller the contact angle, the greater the hydrophilicity. Image analyses of contact angles produced the following results:

- Color Frost (untreated) contact angles: 24.90+/- 2.170
- Probe On Plus (positively charged) contact angles: 37.80 +/- 2.330.
- Hydrophilic Plus slides contact angles:15.80 +/- 0.70

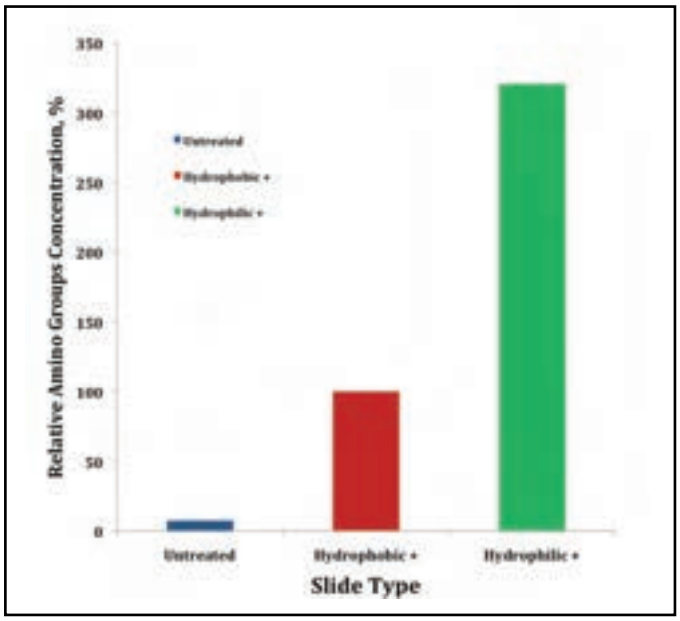
Results showed that the Hydrophlic Plus slides had significantly smaller contact angles.

Density of Positive Charges and Intensity of Amino Groups on Non-charged, Hydrophobic and Hydrophilic Slides Measured by X-Ray Photoelectron Spectroscopy



Hydrophilic Plus Slides for Molecular Pathology

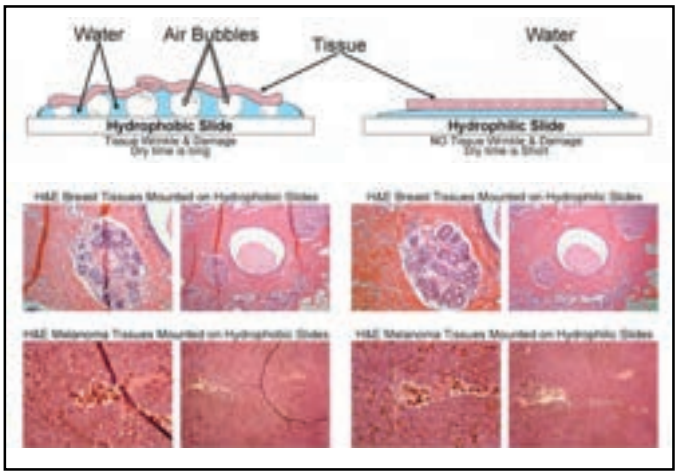
Relative Percentage of Amino Groups on Untreated Hydrophobic and Hydrophilic Slides Measured by X-Ray Photoelectron Spectroscopy



Hydrophilic Plus Slides are prepared by covalent coupling of positively charged amino groups directly to the slide. The relative concentration of amino groups on various slides was measured by X-ray spectroscopy. Results showed that Hydrophilic Plus slides contained approximately 3-times the number of amino groups compared to hydrophobic slides and greater than 30-times the number of amino groups measured on untreated slides. The high density of amino groups confers hydrophilic properties to the coated slides.

The highest density of positive charges on the surface of hydrophilic slides increases their wetting ability when compared to standard hydrophobic positively charged slides. Increased hydrophilic interaction on the slide surface reduces nonspecific adsorption of hydrophobic agents, and improves tissue adhesion to the slides.

Water and Air Bubbles Trapping, Tissue Damage and Wrinkling after Mounting Tissues on Hydrophobic and Hydrophilic Slides



Reduced water to slide surface contact angles for hydrophilic slides (when compared to a standard hydrophobic charged slides) allows water to form a single thin continuous layer rather than a layer of water drops separated by air bubbles. This prevents micro air bubbles from being captured under tissue sections and in turn reduces the development of possible artifacts, such as bubbles or water drops, which can interfere with tissue attachment to the slide. Generally, a more uniform and thinner layer of water under the cut tissue section results in less trapping of bubbles and tissue wrinkling, and facilitates faster drying after mounting on Hydrophilic Plus slides.

Percentage of Average Tissue Retention and IHC Signal with the Different Experimental Slides

Slide Name	Brand	Tissue Retention	IHC Signal Background
Hydrophilic Plus	Bio SB, Inc	90 - 100%	3- 4 / +
Superfrost Plus	Company A	10- 50%	3- 3+ / +
Probe On Plus	Company A	10- 50%	3- 3+ / +
Color Mark	Company B	5 - 40%	3- 3+ / +
Snow Coat X-tra	Company C	5 - 30%	3- 3+ / +
Silanized	In-House	5 - 40%	3- 3+ / +

Tissue adhesion after was measured on various types of microscope slides. The results showed that Hydrophilic Plus slides had the highest percentage of tissue retention (90-100%).

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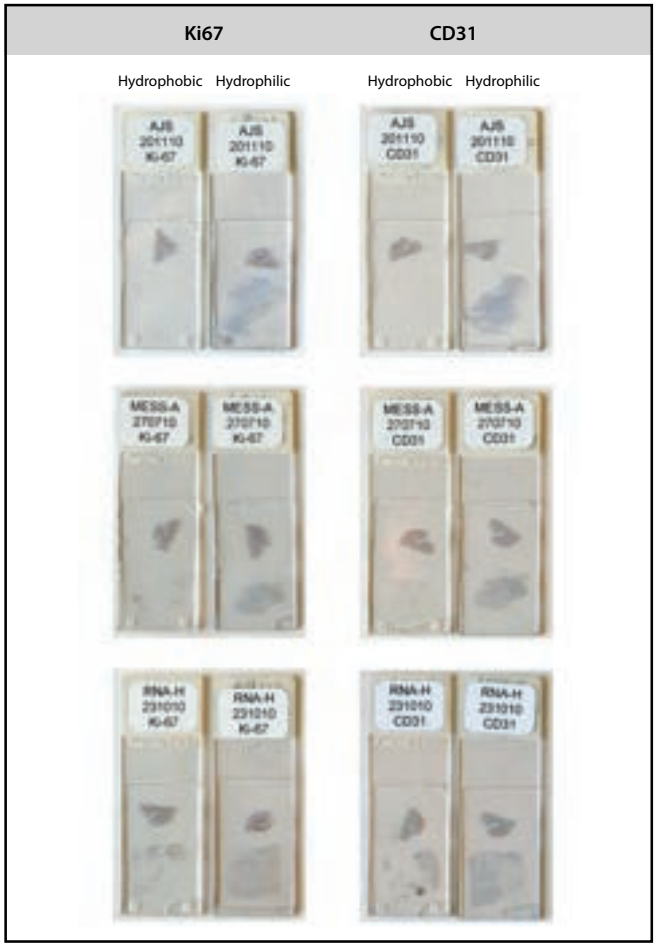
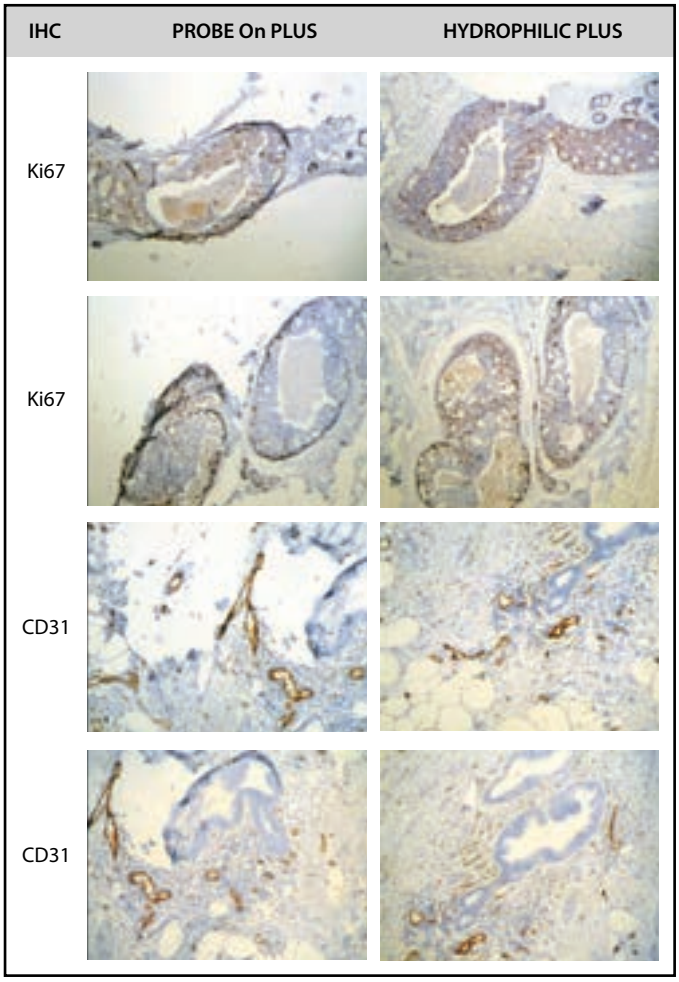
Hydrophilic Plus Slides for Molecular Pathology

Macroscopic Comparison of Tissue Retention and IHC of Ki67 and CD31 Using ColorMark and Hydrophilic Plus Slides



Stable and strong adhesion of biological samples to microscope slide surfaces is important in achieving successful sample preparation and staining. Untreated glass surfaces or positively-charged modified surfaces of microscope slides often do not provide strong enough retention for some biological samples. This can lead to a full or partial sample loss or sample deformation. The Hydrophilic Plus Slides with highly positively charged hydrophilic surfaces, have shown to be superior to other slides with traditional hydrophobic positively charged surfaces for tissue retention.

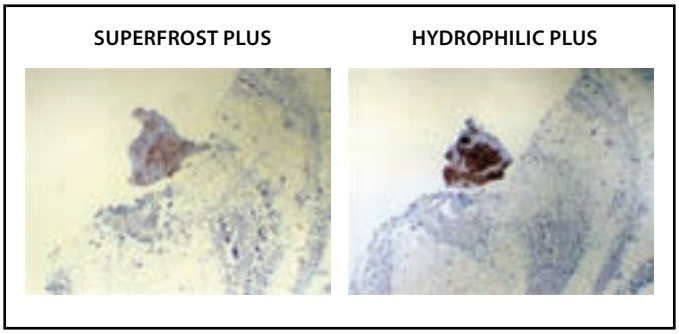
Microscopic Comparison of Tissue Retention and IHC of Ki67 and CD31 Using Probe On Plus and Hydrophilic Plus Slides



Our studies have shown that the Hydrophilic Plus Slides are suitable for IHC, ICC, CISH and FISH and are superior in their capacity to retain tissues that otherwise tend to detach from slides after thermal antigen retrieval procedures. In general, 90 to 100% of tissues that were damaged or detached from traditional hydrophobic slides were fully retained by the hydrophilic slides without affecting tissue morphology and the quality of IHC signals.

Hydrophilic Plus and Cap Gap Plus Slides for Molecular Pathology

Microscopic Comparison of IHC Signal Intensity of Melanoma HMB-45 on Superfrost Plus and Hydrophilic Plus Slides



An interesting and unexpected observation surfaced during the course of our studies – IHC signals were more intense when using Hydrophilic Plus Slides. Although the reasons for this finding are unknown, we are investigating the possibility that hydrophilic surfaces improve efficiencies of immunological reactions.

Hydrophilic Plus Slides are very effective tools in handling tissues that are likely to sustain damage, loss, or detachment after thermal antigen retrieval procedures.

Hydrophilic Plus Slides have shown to be reliable and superior alternatives to other slides with traditional hydrophobic positively charged surfaces, and are another effective tools when handling tissues that tend to get damaged, lost, or detached after thermal antigen retrieval procedures prior to IHC, ICC, CISH and FISH procedures.

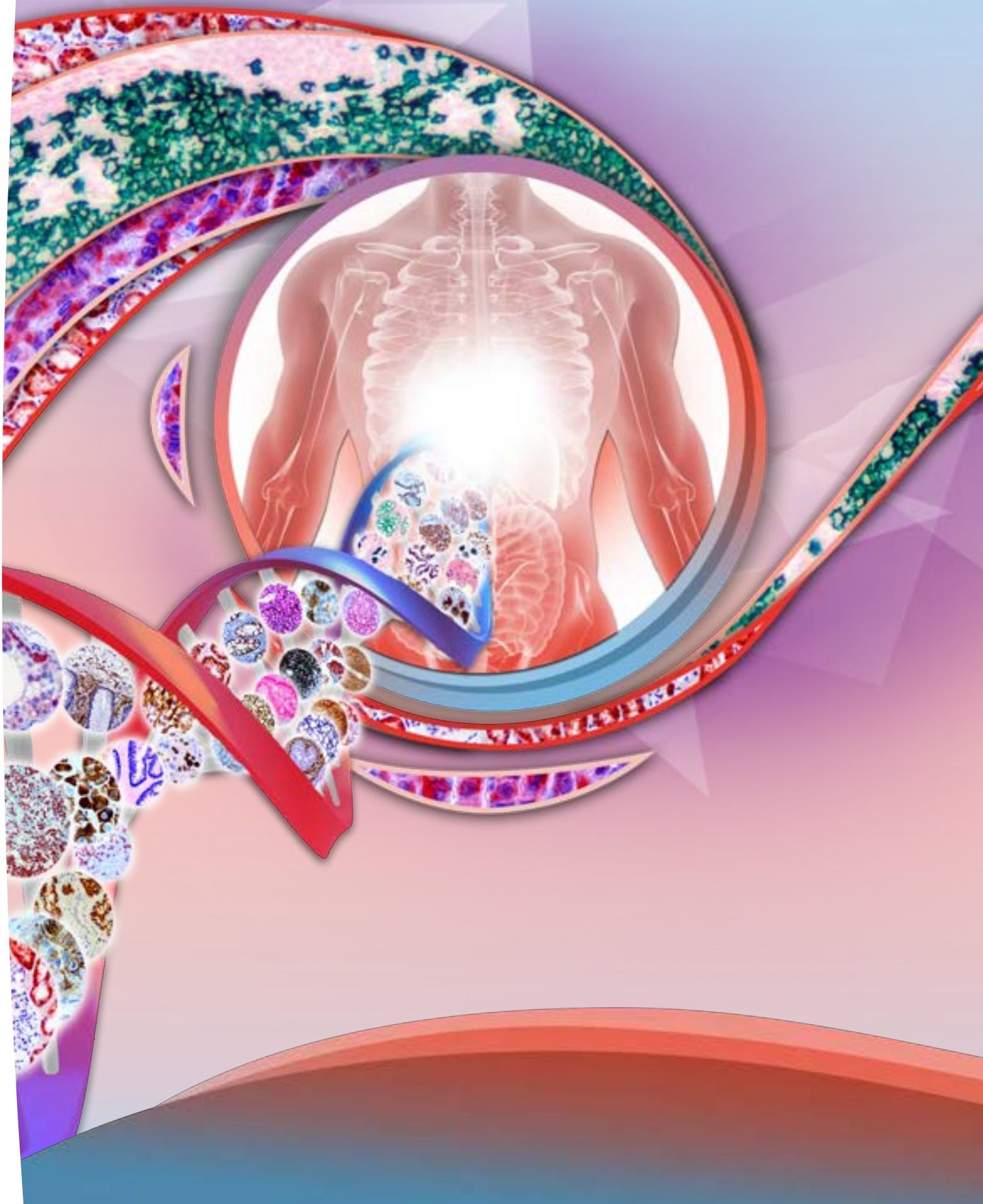
Hydrophilic Plus Slides & TintoDetector Cap Gap Plus Slides

Product Description	Catalog #
Hydrophilic Plus Slides (Box of 100)	BSB 7028
TintoDetector Cap Gap Plus Slides (Box of 72)	BSB 7006

The Bio SB TintoDetector Cap Gap Plus Slides are novel positively charged hydrophilic slides that prevent tissue detachment after thermal permeabilization and can be used to mount and process IHC, ICC, FISH and CISH samples for use in the TintoDetector Cap Gap System (BSB 7000). Bio SB TintoDetector Cap Gap Plus Slides feature a 75 µm raised triangle on the bottom corners of the slide that creates a150 µm gap when placed face-to-face in the TintoDetector Cap Gap Slide Holder (BSB 7003).

The Bio SB TintoDetector Cap Gap Plus Slides are prepared by covalent coupling of positively charged groups directly to the slide surface. The Bio SB TintoDetector Cap Gap Plus Slides carry approximately three times the number of surface-bound positive charges compared to other commercially available positively charged slides.

This results in significantly improved tissue-adhesion characteristics, facilitates uniform/reproducible staining, reduces staining artifacts/background and allows better capillary flow of aqueous reagents and solutions.



Molecular Pathology Technical Reference

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
A-1-Antichymotrypsin	RMab	EP384	IgG	Purified human a-1-antichymotrypsin	Human	
A-1-Antichymotrypsin	RPab	Polyclonal	IgG	A synthetic peptide corresponding to residues of human Alpha1-Antichymotrypsin protein	Human	
A-1-Antitrypsin	RPab	Polyclonal	IgG	Purified human serum Alpha-1-Antitrypsin	Human, Baboon, Equine, Mink	
ACE2	MMab	BSB-135	IgG1	Synthetic Peptide corresponding the C-terminal of ACE2 of human origin	Human, Mouse, Rat	
ACTH	MMab	BSB-25	IgG1/K	Synthetic peptide corresponding to the N-Terminus of human ACTH	Human	
Actin Muscle Specific	MMab	HHF35	IgG1/K	SDS extract of human myocardium	Human	
Actin Smooth Muscle	MMab	BSB-15 (ASM/H12)	IgG2a/K	Synthetic peptide corresponding to the N-terminus of human smooth muscle actin	Human, Mouse, Rabbit, Dog, Cat, Rat, Sheep, Pig	
Adenovirus	MMab	20/11 and 2/6	IgG1/K	Adeno 3	Human	
Adipophilin/ADRP	MMab	BSB-91	IgG1	Synthetic peptide corresponding to the C-terminus of human Adipophilin	Human	
Albumin	RPab	polyclonal	IgG	Recombinant protein corresponding to the N-terminus of the human serum albumin protien.	Human	
ALDH1A1	RMab	EP168	IgG	Synthetic peptide corresponding to residues of human Aldh1A1 protein	Human	
ALK-1/CD246	RMab	EP302	IgG	A synthetic peptide corresponding to residues of human NPM-ALK fusion protein	Human, Predicted: Mouse, Rat	
ALK-1/CD246	RMab	RBT-ALK1	IgG	Recombinant protein corresponding to the tyrosine kinase catalytic region of the human ALK protein	Human	
Alpha Synuclein	MMab	BSB-114	IgG2a/K	Recombinant protein of the human alpha synuclein	Human	
Alpha-Fetoprotein	RMab	EP209	IgG	Synthetic peptide corresponding to residues of the human Alpha-Fetoprotein	Human	
Alpha-Fetoprotein	MMab	BSB-23	IgG2a/K	Synthetic peptide corresponding to amino acids 199-161 of human alpha-fetoprotein	Human	
AMACRacemase/P504S	RMab	13H4	IgG	Synthetic peptide corresponding to the human p504s/AMACR protein	Human	
Amyloid A	RMab	EP335	IgG	A synthetic peptide corresponding to residues of human Serum Amyloid A protein	Human	
Amyloid Beta	RMab	RBT-A4	IgG	Synthetic peptide corresponding to the C-terminus of the human Amyloid Beta protein	Human, Mouse, Rat	
Androgen Receptor	MMab	BSB-4 (AR-D12)	IgG1	Synthetic peptide corresponding to residues in the N-terminus of human Androgen Receptor protein	Human	
Annexin A1	MMab	BSB-95	IgG2b	Recombinant Human Annexin A1	Human, Rat	
Annexin VII	RMab	EP367	IgG	Recombinant human Annexin VII protein	Human, Mouse, Rat	
Arginase-1	RMab	EP261	IgG	Synthetic peptide corresponding to residues of the human ARG-1 protein	Human	
ARID1A	RMab	EP303	IgG	A synthetic peptide corresponding to residues of human ARID1A (BAF250a) protein	Human, Mouse, Rat	
ATM	RMab	EP327	IgG	Synthetic peptide corresponding to residues of the human ATM protein	Human	
ATRX	MMab	BSB-108	IgG2a/K	Synthetic peptide corresponding to the C-terminus of the human ATRX protein	Human, Mouse, Rat	
ATRX	RMab	RBT-ATRX	IgG	Recombinant human ATRX protein	Human, Mouse, Rat	
Aurora B	RMab	RM278	IgG	Synthetic peptide corresponding to the N-terminus of human Aurora kinase B	Human	
B7H3/CD276	RMab	RBT-B7H3	IgG	Synthetic peptide conjugated to KLH corresponding to the C-terminal residues of the human B7H3/CD276 protein	Human, Predicted: Mouse	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Tonsil, Lymph Node, Thymus, Spleen, Liver, Colon	Cytoplasmic	1:50-1:200	Leukemia & Histiocytic, Liver Cancer
	Tonsil, Lymph Node, Thymus, Breast	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Liver Cancer
	Tonsil, Lymph Node, Spleen, Pancreas, Myometrium	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Liver Cancer
	Kidney, Testis, Brain, Colon, Fallopian tube	Membranous, Cytoplasmic	1:25-1:100	Infectious Disease, Breast Cancer, Lung Cancer, Prostate Cancer, Liver Cancer, Kidney & Urotelial Cancer, Colon & G.I. Cancer
	Normal Pituitary	Cytoplasmic	1:250-1:1000	Pituitary, Neural & Neuroendocrine Cancer
	Skeletal Muscle, Appendix, Prostate	Cytoplasmic	1:50-1:200	Sarcoma & Soft Tissue, Undifferentiated Tumor
	Appendix, Uterus	Cytoplasmic	1:250-1:1000	Breast Cancer, Colon & GI Cancer, Sarcoma & Soft Tissue
	Adenovirus Infected Tissue	Cytoplasmic, Nuclear	1:25-1:100	Infectious Diseases
	Adrenal, SCC, TCC and Sebaceous Neoplasms	Membranous, Cytoplasmic	1:50-1:200	Melanoma & Skin Cancer
	Salivary Gland, Kidney, Tonsil, Lupus Erythematosus	Cytoplasmic	1:50-1:200	Rejection & Autoimmunity
	Kidney, Liver, Testis, Colon Cancer, Breast Cancer	Cytoplasmic	1:100-1:500	Ovarian Cancer, Prostate Cancer, Breast Cancer, Colon & GI Cancer, Lymphoma, Leukemia & Histiocytic, Sarcoma & Soft Tissue, Endothelial
	Anaplastic Large Cell Lymphoma	Cytoplasmic, Nuclear	1:50-1:200	Lymphomas, Lung Cancer
	Anaplastic Large Cell Lymphoma	Cytoplasmic, Nuclear	1:100-1:500	Lymphomas, Lung Cancer
	Brain, Breast, Skin, Tonsil, Bone Marrow, Alzheimer's Disease, Parkinson's Disease	Cytoplasmic, Nuclear	1:25-1:100	Neural & Neuroendocrine Cancer
	Fetal Liver, Liver Lesions, Hepatocellular Carcinoma	Cytoplasmic	1:50-1:200	Germ Cell Tumor, Liver Cancer, Undifferentiated Tumor
	Fetal Liver, Liver Lesions, Hepatocellular Carcinoma	Cytoplasmic	1:100-1:500	Germ Cell Tumor, Liver Cancer, Undifferentiated Tumor
	Kidney, Liver, Salivary Gland, Prostate Lesions, Prostatic Adenocarcinoma	Cytoplasmic	1:25-1:100	Prostate Cancer, Kidney & Urotelial Cancer
	Kidney, Amyloidosis	Extracelular, Cytoplasmic	1:50-1:200	Kidney & Urotelial Cancer, Rejection & Autoimmunity
	Testis, Kidney, Pancreas, Salivary Galnd, Alzheimer's Disease	Cytoplasmic, Nuclear	1:50-1:200	Neural & Neuroendocrine Cancer
	Prostate, Testis, Breast, Cervix, Fallopian Tube, Prostatic Adenocarcinoma	Nuclear	1:100-1:500	Prostate Cancer, Breast Cancer, Head & Neck Cancer
	Liver, Tonsil, Spleen, Thymus, Lung, Colon, Hairy Cell Leukemia	Cytoplasmic, Membranous	1:100-1:500	Leukemia & Histiocytic
	Breast, Colon, Kidney, Tonsil. Prostate, Testis, Transitional Cell Carcinoma	Nuclear, Cytoplasmic, Membranous	1:50-1:200	Breast Cancer, Prostate Cancer, Liver Cancer, Colon & G.I. Cancer
	Liver, Hepatocellular Carcinoma	Cytoplasmic, Nuclear	1:50-1:200	Liver Cancer, Carcinoma of Unknown Primary Site
	Breast, Fallopian Tube, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Nuclear	1:25-1:100	Ovarian Cancer, Breast Cancer, Colon & G.I. Cancer
	Fallopian Tube, Brain, Colon, Breast, Testis, Tonsil, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Nuclear	1:50-1:200	Breast Cancer, Gastric Cancer, Lung Cancer, Lymphoma, Leukemia & Histiocytic
	Breast, Tonsil, Testis, Salivary Gland, Placenta, TCC, Astrocytoma	Nuclear	1:50-1:200	Neural & Neuroendocrine Cancer
	Breast, Tonsil, Testis, Salivary Gland, Placenta, TCC, Astrocytoma	Nuclear	1:50-1:200	Neural & Neuroendocrine Cancer
	Tonsil, Colon, Stomach, Skin, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Nuclear	1:50-1:200	Prostate Cancer, Breast Cancer, Colon and GI Cancer, Thyroid & Parathyroid Cancer, Neural & Neuroendocrine Cancer, Lung Cancer, Liver Cancer
	Testis, Adrenal, Tonsil, Breast, Fallopian Tube, Breast Carcinoma, Prostate Carcinoma and Ovarian Carcinoma	Membranous	1:25-1:100	Melanoma & Skin Cancer, Prostate Cancer, Gall Bladder & Pancreatic Cancer, Breast Cancer, Immunotherapy

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
BAP1	MMab	BSB-109	IgG1	Synthetic peptide corresponding to the C-terminus of the human BAP1 protein	Human, Mouse, Rat	
Bax	RMab	E63	IgG	Synthetic peptide within Human Bax aa 1-100 (N terminal)	Human	
BCA-225	MMab	Cu-18	IgG1/K	BCA 225 protein secreted by the T47D (clone 11) human breast carcinoma cell line	Human	
bcl-10	MMab	BSB-22	IgG1/K	Recombinant human bcl-10 protein	Human	
bcl-2	MMab	BSB-5 (BCL2/A4)	IgG1/K	Synthetic peptide corresponding to residues in the N-terminus of the human bcl2 protein	Human	
bcl-2	RMab	EP36	IgG	Synthetic peptide corresponding to residues between BH3 and BH4 of human Bcl-2 protein	Human, Predicted: Mouse	
bcl-6	RMab	RBT-bcl6	IgG	Synthetic peptide corresponding to residues of the C-terminus of the human bcl-6 protein	Human	
bcl-6	RMab	EP278	IgG	Synthetic peptide corresponding to residues in human bcl6 protein	Human, Predicted: Mouse, Rat	
bcl-6	MMab	BSB-26	IgG1	Synthetic peptide corresponding to residues of the C-terminus of the human bcl-6 protein	Human	
Bcl-x	RMab	EP94	IgG	Synthetic peptide corresponding to residues in human Bcl-x protein	Human, Predicted: Mouse, Rat	
BCOR	MMab	BSB-128	IgG1/K	Synthetic peptide corresponding to residues of the N-terminus of the human BCoR protein	Human	
Beta-Catenin	RMab	RM276	IgG	A peptide corresponding to human Beta-Catenin.	Human, Predicted: Mouse, Rat, Sheep, Hamster, Cow, Macaque Monkey, African Green Monkey	
Beta-Catenin	MMab	14	IgG1	Synthetic peptide conjugated to KLH derived from within residues 750 to the C-terminus of Human beta catenin	Human, Dog, Mouse, Rat, Chicken	
BG8 LewisY	MMab	F3	IgM	SK-LU-3 lung cancer cell line (Human)	Human	
BOB.1	RMab	RBT-BOB1	IgG	Synthetic peptide corresponding to residues of the human BOB.1 protein	Human	
Brachyury	RMab	RBT-TBXT	IgG	Synthetic peptide corresponding to the C-terminus of the human brachyury protein	Human	
BRAF V600E	RMab	RM8	IgG	A peptide corresponding to BRAF V600E mutant	Human	
BRG-1/SMARCA4	MMab	BSB-154	IgG1	Synthetic peptide corresponding to the N-terminus of the human Brg-1 protein	Human, Mouse, Rat	
C1q	RPab	Polyclonal	IgG	KLH conjugated synthetic peptide corresponding to the C-terminus region of human C1QA.	Human	
C3c	RPab	Polyclonal	IgG	Purified C3c protein isolated from normal human serum.	Human	
C3d	RPab	Polyclonal	IgG	Purified full length native protein corresponding to the human C7 protein	Human	
C4c	RPab	Polyclonal	IgG	Recombinant protein corresponding to the human Complement Component 4c protein.	Human	
C4d	RMab	EP272	IgG	Prokaryotic recombinant protein corresponding to the C4d protein	Human	
CA-125	MMab	OC125	IgG1/K	Partially purified human mucin fraction from a pool of tissues from patients with epithelial ovarian cancer	Human	
CA-125	RMab	EP48	IgG	Synthetic peptide corresponding to residues of the human CA125 protein	Human	
CA15-3	MMab	DF3	IgG1/K	Membrane enriched fractions of human metastatic breast carcinoma	Human	
CA19-9	MMab	121SLE	IgM	Purified mucins from ovarian cyst	Human	
Cadherin17/LI-Cadherin	RMab	EP86	IgG	Synthetic peptide corresponding to residues of the human LI-Cadherin protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Testis, TCC, Mesothelioma	Nuclear	1:50-1:200	Mesothelioma, Lung Cancer, Melanoma & Skin Cancer, Kidney & Urotelial Cancer
	Breast, Tonsil, Cervix, Hodgkin's Lymphoma	Cytoplasmic , Cell Membranous	1:50-1:200	Breast Cancer, Ovarian Cancer, Lung Cancer
	Breast, Lung, Uterus, Cervical Carcinoma	Cytoplasmic	1:25-1:100	Breast Cancer, Cytopathology
	Tonsil, Spleen, Thymus, MALT Lymphomas	Cytoplasmic, Nuclear	1:100-1:500	Lymphoma, Gall Bladder & Pancreatic Cancer
	Tonsil, Lymph Node, Breast, Bone Marrow, Fallopian Tube	Cytoplasmic, Membranous	1:50-1:200	Lymphoma, Endometrial & Genital Cancer, Prostate Cancer, Breast Cancer, Lung Cancer
	Tonsil, Lymph Node, Breast, Placenta, Fallopian Tube	Cytoplasmic, Membranous	1:50-1:200	Lymphoma, Endometrial & Genital Cancer, Prostate Cancer, Breast Cancer, Lung Cancer
	Tonsil, Lymph Node, Thymus, Skin, Breast, Brain, Follicular Lymphoma	Nuclear	1:50-1:200	Hodgkin's and NHD Lymphoma, Lymphoma, Gall Bladder and Pancreatic Cancer
	Tonsil, Follicular Lymphoma	Nuclear	1:25-1:100	Hodgkin's and NHD Lymphoma, Lymphoma, Gall Bladder and Pancreatic Cancer
	Tonsil, Lymph Node, Thymus, Skin, Breast, Brain, Follicular Lymphoma	Nuclear	1:50-1:200	Hodgkin's and NHD Lymphoma, Lymphoma, Gall Bladder and Pancreatic Cancer
	Kidney, Tonsil, Cervix, Hodgkin's Lymphoma	Cytoplasmic, Membranous	1:250-1:1000	Breast Cancer
	Testis, Cervix, Prostate, TCC, Angiosarcoma	Nuclear	1:10-1:25	Sarcoma & Soft Tissue
	Fibromatosis of the Breast & Abdomen. Breast, Abdomen, Colon, Testis, Pancreas	Cytoplasmic, Membranous, Nuclear	1:50-1:200	Breast Cancer, Colon & Gastrointestinal Cancer, Liver Cancer, Gall Bladder & Pancreatic Cancer, Sacoma & Soft Tissue
	Fibromatosis - Breast Ca/Abdomen	Cytoplasmic, Membranous, Nuclear	1:50-1:200	Breast Cancer, Colon & GI Cancer, Liver Cancer, Gall Bladder & Pancreatic Cancer, Sacoma & Soft Tissue
	Placenta, Tonsil, Pancreas, Cervix, Bladder TCC, Lung Adenocarcinoma	Cytoplasmic	1:10-1:50	Lung Cancer, Mesothelioma
	Tonsil, Lymph Node	Cytoplasmic, Nuclear	1:250-1:1000	Hodgkin's and NHD Lymphoma
	Pituitary, Brain, Chordoma	Cytoplasmic	1:25-1:100	Neural & Neuroendocrine Cancer, Liver Cancer
	BRAF 600E Mutated Melanoma, Papillary Thyroid Cancer	Cytoplasmic	1:50-1:200	Thyroid & Parathyroid Cancer, Colon & GI Cancer, Melanoma & Skin Cancer,
	Colon, Kidney, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Nuclear	1:25-1:100	Lung Cancer, Ovarian Cancer, Breast Cancer, Melanoma & Skin Cancer, Colon & GI Cancer, Prostate Cancer
	Kidney, Cervix, Spleen, Lupus Erythematosus	Cytoplasmic	1:25-1:100	Rejection & Autoimmunity
	Placenta, Kidney, Fallopian Tube, Lupus Erythematosus	Cytoplasmic	1:50-1:200	Rejection & Autoimmunity
	Kidney Transplant Rejection	Cytoplasmic, Membranous	1:50-1:200	Kidney & Urotelial Cancer, Rejection & Autoimmunity
	Teestis, Kidney, Pancreas, Salivary Gland, Colon	Cytoplasmic	1:50-1:200	Rejection & Autoimmunity
	Tonsil, Lymph Node, Spleen, Kidney, Kidney Transplant Rejection	Cytoplasmic, Membranous	1:50-1:200	Kidney & Urotelial Cancer, Rejection & Autoimmunity
	Colon, Pancreas, Epithelioid Mesothelioma, Ovarian Carcinoma	Cytoplasmic, Membranous	1:50-1:200	Breast Cancer, Cervical Cancer, Ovarian Cancer
	Colon, Pancreas, Epithelioid Mesothelioma, Ovarian Carcinoma,	Cytoplasmic, Membranous	1:50-1:200	Breast Cancer, Cervical Cancer, Ovarian Cancer
	Kidney, Breast, Lymph Node, Cervix, Salivary Gland, Bladder TCC	Cytoplasmic, Membranous	1:250-1:1000	Breast Cancer, Lung Cancer, Sarcomas & Soft Tissue
	Colon, Cervix, Pancreas, Pancreas Cancer, Breast, Breast Carcinoma, Colon Carcinoma, Transitional Cell Carcinoma, Ovarian Carcinoma, Thyroid Carcinoma	Cytoplasmic	1:100-1:500	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer
	Colon Carcinoma	Cytoplasmic	1:25-1:100	Ovarian Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Carcinomas of Unknown Primary Site

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Cadherin-6	RMab	EP217	IgG	Synthetic peptide corresponding to residues of the human CDH6 protein	Human, Predicted: Mouse, Rat	
Calcitonin	RMab	EP92	IgG	Synthetic peptide corresponding to residues of the human calcitonin protein	Human	
Calcitonin	RPab	Polyclonal	IgG	Synthetic peptide corresponding to the human calcitonin protein	Human, Dog, Cat	
Caldesmon	MMab	BSB-19 (CALD-31)	IgG1/K	Synthetic peptide corresponding to the N-terminus of the human caldesmon protein	Human	
Calponin	MMab	BSB-20 (CALP-A6)	IgG1/K	Synthetic peptide corresponding to residues of the C-terminus of the human calponin protein	Human, Canine, Feline	
Calretinin	RMab	EP1798	IgG	Synthetic peptide corresponding to residues in Human Calretinin	Human, Mouse, Rat	
Calretinin	RMab	RM324	IgG	A peptide corresponding to N-terminus of human Calretinin.	Human, Mouse, Rat	
Carbonic Anhydrase 9	RMab	EP161	IgG	Synthetic peptide corresponding to residues in the extracellular domainof the human Carbonic Anhydrase 9 protein	Human	
Caspase-3	RMab	RM250	IgG	Synthetic peptide corresponding to residues within the human Caspase-3 subunit p17	Human	
Caveolin-1	RMab	EP353	IgG	Synthetic peptide corresponding to residues of human Caveolin-1 protein	Human	
CD10	MMab	56C6	IgG1	Recombinant external domain of the human CD10 protein	Human, Dog, Cat	
CD10	RMab	EP195	IgG	Recombinant fragment corresponding to residues in human CD10 protein	Human, Predicted: Rat	
CD103/ITGAE	RMab	EP206	IgG	A synthetic peptide corresponding to residues of human CD103 protein	Human	
CD105	RMab	EP274	IgG	A protein fragment corresponding to residues on human CD105 protein	Human	
CD105/Endoglin	RPab	Polyclonal	IgG	Synthetic KLH conjugated peptide between 380-409 amino acids from the central region of human CD105	Human, Mouse	
CD117	RMab	EP10	IgG	Synthetic peptide corresponding to residues in the C-terminus of human CD117 protein	Human, Monkey, Predicted: Marmoset	
CD117	RMab	RM359	IgG	A peptide corresponding to the C-terminus of human CD117/c-Kit.	Human, Monkey, Predicted: Marmoset	
CD11b	RMab	EP45	IgG	Synthetic peptide corresponding to residues in human CD11b protein	Human, Predicted: Mouse	
CD11c	RMab	EP157	IgG	Synthetic peptide corresponding to residues of human CD11c/ ITGAX protein	Human	
CD123 IL-3Ra	MMab	BSB-59 (CD123-D3)	IgG1/K	Recombinant human CD123 protein	Human	
CD13	MMab	38C12	IgG1	Recombinant protein encoding the C-terminal half of the extracellular domain of human CD13	Human	
CD13	RMab	EP117	IgG	Synthetic peptide corresponding to residues in human CD13 protein	Human, Predicted: Rat	
CD137/TNFRSF9	MMab	BSB-159	IgM	Synthetic peptide corresponding to the N-terminus of the human CD137 protein	Human	
CD138	RMab	EP201	IgG	Synthetic peptide corresponding to residues of human CD138 protein	Human, Predicted: Mouse, Rat	
CD138	MMab	B-A38	IgG1	U266 human peripheral blood myeloma cell line	Human	
CD14	RMab	EP128	IgG	Synthetic peptide corresponding to residues of human CD14 protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Kidney, Renal Cell Carcinoma	Membranous	1:25-1:100	Kidney & Urotelial Cancer, Thyroid & Parathyroid Cancer
	Thyroid Carcinoma, Medullary Carcinoma of Thyroid	Cytoplasmic	1:100-1:500	Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Head & Neck Cancer, Cytopathology
	Thyroid Carcinoma, Medullary Carcinoma of Thyroid	Cytoplasmic	1:100-1:500	Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Head & Neck Cancer, Cytopathology
	Appendix, Uterus, Breast Ducts, Leiomyoma, Colon, Prostate, Skin, Kidney, Myometrium	Cytoplasmic	1:100-1:400	Breast Cancer, Sarcoma & Soft Tissue
	Appendix, Uterus, Breast Ducts, Leiomyoma, Prostate, Colon, Breast, Skin	Cytoplasmic	1:50-1:200	Breast Cancer, Sarcoma & Soft Tissue, Head & Neck Cancer
	Brain, Testis, Colon, Benign Mesothelial Cells, Malignant Mesothelioma	Cytoplasmic, Nuclear	1:100-1:500	Lung Cancer, Mesothelioma, Ovarian Cancer, Cytopathology
	Brain, Testis, Colon, Benign Mesothelial Cells, Malignant Mesothelioma	Cytoplasmic, Nuclear	1:100-1:500	Mesothelioma, Lung Cancer, Ovarian Cancer, Cytopathology
	Stomach, Gallbladder, Kidney Carcinoma, Cervix Carcinoma, Lung Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Kidney & Urotelial Cancer, Lung Cancer, Colon Cancer
	Colon, Tonsil, Testis, Fallopian Tube, Stomach, Transitional Cell Carcinoma	Nuclear, Cytoplasmic	1:50-1:200	Leukemia & Histiocytic, Prostate Cancer, Breast Cancer, Gastric Cancer, Ovarian Cancer, Endometrial & Genital Cancer, Colon & GI Cancer
	Placenta, Liver, Kidney, Spleen, Lung, Mesothelioma, Ewing's Sarcoma, RCC	Membranous	1:50-1:200	Lung Cancer, Mesothelioma, Sarcoma & Soft Tissue, Cytopathology
	Kidney, Tonsil, Lymph Node, Liver, Breast, Prostate, Lung, Pancreas, Salivary Gland, Thymus	Cytoplasmic, Membranous	1:10-1:50	Hodgkin's & NHD Lymphoma, Lymphoma, Kidney & Urotelial Cancer, Liver Cancer, Gall Bladder & Pancreatic Cancer, Endometrial & Genital Cancer, Breast Cancer
	Kidney, Tonsil, Lymph Node, Liver, Breast, Prostate, Lung, Pancreas, Salivary Gland, Thymus	Cytoplasmic, Membranous	1:10-1:50	Hodgkin's & NHD Lymphoma, Lymphoma, Kidney & Urotelial Cancer, Liver Cancer, Gall Bladder & Pancreatic Cancer, Endometrial & Genital Cancer, Breast Cancer
	Skin, Colon, Tonsil, Thymus, Spleen, Hairy Cell Leukemia	Cytoplasmic, Membranous	1:25-1:100	Leukemia & Histiocytic, Lymphoma, Ovarian Cancer, Colon & GI Cancer
	Spleen, Tonsil, Cervix, Lymphoblastic Lymphoma	Cytoplasmic	1:50-1:200	Endothelial, Prostate Cancer, Breast Cancer, Colon & GI Cancer, Kidney & Urothelial Cancer, Lung Cancer
	Spleen, Tonsil, Cervix, Lymphoblastic Lymphoma	Cytoplasmic	1:25-1:100	Endothelial, Prostate Cancer, Breast Cancer, Colon & GI Cancer, Kidney & Urothelial Cancer, Lung Cancer
	Skin, Testis, Breast, GIST, Colon, Brain, Tonsil	Cytoplasmic, Membranous	1:100-1:500	GIST, Cervical Cancer, Colon & GI Cancer, Germ Cell Tumor, Head & Neck Cancer, Kidney & Urotelial Cancer, Leukemia & Histiocytic, Sarcoma & Soft Tissue, Thyroid & Parathyroid Cancer, Undifferentiated Tumor
	Skin, Testis, Breast, GIST, Colon, Brain, Tonsil	Cytoplasmic, Membranous	1:50-1:200	GIST, Cervical Cancer, Colon & GI Cancer, Germ Cell Tumor, Head & Neck Cancer, Kidney & Urotelial Cancer, Leukemia & Histiocytic, Sarcoma & Soft Tissue, Thyroid & Parathyroid Cancer, Undifferentiated Tumor
	Spleen, Leukemia	Cytoplasmic	1:100-1:400	Leukemia & Histiocytic
	Bone Marrow, Spleen, Tonsil, Colon, Liver, Hairy Cell Leukemia	Cytoplasmic	1:25-1:50	Leukemia & Histiocytic
	Tonsil, Lymph Node, Kikuchi-Fujimoto Disease	Cytoplasmic, Membranous	1:25-1:100	Lymphomas, Leukemia & Histiocytic
	Spleen, Tonsil, Prostate, Liver	Cytoplasmic, Membranous	1:25-1:50	Leukemia & Histiocytic, Sarcoma & Soft Tissue, Liver Cancer
	Spleen, Tonsil, Prostate, Liver	Cytoplasmic, Membranous	1:50-1:200	Leukemia & Histiocytic, Sarcoma & Soft Tissue, Liver Cancer
	Colon, Stomach, Tonsil, Testis, Transitional Cell Carcinoma, DBC, Hepatocellular Carcinoma, Diffuse Type Gastric Carcinoma	Nuclear, Membranous	1:25-1:100	Hodgkin's & NHD Lymphoma, Lymphoma, Leukemia & Histiocytic, Immuno-therapy, Gastric Cancer, Breast Cancer, Infectious Diseases
	Tonsil, Liver, Kidney, Breast, Lymph Node, Cervix, Plasmacytoma, Adrenal, Skin, Colon, Lung	Membranous	1:25-1:100	Hematopoietic, Lymphoma, Rejection & Autoimmunity
	Tonsil, Liver, Kidney, Breast, Lymph Node, Cervix, Plasmacytoma	Membranous	1:50-1:200	Hematopoietic, Lymphoma, Rejection & Autoimmunity
	Placenta, Tonsil, Spleen, Diffuse Large B-cell Lymphoma	Cytoplasmic, Membranous	1:25-1:100	Leukemia & Histiocytic, Lymphoma, Lung Cancer, Sarcoma and Soft Tissue

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
CD14	MMab	7	Ig2a	Recombinant protein encoding the external domain of human CD14	Human	
CD142/TF/Coagulation Factor III/ Thromboplastin	MMab	BSB-143	IgG2b	Synthetic peptide corresponding to the human internal region of the human TF protein	Human, Mouse, Rat	
CD147	MMab	BSB-137	IgG1	Recombinant protein corresponding to the extracellular domain of the human CD147 protein	Human	
CD15	RMab	EP273	IgG	U937 cell line	Human	
CD15	MMab	BSB-119	IgM	The U937 histiocytic cell line was used as the immunogen for the CD15 Leu-M1 antibody	Human	
CD16	RMab	EP364	IgG	Synthetic peptide corresponding to residues of human CD16 protein	Human	
CD163	MMab	10D6	IgG1	Recombinant protein encoding the domains 1-4 of the N-terminal region of human CD163	Human	
CD19	MMab	BSB-97	IgG1	Recombinant CD19 protein	Human	
CD1a	RMab	EP80	IgG	Synthetic peptide corresponding to residues in human CD1a protein	Human	
CD2	MMab	AB75	IgG1/K	Recombinant fragment encoding the external domain of the human CD2 molecule	Human	
CD20	MMab	L26	IgG2a/K	Human tonsil B cells	Human, Canine, Feline	
CD21	RMab	EP64	IgG	Synthetic peptide corresponding to residues on the C-terminus of human CD21 protein	Human, Predicted: Mouse	
CD23	RMab	EP75	IgG	Synthetic peptide corresponding to residues in human CD23 protein	Human	
CD23	MMab	1B12	IgG	Recombinant external domain of CD23 protein	Human	
CD25	MMab	4C9	IgG2b	Recombinant protein corresponding to the external domain of the Interleukin-2 Receptor molecule	Human, Mouse	
CD25	RMab	RBT-CD25	IgG	Synthetic peptide corresponding to human the C-terminus of human CD25	Human	
CD3	RMab	RBT-CD3	IgG	Synthetic peptide corresponding to residues in the cytoplasmic domain of the human CD3 protein	Human	
CD3 Epsilon	RMab	RBT-CD3e	IgG	Synthetic peptide corresponding to residues of the epsilon chain of the human CD3 protein	Human	
CD30	MMab	Ber-H2	IgG1/K	L428 cell line cells	Human	
CD31	MMab	1A10	IgG1/K	Recombinant protein corresponding to the extracellular domain downstream of the signal sequence of the CD31 molecule	Human, Dog, Cat, Mouse	
CD33	RMab	RBT-CD33	IgG	Recombinant protein encoding the extracellular domain of human CD33	Human	
CD34	MMab	QBEnd/10	IgG1	Human endothelial vesicles	Human	
CD34	RMab	EP88	IgG	Synthetic peptide corresponding to C-terminal of human CD34 protein	Human, Predicted: Mouse, Rat, Sheep, Dog, Pig, Loxodonta Africana	
CD35	RMab	EP197	IgG	Synthetic peptide corresponding to residues of human CD35 protein	Human	
CD35	MMab	RLB25	IgG2b	Prokaryotic recombinant fusion protein corresponding to the first four complement control protein domains of the CD35 molecule	Human	
CD38	MMab	SPC32	IgG1	Recombinant protein encoding the extracellular domain of human CD38	Human, Rabbit	
CD38	RMab	EP135	IgG	Synthetic peptide corresponding to residues of human CD38 protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Placenta, Tonsil, Spleen, Diffuse Large B-cell Lymphoma	Cytoplasmic, Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma, Lung Cancer, Sarcoma and Soft Tissue
	Placenta, Cervix, Colon, Pancreas, Brain, Kidney, Testis, Pancreatic Carcinoma, Colon Adenocarcinoma	Cytoplasmic, Membranous	1:50-1:200	Lung Cancer, Breast Cancer, Colon & Gastrointestinal Cancer, Prostate Cancer, Liver Cancer, Gall Bladder & Pancreatic Cancer, Infectious Diseases
	Testis, Colon, Kidney, Stomach, Brain	Membranous, Cytoplasmic	1:50-1:200	Infectious Disease, Kidney Cancer & Urothelial, Breast Cancer, Colon & G.I. Tract, Ovarian Cancer, Head & Neck Cancer, Prostate Cancer, Gall Bladder & Pancreatic Cancer, Endometrial Cancer, Liver Cancer
	Tonsil, Lymph Node, Hodgkin's Lymphoma	Cytoplasmic, Membranous	1:25-1:100	Hodgkin's and NHD Lymphoma, Lung Cancer
	Tonsil, Lymph Node, Hodgkin's Lymphoma	Cytoplasmic, Membranous	1:50-1:200	Hodgkin's and NHD Lymphoma, Lung Cancer
	Placenta, Liver, Breast, Spleen, Thymus, Lung	Cytoplasmic, Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma, Colon & GI Cancer
	Placenta, Tonsil, Lymph Node, Inflamed Tissue, H Hylori Infected Tissues	Cytoplasmatic, Membranous	1:25-1:100	Leukemia & Histiocytic, Sarcoma & Soft Tissue, Melanoma & Skin Cancer
	Tonsil, Lymph Node, Spleen, Colon	Membranous	1:25-1:100	Hodgkin's and NHD Lymphoma, Leukemia & Histiocytic, Rejection & Autoimmunity
	Skin, Thymus, Lymphoblastic Lymphoma	Cytoplasmic, Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma, Colon & GI Cancer
	Tonsil, Lymph Node, Colon, Fallopian Tube, Thymus, Spleen	Membranous	1:25-1:100	Lymphoma
	Tonsil, Lymph Node	Membranous	1:250-1:1000	Hodgkin's and NHD Lymphoma, Leukemia & Histiocytic, Rejection & Autoimmunity
	Tonsil, Lymph Node, Spleen	Membranous	1:50-1:200	Hodgkin's and NHD Lymphoma, Lymphoma, Sacroma
	Tonsil, Lymph Node	Membranous	1:50-1:200	Hodgkin's and NHD Lymphoma, Leukemia & Histiocytic
	Tonsil, Lymph Node	Membranous	1:25-1:100	Hodgkin's and NHD Lymphoma, Leukemia & Histiocytic
	Tonsil, Small Bowel, Colon, Spleen, Mastocytosis, Hodgkin's Lymphoma	Cytoplasmic, Membranous	1:10-1:50	Leukemia & Histiocytic, Lymphoma, Liver Cancer, Melanoma & Skin Cancer
	Tonsil, Small Bowel, Colon, Spleen, Mastocytosis, Hodgkin's Lymphoma	Cytoplasmic, Membranous	1:10-1:50	Leukemia & Histiocytic, Lymphoma, Liver Cancer, Melanoma & Skin Cancer
	Tonsil, Lymph Node, Liver, Testis, Kidney, Colon, Spleen, Thymus, Lymphoblastic Lymphoma	Membranous	1:50-1:200	Hodgkin's and NHD Lymphoma, Lymphoma
	Tonsil, Lymph Node	Membranous	1:100-1:500	Hodgkin's and NHD Lymphoma, Lymphoma, Leukemia & Histiocytic
	Tonsil, Lymph Node, Hodgkin's Lymphoma	Membranous	1:100-1:500	Hodgkin's and NHD Lymphoma, Lymphoma, Testicular Cancer, Ovarian Cancer
	Tonsil, Placenta, Appendix, Spleen, Kidney	Cytoplasmic, Membranous	1:50-1:200	Breast Cancer, Endothelial, Hematopoietic, Rejection & Autoimmunity
	Placenta, Myometrium, Lung, Colon, Spleen, Lymph Node, Tonsil, Acute Myeloid Leukemia	Membranous	1:10-1:50	Placenta, Myometrium, Lung, Colon, Spleen, Lymph Node, Tonsil, Acute Myeloid Leukemia
	Tonsil, Placenta, Appendix	Cytoplasmic, Membranous	1:100-1:500	Endothelial, Hematopoietic, Leukemia & Histiocytic, Sarcoma & Soft Tissue, Liver Cancer, GIST, Colon & GI Cancer, Undifferentiated Tumor
	Tonsil, Placenta, Appendix	Cytoplasmic, Membranous	1:50-1:200	Endothelial, Hematopoietic, Leukemia & Histiocytic, Sarcoma & Soft Tissue, Liver Cancer, GIST, Colon & GI Cancer, Undifferentiated Tumor
	Tonsil, Lymph Node	Membranous	1:50-1:200	Lymphoma, Sarcoma & Soft Tissue
	Tonsil, Lymph Node	Membranous	1:25-1:100	Lymphoma, Sarcoma & Soft Tissue
	Tonsil, Lymph Node, Spleen, Prostate, Salivary Gland	Membranous	1:25-1:100	Tonsil, Lymph Node, Spleen, Prostate, Salivary Gland
	Synthetic peptide corresponding to residues of human CD38 protein	Membranous	1:25-1:100	Leukemia & Histiocytic, Lymphoma, Rejection & Autoimmunity

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
CD4	RMab	RBT-CD4	IgG	Synthetic peptide corresponding to residues in the internal region of the human CD4 protein	Human	
CD41/ Integrin alpha IIb	RMab	EP178	IgG	Synthetic peptide corresponding to residues of human CD41/ Integrin alpha IIb protein	Human	
CD42b	RMab	EP409	IgG	A synthetic peptide corresponding to residues of human CD42b protein.	Human	
CD43	MMab	MT1	IgG1	Human lymph node cells	Human	
CD44	MMab	BSB-12	IgG2a	Recombinant human CD44 protein	Human	
CD45	MMab	2B11 & PD7/26	IgG1/K	PD7/26/16: human peripheral blood lymphocytes maintained in T cell growth factor and 2B11: isolated neoplastic cells from T cell lymphoma	Human	
CD45R	MMab	MB1	IgG1	Isolated from membrane and human lymphoyctes	Human	
CD45RA	MMab	4KB5	IgG1/K	Hairy cell leukemia cells	Human	
CD45RO	MMab	UCHL-1	IgG2a/K	Interleukin-2-dependent human T lymphocytes	Human, Mouse, Rat, Non-human Primate	
CD5	RMab	RBT-CD5	IgG	Synthetic peptide corresponding to residues from the intercellular region of the human CD5 protein	Human	
CD5	RMab	RM314	IgG	A peptide corresponding to the C-terminus of human CD5.	Human	
CD56	MMab	123C3.D5	IgG1/K	Membrane preparation of a small cell lung carcinoma	Human	
CD57	MMab	BSB-10 (CD57/B8)	IgG1/K	Synthetic peptide corresponding to residues of human CD57 protein	Human, Dog, Cat	
CD6	MMab	BSB-54	IgG1	Recombinant human CD6 protein	Human	
CD61	RMab	EP65	IgG	A synthetic peptide corresponding to residues of human CD61 protein.	Human	
CD61	MMab	2f2	IgG1/K	Recombinant protein encoding part of the external domain of human CD61	Human	
CD63	MMab	NKI/C3	IgG1/K	Smooth plasma membrane fraction of MeWo cells	Human	
CD68	MMab	BSB-8 (CD68/G2)	IgG1	Synthetic peptide corresponding to residues from the internal region of the human CD68 protein	Human, Mouse, Rabbit, Rat	
CD68	MMab	KP-1	IgG1/K	Subcellular fraction of human alveolar macrophages	Human, Hamster, Mouse, Non-Human Primate , Porcine, Rabbit, Rat, Cat, Monkey	
CD7	MMab	LP15	IgG2b	Full length of the human CD7 protein	Human	
CD7	RMab	EP132	IgG	Synthetic peptide corresponding to residues of the human CD7 protein	Human	
CD71	MMab	10F11	IgGb2	Prokaryotic recombinant protein corresponding to a region of the N-terminal intracellular domain of the human CD71 molecule	Human	
CD73/NT5E	RMab	RM431	IgG	Recombinant human CD73 protein	Human	
CD74	MMab	LN2	IgG1	SU-DHL-4 lymphoma cells	Human	
CD75	MMab	LN-1	IgG1/k	Nuclei from pokeweed mitogen stimulated peripheral blood lymphocytes	Human	
CD79a	MMab	JCB117	IgG1/K	Recombinant protein containing part of the extracellular portion of the CD79a glycoprotein	Human	
CD8	RMab	EP334	IgG	A synthetic peptide corresponding to residues of human CD8α chain	Human	
CD8	MMab	C8/144B	IgG/K	A 13 aminoacid synthetic peptide from the C-terminal cytoplasmic domain of alpha chain of the human CD8 protein	Human	
CD99	MMab	BSB-9 (CD99/B5)	IgG1/K	Recombinant human CD99 protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Tonsil, Lymph Node	Membranous	1:25-1:100	Melanoma & Skin Cancer, Lymphoma
	Spleen, Bone Marrow	Cytoplasmic, Membranous	1:25-1:100	Hematopoetic, Melanoma & Skin Cancer
	Bone Marrow, Spleen	Cytoplasmic	1:25-1:100	Leukemia & Histiocytic
	Human lymph node cells	Membranous	1:100-1:500	Lymphoma
	Urothelium, Tonsil, Kidney, Breast, Liver, Skin, Prostate, Thymus, Spleen, Lymph Node, Esophageal Carcinoma	Membranous	1:250-1:1000	Kindey & Urothelial Cancer, Breast Cancer, Endometrial & Genital Cancer, Colon & GI Cancer, Melanoma & Skin Cancer
	Tonsil, Lymph Node, Thymus, Spleen	Membranous	1:250-1:1000	Hodgkin's and NHD Lymphoma, Leukemia & Histiocytic, Undifferentiated Tumor
	Tonsil, Lymph Node	Membranous	1:25-1:100	Lymphoma
	Tonsil, Lymph Node	Membranous	1:25-1:100	Colon & GI Cancer, Breast Cancer, Cervical Cancer
	Tonsil, Lymph Node	Membranous	1:250-1:1000	Lymphoma, Breast Cancer, Colon & GI Cancer, Kidney & Urothelial Cancer
	Tonsil, Lymph Node, Spleen, Thymus	Membranous	1:25-1:100	Leukemia & Histiocytic, Lymphoma
	Tonsil, Lymph Node, Spleen, Thymus	Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma
	Pancreas, Neuroblastoma, Brain, Thyroid, Prostate, Colon, Lung SCC	Membranous	1:250-1:1000	Leukemia & Histiocytic, Lymphoma, Lung Cancer, Neural & Neuroendocrine Cancer, Undifferentiated Tumor
	Tonsil, Lymph Node, Spleen, Prostate, Breast, Brain	Membranous	1:100-1:500	Hodgkin's and NHD Lymphoma, Neural & Neuroendocrine Cancer, Kidney & Urotelial Cancer
	Tonsil, Lymph Node, Prostate, Colon, Spleen, Bone Marrow	Cytoplasmic	1:250-1:1000	Lymphoma, Prostate Cancer
	Brain, Kidney, Testis, Bone Marrow	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic
	Bone Marrow	Cytoplasmic	1:100-1:500	Hematopoietic, Leukemia & Histiocytic, Kidney & Urothelial Cancer
	Skin, Malignant Melanoma	Cytoplasmic, Membranous	1:250-1:1000	Melanoma & Skin Cancer, Kidney & Urothelial Cancer
	Tonsil, Lymph Node	Cytoplasmic, Membranous	1:250-1:1000	Leukemia & Histiocytic, Kidney & Urothelial Cancer, Breast Cancer
	Tonsil, Lymph Node	Cytoplasmic, Membranous	1:250-1:1000	Leukemia & Histiocytic, Kidney & Urothelial Cancer, Breast Cancer
	Tonsil, Lymph Node, Colon, Liver, Spleen, Bone Marrow	Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma
	Tonsil, Lymph Node, Colon, Liver, Spleen, Bone Marrow, Lympho-blastic Lymphoma	Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma
	Bone Marrow, Placenta, Adrenal, Tonsil, Skin	Cytoplasmic, Membranous	1:25-1:100	Leukemia & Histiocytic, Breast Cancer,
	Placenta, Adrenal Gland, Liver, Testis, Transitional Cell Carcinoma, Ovarian Serous Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Lung Cancer, Colon & G.I. Cancer, Melanoma and Skin Cancer, Breast Cancer, Gall Bladder & Pancreatic Cancer, Immunotherapy
	Tonsil, Lymph Node	Cytoplasmic, Membranous	1:250-1:1000	Lymphoma, Leukemia & Histiocytic, Lung Cancer
	Liver, Prostate, Kidney, Tonsil	Cytoplasmic, Membranous	1:250-1:1000	Lymphoma, Kidney & Urothelial Cancer
	Recombinant protein containing part of the extracellular portion of the CD79a glycoprotein	Membranous	1:250-1:1000	Lymphoma, Leukemia & Histiocytic, Hodgkin's and NHD Lymphoma
	Tonsil, Lymph Node, Liver, Colon	Membranous	1:50-1:200	Leukemia & Histiocytic, Lymphoma, Melanoma & Skin Cancer, Immuno-therapy
	Tonsil, Lymph Node, Liver, Fallopian Tube, Breast, Colon, Prostate	Membranous	1:250-1:1000	Leukemia & Histiocytic, Lymphoma, Melanoma & Skin Cancer, Immuno-therapy
	Pancreas, Thymus, Ependyma, Ewing's Sarcoma & Soft Tissue	Cytoplasmic, Membranous	1:50-1:200	Ovarian Cancer, Sarcoma & Soft Tissue, Lymphoma, Leukemia & Hystioctic, Undifferentiated Tumor

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
CDK2	RMab	RBT-CDK2	IgG	Synthetic peptide corresponding to the N-terminus of the human CDK2 protein	Human	
CDK4	RMab	EP180	IgG	Synthetic peptide corresponding to human CDK4 protein	Human	
CDX2	RMab	EP25	IgG	Synthetic peptide corresponding to residues near the C-terminus of the human CDX-2 protein	Human, Predicted: Rabbit	
CEA	MMab	BSB-13 (CEA31)	IgG1/K	Recombinant human CEA	Human	
CEA	RPab	Polyclonal	IgG	Recombinant human CEA	Human, Dog, Cat	
Chromogranin A	MMab	LK2H10	IgG1/K	Purified human pheochromocytoma	Human, Dog, Cat, Rat, Rabbit, Porcine	
Claudin-1	RPab	Polyclonal	IgG	Synthetic peptide derived from the C-terminus of the human Claudin-1 protein	Human	
Claudin-5	RMab	EP224	IgG	Synthetic peptide corresponding to residues of human Claudin-5 protein	Human	
Claudin-7	RMab	EP399	IgG	Synthetic peptide corresponding to residues of the human Claudin-7 protein	Human	
c-Met/HGFR	RMab	EP1454Y	IgG	Synthetic peptide corresponding to residues near the C-terminus of human Met protein	Human	
c-Myc	MMab	9 E10	IgG1	Human c-myc gene product, (amino-acid residues 408-432)-KLH conjugate	Human	
c-Myc	RMab	EP121	IgG	Synthetic peptide (the amino acid sequence is considered to be commercially sensitive) within Human c-Myc aa 1-100 (N terminal).	Human, Predicted: Mouse, Rat	
Collagen Type IV	MMab	CIV22	IgG1/K	Purified human glomeruli	Human, Rat,Canine, Horse	
Collagen Type IV	RMab	RBT-COL4	IgG	Recombinant human Collagen IV protein	Human	
COX-2	RMab	RBT-COX2	IgG	Synthetic peptide corresponding to residues near the C-terminus of human COX-2	Human, Dog, Cat, Mouse, Rat	
COX-2	RMab	EP293	IgG	A synthetic peptide corresponding to residues of human COX-2 protein	Human, Predicted Mouse	
CTLA-4/CD152	MMab	BSB-88	IgG2a/K	Synthetic peptide corresponding to residues of the C-terminus of the human CTLA-4 protein	Human, Mouse, Rat, Predicted:Canine, Equine	
CTLA-4/CD152	RMab	RBT-CTLA-4	IgG	Synthetic peptide corresponding to residues of the C-terminus of the human CTLA-4 protein.	Human	
Cyclin B1	RMab	RBT-B1	IgG	Synthetic peptide corresponding to residues of the C-terminus of the human cyclin B1 protein	Human	
Cyclin B1	RMab	RM281	IgG	A peptide corresponding to Cyclin B1	Human	
Cyclin D1	RMab	RM241	IgG	A peptide corresponding to Cyclin D1	Human, Predicted: Mouse, Rat	
Cyclin D1	RMab	RBT-14	IgG	Synthetic peptide corresponding to residues of the C-terminus of the human cyclin D1 protein	Human, Mouse, Rat	
Cyclin E1	RMab	EP126	IgG	Synthetic peptide corresponding to residues of human Cyclin E1 protein	Human	
Cytokeratin 10	RMab	EP97	IgG	Synthetic peptide corresponding to residues in the C-term of human Cytokeratin 10 (CK10) protein	Human, Predicted: Mouse, Rat	
Cytokeratin 14	RMab	RM328	IgG	A peptide corresponding to C-terminus of human Cytokeratin-14	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Testis, Tonsil, Prostate, Placenta, Skin, Colon, Transitional Cell Carcinoma, Lymphoblastic Lymphoma	Nuclear	1:25-1:100	Breast Cancer, Liver Cancer, Lung Cancer
	Cervical and Colon Cancer	Nuclear	1:25-1:100	Breast Cancer, Sarcoma & Soft Tissue
	Colon, Colon Adenocarcinoma	Nuclear	1:50-1:200	Colon & GI Cancer, Liver Cancer, Lung Cancer, Ovarian Cancer, Gall Bladder & Pancreatic Cancer, Carcinomas of Unknown Primary Site
	Colon, Colon Adenocarcinoma	Cytoplasmic	1:250-1:1000	Colon & GI Cancer, Liver Cancer, Lung Cancer, Ovarian Cancer, Cervical Cancer, Carcinomas of Unknown Primary Site Gall Bladder & Pancreatic Cancer, Mesothelioma, Lung Cancer
	Colon, Tonsil, Fallopian Tube, Colon Adenocarcinoma	Cytoplasmic	1:100-1:500	Colon & GI Cancer, Liver Cancer, Lung Cancer, Ovarian Cancer, Cervical Cancer, Carcinomas of Unknown Primary Site Gall Bladder & Pancreatic Cancer, Mesothelioma, Lung Cancer
	Pancreas, Pituitary, Colon, Brain	Cytoplasmic	1:250-1:1000	Gall Bladder & Pancreatic Cancer, Lung Cancer, Neural & Neuroendocrine Cancer, Colon & GI Cancer, Carcinomas of Unknown Primary Site
	Skin, Small Intestine, Colon Carcinoma	Membranous	1:50-1:200	Breast Cancer, Colon & GI Cancer,
	Liver, Vascular Tissue, Placenta, Colon, Kidney, Fallopian Tube	Cytoplasmic, Membranous	1:25-1:100	Endothelial, Breast Cancer
	Breast, Colon, Fallopian Tube, Pancreas, Kidney, Transitional Cell Carcinoma	Nuclear, Cytoplasmic, Membranous	1:50-1:200	Colon & G.I. Cancer, Lung Cancer, Prostate Cancer, Ovarian Cancer, Breast Cancer
	Breast, Tonsil, Cervix, Papillary Thyroid Carcinoma, Colon Carcinoma	Cytoplasmic, Membranous	1:10-1:50	Kidney & Urothelial Cancer, Liver Cancer, Breast Cancer, Neural & Neuroendocrine Cancer, Colon & GI Cancer, Lung Cancer
	Burkitt Lymphoma, Lung Cancer, Prostate Cancer	Nuclear, Cytoplasmic	1:25-1:100	Leukemia & Histiocytic, Lymphoma, Prostate Cancer
		Nuclear, Cytoplasmic	1:10-1:50	Leukemia & Histiocytic, Lymphoma, Prostate Cancer
	Muscle, Lung	Cytoplasmic	1:50-1:200	Sarcoma & Soft Tissue, Breast Cancer, Gall Bladder & Pancreatic Cancer
	Muscle, Lung, Breast, Placenta, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Cytoplasmic, Membranous	1:50-1:200	Sarcoma & Soft Tissue, Breast Cancer, Gall Bladder & Pancreatic Cancer
	Colon, Testis, Kidney, Placenta, Liver, Fallopian Tube, Pancreas, Tonsil, Thymus, Breast, Adenocarcinoma of Colon, Bladder TCC	Cytoplasmic	1:25-1:100	Colon & GI Cancer
	Colon, Stomach, Pancreas, Breast, Lung, Adenocarcinoma of Colon	Cytoplasmic	1:50-1:200	Colon & GI Cancer
	Tonsil, Lymph Node, Colon, Thymus	Membranous	1:25-1:100	Rejection & Autoimmunity, Lymphoma; Immunotherapy
	Tonsil, Lymph Node, Colon, Thymus	Membranous	1:25-1:100	Rejection & Autoimmunity, Lymphoma; Immunotherapy
	Testis, Breast, Colon,Cervix, HSIL Cervix, Lymphoblastic Lymphoma	Nuclear	1:50-1:200	Cervical Cancer, Breast Cancer, Lung Cancer
	Testis, Breast, Colon,Cervix, HSIL Cervix, Lymphoblastic Lymphoma	Nuclear	1:50-1:200	Cervical Cancer, Breast Cancer, Lung Cancer
	Tonsil, Placenta, Brain, Pituitary, Adrenal, Cervix, Breast, Mantle Cell Lymphoma, Breast Carcinoma	Nuclear	1:25-1:100	Lymphoma, Breast Cancer, Lung Cancer
	Tonsil, Placenta, Brain, Pituitary, Adrenal, Cervix, Breast, Mantle Cell Lymphoma, Breast Carcinoma	Nuclear	1:25-1:100	Lymphoma, Breast Cancer, Lung Cancer
	Placenta, Bladder, Colon, Breast Cancer, Ovarian Carcinoma	Nuclear	1:50-1:200	Cervical Cancer, Breast Cancer, Colon & GI Cancer, Endometrial & Genital Cancer, Hodgkin's and NHD Lymphoma
	Squamous Cell Carcinoma	Cytoplasmic	1:25-1:100	Melanoma & Skin Cancer
	Squamous Mucosa, Prostate, Breast, Tonsil, Salivary Gland, Skin, Cervix Carcinoma	Cytoplasmic	1:50-1:200	Breast Cancer, Melanoma & Skin Cancer, Kidney & Urothelial Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Cytokeratin 14	MMab	LL002	IgG3	Synthetic peptide of 15 amino acid residues from the C-terminus of the human cytokeratin 14	Human, Rats	
Cytokeratin 16	RMab	EP27	IgG	A synthetic peptide corresponding to residues of human Cytokeratin 16 protein	Human	
Cytokeratin 17	MMab	BSB-33	IgG2a/K	Synthetic peptide corresponding to human Cytokeratin 17 protein	Human, Rat, Goat and Pig	
Cytokeratin 17	MMab	EP98	IgG	Synthetic peptide corresponding to residues on the C-terminus of human Cytokeratin 17 (CK17) protein	Human, Rat, Mouse	
Cytokeratin 18	RMab	EP30	IgG	Synthetic peptide corresponding to residues of human Cytokeratin 18 protein	Human	
Cytokeratin 19	MMab	BSB-34	IgG1/K	Synthetic peptide against N-terminus of human cytokeratin 19 protein	Human	
Cytokeratin 19	RMab	RM364	IgG	A peptide corresponding to the C-terminus of human CK-19 (Cytokeratin-19)	Human, Predicted: Mouse	
Cytokeratin 20	MMab	Ks20.8	IgG2a/K	Semi-purified human cytokeratin preparation	Human, Dog, Cat, Mouse	
Cytokeratin 20	RMab	EP23	IgG	Synthetic peptide corresponding to residues near the C-terminus of human CK20	Human, Predicted: Rat, Goat, Pig, Marmoset	
Cytokeratin 35BH11	MMab	35BetaH11	IgM	Triton/High salt-insoluble material from the human hepatocellular carcinoma cell line Hep3B	Human	
Cytokeratin 4	RMab	EP4	IgG	Synthetic peptide corresponding to residues on the C-terminus of human CK4 protein	Human	
Cytokeratin 5	RMab	EP24	IgG	Synthetic peptide corresponding to residues near the C-term of human CK-5 protein	Human, Predicted: Mouse	
Cytokeratin 5 & 6	RMab	EP24 & EP67	IgG	"Cytokeratin 5: A synthetic peptide corresponding to residues near the C-terminus of human CK-5 protein. Cytokeratin 6: A synthetic peptide corresponding to residues on the C-terminus of human CK-6 protein."	Human	
Cytokeratin 5 & 6	MMab	D5 & 16B4	IgG1	Purified human cytokeratin 5	Human	
Cytokeratin 6	RMab	EP67	IgG	Synthetic peptide corresponding to residues on the C-terminus of human Cytokeratin 6 protein	Human	
Cytokeratin 7	RMab	RM284	IgG	A peptide corresponding to the C-terminus of human Cytokeratin-7	Human	
Cytokeratin 7	MMab	OV-TL 12/30	IgG1/K	OTN II ovarian carcinoma cell line	Human, Dog, Cat	
Cytokeratin 8	RMab	EP17	IgG	Synthetic peptide corresponding on the C-terminus of human Cytokeratin 8 protein	Human, Predicted: Mouse	
Cytokeratin 8 & 18	MMab	B22.1 & B23.1	IgG1	Cytoskeleton preparations from HeLa cells and PMC-42 human breast carcinoma cells	Human	
Cytokeratin Cocktail AE1 & AE3	MMab	AE1 & AE3	IgG1	Purified human epidermal keratin	Human, Dog, Cat, Mouse, Rat, Monkey, Rabbit, Chicken, Horse	
Cytokeratin HMW 34BE12	MMab	34BetaE12	IgG1/K	Purified keratin from human stratum corneum	Human, Dog, Cat, Monkey, Rabbit, Cattle, Horse	
Cytokeratin HMW AE3	MMab	AE3	IgG1	Purified human epidermal keratin	Human	
Cytokeratin LMW	MMab	CAM5.2	IgG2a/K	Purified human keratin 8	Human	
Cytokeratin LMW AE1	MMab	AE1	IgG1	Purified human epidermal keratin	Human, Mouse, Rat, Monkey, Rabbit, Chicken, Cattle, Shrew, Fish	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Squamous Mucosa, Prostate, Breast, Tonsil, Salivary Gland, Skin, Cervix Carcinoma, Squamous Carcinoma	Cytoplasmic	1:50-1:200	Breast Cancer, Melanoma & Skin Cancer, Kidney & Urothelial Cancer
	Skin, Prostate, Breast, Servix, Salivary Gland,SCC	Cytoplasmic	1:50-1:200	Rejection & Autoimmunity, Melanoma & Skin Cancer, Cervical Cancer, Head & Neck Cancer
	Skin, Testis, Breast, Cervix, Cervical Carcinoma, Bladder TCC	Cytoplasmic	1:25-1:100	Ovarian Cancer, Cervical Cancer, Lung Cancer, Breast Cancer, Gall Bladder & Pancreatic Cancer, Carcinoma of Unknown Primary Site
	Skin, Testis, Breast, Cervix, Colon, Salivary Gland, Cervical Carcinoma, Bladder TCC,Transitional Cell Carcinoma	Cytoplasmic	1:25-1:100	Ovarian Cancer, Cervical Cancer, Lung Cancer, Breast Cancer, Gall Bladder & Pancreatic Cancer, Carcinoma of Unknown Primary Site
	Liver, Kidney, Breast, GI, Prostate, Fallopian Tube	Cytoplasmic	1:25-1:100	Breast Cancer, Colon & GI Cancer, Neural & Neuroendocrine Cancer
	Colon, Thyroid Carcinoma	Cytoplasmic	1:100-1:500	Colon & GI Cancer, Liver Cancer, Thyroid & Parathyroid Cancer, Breast Cancer
	Colon, Bladder, Thyroid Carcinoma, Colon Carcinoma	Cytoplasmic	1:50-1:200	Colon & GI Cancer, Liver Cancer, Thyroid & Parathyroid Cancer, Breast Cancer
	Colon Mucosa, Bladder, Colon Carcinoma	Cytoplasmic	1:100-1:500	Carcinomas of Unknown Primary Site, Colon & GI Cancer, Kidney & Urotelial Cancer, Lung Cancer, Ovarian Cancer
	Colon Mucosa, Bladder, Colon Carcinoma	Cytoplasmic	1:50-1:200	Carcinomas of Unknown Primary Site, Colon & GI Cancer, Kidney & Urotelial Cancer, Lung Cancer, Ovarian Cancer
	Prostate, Colon	Cytoplasmic	1:50-1:200	Breast Cancer, Ovarian Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer
	Cornea, Anus, Larynx, Pharynx, Tongue, Prostate, Tonsil, Cervix, Squamous Epithelium of Esophagus, Cervical Squamous Carcinoma	Cytoplasmic	1:25-1:100	Head & Neck Tumor, Colon & GI Cancer
	Prostate, Breast, Placenta, Skin, Mesothelioma	Cytoplasmic	1:25-1:100	Mesothelioma, Breast Cancer, Lung Cancer, Prostate Cancer, Carcinoma of Unknown Primary Site
	Prostate, Mesothelioma	Cytoplasmic	1:25-1:100	Mesothelioma, Lung Cancer, Prostate Cancer, Breast Cancer, Melanoma & Skin Cancer
	Prostate, Mesothelioma	Cytoplasmic	1:25-1:100	Mesothelioma, Lung Cancer, Prostate Cancer, Breast Cancer, Melanoma & Skin Cancer
	Oral Mucosa, Esophagus, Skin, Glandular Epithelia	Cytoplasmic	1:25-1:100	Rejection & Autoimmunity, Lung Cancer
	Salivary Gland, Placenta, Breast, Thyroid, Cervix, Lung Adeno-carcinoma	Cytoplasmic	1:50-1:200	Carcinomas of Unknown Primary Site, Kidney & Urotelial Cancer, Colon & GI Cancer, Lung Cancer, Breast Cancer, Ovarian Cancer, Mesothelioma, Head & Neck Cancer, Melanoma & Skin Cancer
	Salivary Gland, Placenta, Breast, Thyroid, Cervix, Pancreas, Fal-lopian Tube, Transitional Cell Carcinoma, Lung Adenocarcinoma	Cytoplasmic	1:100-1:500	Carcinomas of Unknown Primary Site, Kidney & Urotelial Cancer, Colon & GI Cancer, Lung Cancer, Breast Cancer, Ovarian Cancer, Mesothelioma, Head & Neck Cancer, Melanoma & Skin Cancer
	Colon, Prostate, Kidney, Liver, Colon Carcinoma	Cytoplasmic	1:25-1:100	Breast Cancer
	Breast, Ovary, GI, Prostate, Pancreas, Salivary Gland	Cytoplasmic	1:250-1:1000	Colon & GI Cancer, Kidney & Urotelial Cancer, Liver Cancer
	Prostate, Colon, Skin, Stomach	Cytoplasmic	1:100-1:500	Carcinomas of Unknown Primary Site, Undifferentiated Tumor, Breast Cancer, Melanoma & Skin Cancer, Lung Cancer, Germ Cell Tumor, Sarcoma & Soft Tissue, Testicular Cancer
	Prostate, Cervix	Cytoplasmic	1:50-1:200	Prostate Cancer, Liver Cancer, Melanoma & Skin Cancer
	Prostate, Salivary Gland, Bladder	Cytoplasmic	1:100-1:500	Undifferentiated Tumor, Breast Cancer, Melanoma & Skin Cancer, Lung Cancer
	Colon, Breast , Ovarian Carcinoma	Cytoplasmic	1:10-1:50	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Liver Cancer, Lung Cancer, Carcinoma Unknown Origin
	Prostate, Salivary Gland, Bladder, Breast, Kidney, Pancreas, Cervix	Cytoplasmic	1:100-1:500	Undifferentiated Tumor, Breast Cancer, Melanoma & Skin Cancer, Lung Cancer

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Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Cytokeratin OSCAR	MMab	OSCAR	IgG2a	Crude cytokeratin extract prepared from RT-4 and MCF-7 cells	Human	
Cytokeratin, MNF116	MMab	MNF116	IgG	BALB/C mice immunized with crude extract of splenic cells from a nude mouse engrafted with MCF-7 cells, a human breast carcinoma cell line.	Human	
Cytomegalovirus	MMab	8B1.2, 1G5.2 & 2D4.2	IgG2a	Purified human CMV antigen	Human	
CXCL12/SDF-1	MMab	BSB-165	IgG1	Recombinant human CXCL12/SDF-1 alpha protein	Human	
CXCR4/CD184/Fusin	RMab	EP394	IgG	Synthetic peptide corresponding to residues of the human CXCR4 protein	Human, Mouse	
CXCR5/CD185	RPab	Polyclonal	IgG	Recombinant human CXCR5 protein	Human	
Desmin	MMab	D33	IgG1/K	Purified desmin from human muscle	Human, Dog, Cat, Mouse, Rat, Chicken, Sheep, Hamster	
Desmin	RMab	EP15	IgG	Synthetic peptide corresponding to C-terminus of human Desmin protein	Human, Predicted: Mouse, Rat, Guinea Pig	
Desmoglein-3	RMab	EP306	IgG	A synthetic peptide corresponding to residues of human Desmoglein 3 protein	Human	
DOG1	RMab	RBT-DOG1	IgG	Synthetic peptide corresponding to the N-terminus of human DOG-1 protein	Human	
DOG-1	RMab	EP332	IgG	A synthetic peptide corresponding to residues of human DOG1 protein	Human	
E-Cadherin	RMab	EP6	IgG	Synthetic peptide corresponding to residues in the 5th cadherin domain of human E-Cadherin protein	Human	
EGFR	MMab	31G7	IgG1	EGFR derived from A-431 cells	Human	
EGFR Phospho	RMab	EP11	IgG	Synthetic peptide corresponding to residues surrounding Tyr1068 of human EGF receptor protein	Human, Predicted: Mouse	
EMA	MMab	E29	IgG2a/K	Purified human milk fat globule membrane preparation	Human	
EpCAM/Epithelial Specific Antigen	MMab	MOC-31	IgG1/K	Neuraminidase treated cells from a variant small cell lung carcinoma cell line (GLS-1)	Human	
EpCAM/Epithelial Specific Antigen	MMab	Ber-EP4	IgG1/K	MCF-7 human breast carcinoma cell line	Human	
Epstein Barr Virus LMP-1	MMab	CS1-4	IgG1	Recombinant fusion protein of bacterial beta-galactosidase and EBV LMP-1	Human	
ERCC1	RMab	EP219	IgG	Synthetic peptide corresponding to residues of the human ERCC1 protein	Human, Predicted: Mouse	
ERG	RMab	EP111	IgG	Synthetic peptide corresponding to residues on the C-terminus in human ERG protein	Human, Predicted: Mouse, Rat	
Estrogen Receptor	MMab	BSB-1	IgG1/K	A synthetic peptide against the N-terminus of human estrogen receptor alpha.	Human	
Estrogen Receptor	RMab	EP1	IgG	Recombinant protein of human estrogen receptor alpha corresponding to aminoacids 1-300	Human	
Estrogen Receptor	RMab	RBT-11	IgG	Synthetic peptide against the C-terminus of human estrogen receptor alpha.	Human	
Estrogen Receptor	RMab	RM292	IgG	A peptide corresponding to residues near the N-terminus of human ER-alpha.	Human	
Factor H/Complement Factor H	MMab	BSB-164	IgG1	Recombinant human complement protein factor H	Human	
Factor VIII-Related Antigen	RPab	Polyclonal	IgG	Purified human Factor VIII	Human, Dog, Cat	
Factor XIIIa	RMab	EP292	IgG	Recombinant protein corresponding to A-subunit of coagulation Factor XIII	Human	
Fascin	MMab	BSB-36	IgG2a/K	Recombinant human fascin protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Tissue Control	Localization	Dilution Range	Application
Breast, Liver, GI, Prostate, Colon, Skin, Stomach, Pancreas, Tonsil	Cytoplasmic	1:50-1:200	Carcinomas of Unknown Primary Site, Undifferentiated Tumor, Breast Cancer, Melanoma & Skin Cancer, Lung Cancer, Germ Cell Tumor, Sarcoma & Soft Tissue, Testicular Cancer
Breast, Cervix, Skin, Colon, Colorectal, Gastirc, Breast and Prostatic Carcinomas	Cytoplasmic	1:25-1:100	Carcinomas of Unknown Primary Site, Undifferentiated Tumor, Breast Cancer, Melanoma & Skin Cancer, Lung Cancer, Germ Cell Tumor, Sarcoma & Soft Tissue, Testicular Cancer
CMV Infected Tissue	Nuclear	1:25-1:100	Infectious Diseases, Cytopathology
Testis, Breast, Colon, Fallopian Tube, Tonsil, Trnasitional Cell Carcinoma, T cell Lymphoblastic Lymphoma	Cytoplasmic, Membranous	1:25-1:100	Breast Cancer, Lung Cancer, Prostate Cancer, Ovarian Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer
Fallopian Tube, Adrenal Gland, Stomach, Kidney, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma, Tonsil, Testis	Membranous, Cytoplasmic	1:25-1:100	Brain Cancer, Breast Cancer, Lung Cancer, Liver Cancer, Kidney & Urothelial Cancer
Placenta, Brain, Lung, Transitional Cell Carcinoma, Testis, Ovarian Serous Carcinoma, Hepatocellular Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Lymphomas, Lung Cancer
Skeletal Muscle, Placenta, Colon, Prostate, Skin, Fallopian Tube	Cytoplasmic	1:25-1:100	Sarcoma & Soft Tissue, Melanoma & Skin Cancer, GIST, Undifferentiated Tumor
Skeletal Muscle, Placenta, Colon, Prostate, Skin, Fallopian Tube	Cytoplasmic	1:25-1:100	Sarcoma & Soft Tissue, Melanoma & Skin Cancer, GIST, Undifferentiated Tumor
Tonsil, Skin, Cervix, Cervical Carcinoma, Lung Squamous Cell Carcinoma	Cytoplasmic, Membranous	1:50-1:200	Lung Cancer, Rejection & Autoimmunity, Head & Neck Cancer, Melanoma & Skin Cancer
Salivary Gland, Breast, GIST	Cytoplasmic, Membranous	1:100-1:500	GIST, Head & Neck Cancer, Sarcoma & Soft Tissue, Colon & GI Cancer
A synthetic peptide corresponding to residues of human DOG1 protein	Cytoplasmic, Membranous	1:25-1:100	GIST, Head & Neck Cancer, Sarcoma & Soft Tissue, Colon & GI Cancer
Breast, Colon, Cervix, Pancreas, Lung, Ovary, Gi Tract Adenocarcinoma, Breast Carcinoma	Membranous	1:100-1:500	Breast Cancer, Kidney & Urotelial Cancer, Mesothelioma
Skin, Placenta, Testis, Tonsil, Pancreas, Squamos Cell Carcinoma	Cell Membrane	1:25-1:100	Breast Cancer, Colon & GI Cancer, Lung Cancer
Skin, Placenta, Testis, Tonsil, Pancreas, Squamos Cell Carcinoma	Cell Membrane	1:25-1:100	Breast Cancer, Colon & GI Cancer, Lung Cancer
Breast, Skin, Colon, Kidney, Cervix	Cytoplasmic, Membranous	1:250-1:1000	Breast Cancer, Ovarian Cancer, Lung Cancer
Breast ,Colon, Prostate, Kidney, Thyroid, Pancreas, Salivary Gland, Adenocarcinomas	Cytoplasmic	1:50-1:200	Mesothelioma, Lung Cancer, Colon & GI Cancer, Liver Cancer, Cytopathology
Colon, Cervix, Salivary Gland, Pancreas, Breast, Thyroid, Liver, Adenocarcinomas	Cytoplasmic	1:25-1:100	Mesothelioma, Lung Cancer, Colon & GI Cancer, Cytopathology
EBV Infected Tissue, Hodgkin's Lymphoma	Cytoplasmic	1:25-1:100	Infectious Diseases, Hodgkin's and NHD Lymphoma
Tonsil, Testis, Breast, Prostate	Nuclear	1:50-1:200	Lung Cancer, Ovarian Cancer
Prostate, Colon, Kidney, Fallopian Tube, Tonsil, Myometrium, Skin, Brain, Breast	Nuclear	1:100-1:500	Endothelial, Prostate Cancer, Kidney & Urothelial Cancer
Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Carcinomas of Unknown Primary Site, Endometrial Genital Cancer
Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Carcinomas of Unknown Primary Site, Endometrial Genital Cancer
Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Carcinomas of Unknown Primary Site, Endometrial Genital Cancer
Breast, Myometrium, Cervix, Fallopian Tube, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Carcinomas of Unknown Primary Site, Endometrial Genital Cancer
Testis, Liver, Kidney, Pancreas, Adrenal Gland	Cytoplasmic, Membranous	1:50-1:200	Lung Cancer, Ovarian Cancer, Brain Cancer, Colon Cancer, Rejection & Autoimmunity, Infectious Diseases
Skin, Placenta	Cytoplasmatic	1:50-1:200	Endothelial, Sarcoma & Soft Tissue
Placenta, Colon, Adrenal,Testis, Dermatofibroma	Cytoplasmatic	1:50-1:200	Leukemia & Histiocytic, Melanoma & Skin Cancer
Lymph Node, Tonsil, Liver, Kidney, Adrenal, Hodgkin's Lymphoma	Cytoplasmatic	1:250-1:1000	Hodgkin's and NHD Lymphoma, Lymphoma

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
FGFR-3	MMab	BSB-150	IgG2a	Synthethic peptide corresponding to the N-terminus of the human FGFR-3 protein	Human	
Fibrinogen	RPab	Polyclonal	IgG	KLH conjugated synthetic peptide corresponding to the N-terminus of human FGA.	Human	
Fli-1	MMab	G146-222	IgG2b	Fli-1 ets Domain Fusion Protein	Human	
FOXA1/HNF-3A	RPab	Polyclonal	IgG	Synthetic peptide sequence (GVYSRPVLNTS) corresponding to the C-terminus amino acids of FOXA1	Human, Mouse	
FOXL2	RPab	Polyclonal	IgG	Synthetic peptide corresponding to the C-terminus portion of the human FOXL2 protein	Human, Mouse, Pig, Bovine	
FOXO1	RMab	EP290	IgG	A synthetic peptide corresponding to residues of human FOXO1 protein	Human	
FOXP1	RMab	EP137	IgG	Synthetic peptide corresponding to residues of human FOXP1 protein	Human, Predicted: Mouse, Rat	
FOXP3	RMab	EP340	IgG	A synthetic peptide corresponding to residues of human FOXP3 protein	Human	
FOXP3	RPab	Polyclonal	IgG	Synthetic peptide conjugated to KLH derived from within residues 50 - 150 of Mouse FOXP3	Human	
FSH	MMab	BSB-55	IgG1/K	Synthetic peptide against the N-terminus of human follicule stimulating hormone receptor	Human	
FSH	RMab	EP257	IgG	A synthetic peptide corresponding to residues of human FSH (beta subunit) protein.	Human	
Fumarate Hydratase/Fumarase	MMab	BSB-151	IgG1	Synthetic peptide corresponding to the C-terminus of the human fumarate hydratase protein	Human, Mouse, Rat	
GAB1/ GRB2-associated-binding protein 1	MMab	BSB-155	IgG2a	Synthethic peptide corresponding to the N-terminus of the human Gab 1 protein	Human, Mouse, Rat	
Galectin-3	MMab	9C4	IgG1	Recombinant protein corresponding to full length Galectin-3	Human	
Gastrin	RPab	Polyclonal	IgG	Synthetic peptide derived from N-terminus of gastrin	Human, Dog, Cat	
GATA3	MMab	L50-823	IgG1/K	Synthetic peptide between trans-activation and DNA-binding domains of GATA-3	Human, Mouse	
GATA3	RMab	EP368	IgG	Synthetic peptide corresponding to residues of human GATA3 protein	Human	
GCDFP-15	MMab	23A3	IgG2a	Recombinant protein encoding the excreted domain of human GCDFP15	Human, Rat	
GFAP	RMab	RM246	IgG	A peptide corresponding to the N-terminus of human GFAP	Human, Predicted: Rat	
GFAP	MMab	G-A-5	IgG1	Purified GFAP isolated from porcine spinal cord	Human, Canine, Feline, Rat, Mouse, Rabbit	
GH	MMab	BSB-99	IgG1/K	Recombinant human growth hormone protein	Human	
GH	RPab	Polyclonal	IgG	Recombinant human growth hormone protein	Human	
GH	RMab	EP267	IgG	Synthetic peptide corresponding to residues of human growth hormone protein	Human	
Glucagon	MMab	BSB-111	IgG1/K	Recombinant human glucagon protein	Human	
Glucagon	RMab	EP74	IgG	Synthetic peptide corresponding to residues in human glucagon protein	Human, Dog, Mouse, Rat, Horse	
GLUT1	RMab	EP141	IgG	Synthetic peptide corresponding to residues of human Glut-1protein	Human, Predicted: Mouse, Rat	
Glutamine Synthetase	MMab	GS-6	IgG2a	Human Glutamine Synthetase aa. 1-373	Human, Mouse, Rat	
Glycophorin A	MMab	GA-R2 (HIR2)	IgG2b/K	GYPA / CD235a / Glycophorin A antibody was raised against human GYPA	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Skin, Liver, Brain, Testis, Transitional Cell Carcinoma, Ductal Breast Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Kidney & Urothelial Cancer, Cervical Cancer, Breast Cancer, Head and Neck Cancer, Lung, Cancer, Brain Cancer, Ovarian Cancer, Colon and GI Cancer, Leukemia & Histiocytic, Melanoma & Skin Cancer
	Breast, Testis, Kidney, Pancreas, Salivary Gland, Skin, Fallopian Tube	Cytoplasmic	1:25-1:100	Rejection & Autoimmunity
	Adrenal Gland, Fallopian Tube, Placenta, Cervix, Hemangiomas, PNET, AngioSarcoma & Soft Tissue	Nuclear	1:25-1:100	Endothelial, Hematopoetic, Sarcoma & Soft Tissue
	Prostate, Breast, Tonsil, Colon, Fallopian Tube, Breast Carcinoma, Prostate Carcinoma	Cytoplasmic, Nuclear	1:25-1:100	Breast Cancer, Prostate Cancer
	Fallopian Tube, Cervix, Pancreas, Placenta, Extra Marginal Zone Lymphoma	Nuclear, Cytoplasmic	1:50-1:200	Ovarian Cancer, Germ Cell Tumors, Cervical Cancer
	Testis, Thyroid, Tonsil, Lymph Node, Spleen, Lung, Lymphomas	Nuclear	1:25-1:100	Hodgkin's & NHD Lymphoma, Cervical Cancer, Prostate Cancer, Sarcoma & Soft Tissue
	Tonsil, Lymph Node, Breast	Nuclear, Cytoplasmic	1:25-1:100	Lymphoma, Breast Cancer, Ovarian Cancer, Testicular Cancer, Germ Cell Tumor
	Tonsil, Lymph Node, Thymus, Colon	Nuclear	1:25-1:100	Breast Cancer, Ovarian Cancer, Prostate Cancer, Hodgkin's and NHD Lymphoma, Immunotherapy
	Tonsil, Lymph Node, Thymus, Colon	Nuclear	1:25-1:100	Breast Cancer, Ovarian Cancer, Prostate Cancer, Hodgkin's and NHD Lymphoma, Immunotherapy
	Normal Pituitary	Cytoplasmic	1:100-1:500	Pituitary, Neural & Neuroendocrine Cancer
	Pituitary	Cytoplasmic	1:50-1:200	Pituitary, Neural & Neuroendocrine Cancer
	Placenta, Breast, Fallopian Tube, Colon, Kidney, Testis, Colon Adenocarcinoma, HER2 Negative Breast Cancer	Cytoplasmic	1:25-1:100	Renal and Urothelial Cancer, Sarcoma & Soft Tissue Cancers
	Breast Prostate, Testis, Tonsil, Stomach, Transitional Cell Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Neural & Neuroendocrine Cancer, Breast Cancer, Colon & GI Cancer, Liver Cancer, Ovarian Cancer
	Kidney, Testis, Salivary Gland, Breast, Tonsil, Colon, Papillary & Follicular Carcinoma of Thyroid	Cytoplasmic	1:50-1:200	Thyroid & Parathyroid Cancer, Undifferentiated Tumor, Head & Neck Cancer, Cytopathology
	Stomach	Cytoplasmic	1:250-1:1000	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer
	Breast, Skin, Placenta, Colon, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Carcinomas of Unknown Primary Site
	Breast, Skin, Cervix, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Carcinomas of Unknown Primary Site
	Breast, Sweat Glands in Skin, Breast Carcinoma	Cytoplasmic	1:100-1:500	Breast Cancer, Germ Cell Tumor
	Brain	Cytoplasmic	1:25-1:100	Head & Neck Cancer, Neural & Neuroendocrine Cancer
	Brain	Cytoplasmic	1:250-1:1000	Head & Neck Cancer, Neural & Neuroendocrine Cancer
	Normal Pituitary	Cytoplasmic	1:250-1:1000	Pituitary, Neural & Neuroendocrine Cancer
	Normal Pituitary	Cytoplasmic	1:250-1:1000	Pituitary, Neural & Neuroendocrine Cancer
	Normal Pituitary	Cytoplasmic	1:250-1:1000	Pituitary, Neural & Neuroendocrine Cancer
	Pancreas, Colon	Cytoplasmic	1:250-1:1000	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer
	Pancreas, Colon	Cytoplasmic	1:50-1:200	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer
	Placenta, Colon, Prostate, Skin, Kidney, Brain, Tonsil, Breast, Mesothelioma, Colon Carcinoma	Membranous	1:50-1:200	Lung Cancer, Mesothelioma, Endotelial, Cytopathology
	Liver, Tonsil, Testis, Prostate, Hepatocellular Carcinoma, Bladder TCC	Cytoplasmic	1:50-1:200	Liver Cancer
	Bone Marrow, Placenta, Tonsil, Liver, Prostate, Adrenal, Spleen, Colon, Pancreas, Fallopian Tube	Membranous	1:100-1:500	Hematopoietic, Leukemia & Histiocytic

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Glypican-3	MMab	1G12	IgG1	Fragment corresponidng to the C-terminal last 70 amino acids of the human Glypican-3 protein	Human, Dog	
Granzyme B	RMab	EP230	IgG	Synthetic peptide corresponding to residues of human Granzyme B protein	Human	
Granzyme B	RPab	Polyclonal	IgG	Synthetic peptide corresponding to residues E(20) I I G G H E A K P H S R P Y M A Y L(38) of human Granzyme B	Human	
hCG	MMab	BSB-38	IgG1/K	Recombinant human hCG beta protein	Human	
HE4	RMab	EP370	IgG	Synthetic peptide corresponding to residues of human HE4 protein	Human	
HEG1	MMab	SKM9-2	IgG1	893-SKSPSLVSLPT-903 of the human HEG1 protein	Human	
Helicobacter pylori	RPab	Polyclonal	IgG	Synthetic peptide corresponding to a region within amino acids 341 and 398 of Helicobacter pylori urease B.	Human	
Helicobacter Pylori	MMab	BSB-37	IgG1/K	Purified Helicobacter pylori bacteria microdisected from FFPE infected cell lines	Human	
Helicobacter Pylori	RMab	EP279	IgG	Helicobacter pylori	Human	
Hemoglobin A	RMab	EP124	IgG	Synthetic peptide corresponding to residues of human Hemoglobin alpha chain protein	Human, Predicted: Mouse, Rat	
Hepatitis B Virus Core Antigen	RPab	Polyclonal	IgG	Purified Hepatitis B virus	Human	
Hepatitis B Virus Surface Antigen	MMab	A10F1	IgG2b/K	Purified HbsAg, subtype ayw3.	Human	
Hepatocyte Specific Antigen/ Hep-Par1	MMab	OCH1E5	IgG1/K	Formalin-fixed, failed human allograft liver that was mechanically disrupted	Human, Dog, Cat	
HER2 neu	RMab	EP3	IgG	Synthetic peptide corresponding to residues near the C-terminus of human HER2 protein.	Human	
HER-2 neu	RMab	RBT-HER2	IgG	Recombinant protein encoding extracellular domain of human HER-2 protein	Human	
HER-2 neu	MMab	BSB-3 (HER-24)	IgG1	Recombinant protein encoding extracellular domain of human HER-2 protein	Human	
HER2 neu Phospho	RMab	EP123	IgG	Synthetic peptide corresponding to residues surrounding tyrosine 877 of the human HER-2 protein	Human	
HER-3/c-erbB-3	RMab	RBT-HER3	IgG	Synthetic peptide corresponding to human c-erb-3 (HER-3) protein	Human	
Herpes Simplex Virus I	MMab	10A3	IgG1	ICP8 purified from U-35-VERO cells	Human	
Herpes Simplex Virus I	RPab	Polyclonal	IgG	Recombinant protein directed against the major glycoproteins present in the viral envelope of HSV I.	Human	
Herpes Simplex Virus I & II	MMab	10A3 & BSB-116	IgG1 & IgG2a	ICP 8 purified from U-35 vero cells and a recombinant protein directed against the major glycoproteins present in the viral envelope of HSV I & II.	Human	
Herpes Simplex Virus I & II	RPab	Polyclonal	IgG	Recombinant protein directed against the major glycoproteins present in the viral envelope of HSV I & II	Human	
Herpes Simplex Virus II	RPab	Polyclonal	IgG	Recombinant protein directed against the major glycoproteins present in the viral envelope of HSV II	Human	
Herpes Simplex Virus II	MMab	BSB-116	IgG2a	Recombinant protein directed against the major glycoproteins present in the viral envelope of HSV II	Human	
hGAL/GCET2	RMab	EP316	IgG	A synthetic peptide corresponding to residues of human hGAL (GCET2) protein	Human	
HHV-8	MMab	13B10	IgG1	Purified HHV-8 virus	Human	
HHV-8	RMab	RBT-HHV8	IgG	Recombinant protein corresponding to the latent nuclear antigen 1 molecule of HHV8	Human	
HIF-1alpha	RMab	EP118	IgG	Synthetic peptide corresponding to residues near the C-terminus of human HIF-1 alpha protein	Human, Predicted: Mouse, Rat	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Melanoma, Hepatoblastoma, Hepatocellular Carcinoma	Cytoplasmic	1:100-1:500	Liver Cancer, Ovarian Cancer, Testicular Cancer, Melanoma & Skin Cancer, Germ Cell Tumors
	Liver, Testis, Cervix, Tonsil, Lymph Node, Spleen	Cytoplasmic (Granular)	1:25-1:100	Hodgkin's and NHD Lymphoma, Lymphoma, Leukemia & Histiocytic, Melanoma & Skin Cancer, Rejection & Autoimmunity, Immunotherapy
	Liver, Testis, Cervix, Tonsil, Lymph Node, Spleen	Cytoplasmic (Granular)	1:25-1:100	Hodgkin's and NHD Lymphoma, Lymphoma, Leukemia & Histiocytic, Melanoma & Skin Cancer, Rejection & Autoimmunity, Immunotherapy
	Placenta, Brain, Pituitary, Lung Adenocarcinoma, Choriocarcinoma	Cytoplasmic	1:250-1:1000	Ovarian Cancer, Testicular Cancer, Germ Cell Tumor, Undifferentiated Tumor
	Thyroid, Salivary Gland, Beast, Ovarian Carcinoma	Cytoplasmic, Nuclear	1:50-1:200	Ovarian Cancer, Gall Bladder & Pancreatic Cancer, Lung Cancer
	Testis, Prostate, Mesothelioma, Papillary Thyroid Carcinoma, Ovarian Serous Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Mesothelioma, Liver Cancer, Thyroid and Parathyroid Cancer, Ovarian Cancer
	Helicobacter pylori Infected Stomach Mucosa	Cell Wall	1:100-1:500	Infectious Diseases, Colon & GI Cancer
	H.Pylori Infected Stomach Mucosa	Cell Wall	1:25-1:100	Infectious Diseases, Colon & GI Cancer
	H.Pylori Infected Stomach Mucosa	Cell Wall	1:50-1:200	Infectious Diseases, Colon & GI Cancer
	Bone Marrow, Placenta, Spleen	Cytoplasmic	1:50-1:200	Leukemia & Histiocytic
	Hepatitis B Infected Liver	Nuclear	1:25-1:100	Infectious Diseases, Liver Cancer
	Hepatitis B Infected Liver	Cytoplasmic	1:50-1:200	Infectious Diseases, Liver Cancer
	Liver, Liver Carcinoma	Cytoplasmic	1:100-1:500	Liver Cancer, Carcinoma of Unknown Primary Site
	Breast Carcinoma	Membranous	1:50-1:200	Breast Cancer, Colon & GI Cancer
	Breast Carcinoma	Membranous	1:100-1:500	Breast Cancer, Colon & GI Cancer
	Breast Carcinoma	Membranous	1:100-1:500	Breast Cancer, Colon & GI Cancer
	Breast Carcinoma	Membranous	1:100-1:500	Breast Cancer, Colon & GI Cancer
	Colon, Cervix, Bladder TCC	Cytoplasmic	1:25-1:100	Breast Cancer
	HSV I Infected Tissues	Nuclear, Cytoplasmic	1:50-1:200	Infectious Diseases
	HSV I Infected Tissue	Nuclear, Cytoplasmic	1:25-1:100	Infectious Diseases
	HSV I & II Infected Tissues	Cytoplasmic, Nuclear	1:50-1:200	Infectious Diseases
	HSV I & II Infected Tissues	Nuclear, Cytoplasmic	1:25-1:100	Infectious Diseases
	HSV II Infected Tissues	Nuclear, Cytoplasmic	1:25-1:100	Infectious Diseases
	HSV II Infected Tissues	Cytoplasmic, Nuclear	1:50-1:200	Infectious Diseases
	Tonsil, Lymph Node, Thymus, Fallopian Tube, Germinal Center B-cell Type Diffuse Large B-cell Lymphoma	Cytoplasmic	1:25-1:100	Lymphoma, Hodgkin's & NH Lymphoma
	Kaposi's Sarcoma	Nuclear	1:25-1:100	Sarcoma & Soft Tissue, Lymphoma, Infectious Diseases
	Kaposi's Sarcoma	Nuclear	1:50-1:200	Sarcoma & Soft Tissue, Lymphoma, Infectious Diseases
	Tonsil, Cervix, Liver, Testis, Kidney, Breast, Thymus, Spleen, Colon, Cervical Cancer	Cytoplasmic, Nuclear	1:250-1:1000	Cervical Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Histone H3 Phospho	RPab	Polyclonal	IgG	Synthetic peptide corresponding to Human Histone H3 aa 1-100 (phospho S28) conjugated to Keyhole Limpet Haemocyanin (KLH)	Human	
Histone H3 Phospho	RMab	EP233	IgG	Synthetic phospho-peptide corresponding to residues surrounding Thr3 of Human Histone H3	Human	
HLA-DR alpha chain	RMab	EP96	IgG	Synthetic peptide corresponding to residues in human HLA-DRA protein	Human	
HMGA2	RMab	EP398	IgG	A synthetic peptide corresponding to residues of the human HMGA2 protein	Human	
hPL	RMab	EP241	IgG	Synthetic peptide corresponding to residues of human placental lactogen protein	Human	
hPL	RPab	Polyclonal	IgG	Purified human placental lactogen	Human	
HPV	MMab	BSB-66 (SB24)	IgG1/K	Recombinant major capsid protein of human papillomavirus type 16.	Human	
HPV16	MMab	CAMVIR-1	IgG2a	Human papilloma virus type 16, major caspid protein L1	Human	
HSP-27	MMab	G3.1	IgG1	Partially purified human HSP27	Human, Rat, Dog, Mouse, Primate	
HSP70	RMab	RM432	IgG	Recombinant human HSP70 protein	Human	
ICOS/CD278	RMab	RM417	IgG	Synthetic peptide corresponding to residues near the C-terminus of the human ICOS protein	Human	
IDH1 R132H	MMab	IHC132	IgG1	Synthetic peptide corresponding to the human IDH1 surrounding residual 132.	Human	
IDH1 R132H	RMab	RBT-IDH1	IgG	Synthetic peptide corresponding to IDH1 R132H mutant	Human	
IgA	MMab	BSB-39	IgG1/K	Purified human IgA secretory Component protein	Human	
IgA	RPab	Polyclonal	IgG	Purified human IgA secretory Component protein.	Human	
IgD	RPab	Polyclonal	IgG	IgD isolated from a pool of normal human plasma	Human	
IgD	RMab	EP173	IgG	Synthetic peptide corresponding to residues of human IgD protein.	Human	
IgE	RPab	Polyclonal	IgG	Purified IgE ε-Heavy Chain isolated from a pool of normal human sera.	Human	
IFN-Alpha	MMab	BSB-158	IgG2b	Recombinant human IFN-α1/13 protein	Human	
IFN-Gamma	MMab	BSB-161	IgG2a	Recombinant human IFN-γ protein	Human	
IgG	MMab	BSB-40	IgG2a/K	Purified human IgG gamma chain	Human, Canine, Feline	
IgG	RPab	Polyclonal	IgG	Purified IgG gamma chain.	Human	
IgG4	RMab	EP138	IgG	Synthetic peptide corresponding to residues in the hinge region of Human IgG4	Human	
IgG4	MMab	BSB-96	IgG1	Purified human IgG4	Human	
IgM	RPab	Polyclonal	IgG	Purified human IgM heavy chain.	Human	
IgM	MMab	BSB-41	IgG1/K	Purified human IgM heavy chain	Human	
IL-1a	MMab	BSB-138	IgG2b	Recombinant protein corresponding to the IL-1α of human origin	Human	
IL-1b	MMab	BSB-139	IgG2b	Recombinant protein corresponding to the IL-1β of human origin	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Tonsil, Lymph Node, Thymus, Spleen	Nuclear	1:25-1:100	Lymphoma, Melanoma & Skin Cancer, Neural & Neuroendocrine Cancer, Sarcoma & Soft Tissue
	Tonsil, Lymph Node, Thymus, Spleen	Nuclear	1:100-1:500	Lymphoma, Melanoma & Skin Cancer, Neural & Neuroendocrine Cancer, Sarcoma & Soft Tissue
	Tonsil, Spleen, Liver, Kidney, Adrenal, Colon, Lymph Node, Thymus, Lymphobalstic Lymphoma	Cytoplasmic	1:50-1:200	Breast Cancer, Liver Cancer, Lung Cancer, Ovarian Cancer
	Cervix, Lung Squamous Cell Carcinoma, Papillary Thyroid Carcinoma	Nuclear	1:50-1:200	Thyroid and Parathyroid Cancer, Pituitary Cancer, Breast Cancer, Lung Cancer, Colon and GI Cancer, Ovarian Cancer, Liver Cancer, Gallbladder and Pancreatic Cancer, Sarcoma and Soft Tissue Cancer
	Placenta	Cytoplasmic	1:100-1:500	Endometrial & Genital Cancer, Testicular Cancer, Ovarian Cancer
	Placenta	Cytoplasmic	1:100-1:500	Endometrial & Genital Cancer, Testicular Cancer, Ovarian Cancer
	HPV Infected Tissue	Nuclear	1:100-1:500	Cervical Cancer, Head & Neck Cancer, Infectious Diseases
	HPV16 Infected Tissues	Nuclear	1:250-1:1000	Cervical Cancer, Head & Neck Cancer, Infectious Diseases
	Tonsil, Cervix, Prostate, Breast Carcinoma, Cervical Carcinoma	Cytoplasmic	1:50-1:200	Cervical Cancer, Breast Cancer, Prostate Cancer
	Breast, Fallopian Tube, Skin, Prostate, Testis, Transitional Cell Carcinoma	Nuclear, Cytoplasmic	1:50-1:200	Cervical Cancer, Melanoma and Skin Cancer, Kidney and Urothelial Cancers
	Colon, Tonsil, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Cytoplasmic, Membranous	1:50-1:200	Immunotherapy, Leukemia and Histocytic Cancer, Lymphoma, Breast Cancer, Melanoma and Skin Cancer
	Glioma, Glioblastoma, Astrocytoma with IDH1 R132H Mutation	Cytoplasmic	1:25-100	Neural & Neuroendocrine Cancer, Leukemia and Histocytic Cancer, Liver Cancer, Melanoma and Skin Cancer, Colon and GI Caners, Prostate Cancer
	Glioma, Glioblastoma, Astrocytoma with IDH1 R132H Mutation	Cytoplasmic	1:25-100	Neural & Neuroendocrine Cancer, Leukemia and Histocytic Cancer, Liver Cancer, Melanoma and Skin Cancer, Colon and GI Caners, Prostate Cancer
	Tonsil, Spleen, Lymph Node, Kidney, Colon	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Spleen, Lymph Node, Kidney, Colon	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Lymph Node, Spleen	Cytoplasmic	1:100-1:500	Lymphomas, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Lymph Node, Spleen	Cytoplasmic	1:50-1:200	Lymphomas, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Thymus, Colon	N/A	1:250-1:1000	Rejection & Autoimmunity
	Placenta, Fallopian Tube, Stomach, Prostate, Testis, Transitional Cell Carcinoma, Papillary Thyroid Carcinoma,	Cytoplasmic, Membranous	1:25-1:100	Immunotherapy, Infectious Disease, Leukemia and Histocytic Cancer, Melanoma and Skin Cancer, Kidney and Urothelial Cancer
	Stomach, Fallopian Tube, Colon, Lung Adenocarcinoma, Ductal Breast Carcinoma, Pancreatic Adenocarcinoma	Cytoplasmic, Membranous	1:50-1:200	Immunotherapy, Infectious Disease, Kidney and Urothelial Cancer, Melanoma and Skin Cancer, Ovarian Cancer
	Tonsil, Lymph Node, Kidney, Spleen	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Lymph Node, Kidney, Spleen	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Spleen, Colon	Cytoplasmic	1:50-1:200	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Thyroid & Parathyroid Cancer
	Tonsil, Spleen, Colon	Cytoplasmic	1:50-1:200	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Thyroid & Parathyroid Cancer
	Tonsil, Lymph Node, Spleen, Kidney, Colon	Cytoplasmic	1:50-1:200	Leukemia & Histiocytic, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Tonsil, Lymph Node, Spleen, Kidney, Colon	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic, Hodgkin's & NH Lymphoma, Rejection & Autoimmunity
	Kidney, Colon, Adrenal gland, Testis, Lung	Membranous, Cytoplasmic	1:10-1:50	Rejection & Autoimmunity, Head and Neck Cancer, Gall Bladder & Pancreatic Cancer, Sarcoma & Soft Tissue, Breast Cancer, Colon & G.I. Tract
	Colon, Pancreas, Liver, Stomach, Brain, Testis, Lung, Transitional Cell Carcinoma, Tonsil	Cytoplasmic	1:50-1:200	Rejection & Autoimmunity, Breast Cancer, Colon & G.I. Tract, Lung Cancer, Liver Cancer, Head and Neck Cancers, Melanoma & Skin Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
IL-6	MMab	BSB-140	IgG2b	Recombinant protein corresponding to the IL-6 of human origin	Human	
IMP-3/1GF2BP3	RMab	EP286	IgG	A synthetic peptide corresponding to the human IMP-3 protein	Human, Predicted Mouse and Rat	
Inhibin alpha	RMab	EP378	IgG	Synthetic peptide corresponding to residues of human Inhibin alpha chain protein	Human	
Inhibin alpha	MMab	R1	IgG2a	Synthetic peptide: MVLHLLFLLITPGGHSCQGLELARELVLAK, corresponding to amino acids 1-32 of human inhibin alpha	Human, Dog, Cat	
INI-1	MMab	25	IgG2a	Mouse BAF47 aa.257-359	Human	
INI-1	RMab	RBT-INI1	IgG	Synthetic peptide corresponding to residues of mouse BAF47 protein	Human	
iNOS	RMab	RBT-iNOS	IgG	Synthetic peptide corresponding to the N-terminus of the human iNOS protein	Human	
INSM1	MMab	BSB-123	IgG/K	Synthetic peptide corresponding to residues from the N-terminal domain of the human INSM1 protein.	Human	
INSM1	RMab	RBT-INSM1	IgG	"Synthetic peptide corresponding to residues from the N-terminal domain of the human INSM1 protein."	Human	
Insulin	RMab	EP125	IgG	Synthetic peptide corresponding to residues of the human Insulin protein	Human	
Insulin	MMab	BSB-42	IgG1/K	Recombinant full length human insulin protein	Human, Canine, Feline, Rat	
Islet 1/ISL1	RMab	EP283	IgG	A synthetic peptide corresponding to residues of human Islet-1 protein	Human	
Kappa	RPab	Polyclonal	IgG	Purified Kappa Light chains from human myeloma serum.	Human	
Kappa Light Chains	MMab	BSB-58 (Kap-56)	IgG1/K	Purified Kappa Light chains from human myeloma serum	Human, Dog, Cat	
Ki-67	RMab	EP5	IgG	Synthetic peptide corresponding to residues of the human Ki-67 protein	Human	
Ki-67	RMab	RM360	IgG	Synthetic peptide corresponding to residues of the human Ki-67 protein	Human	
Ksp-Cadherin	MMab	4H6/F9	IgG1	Maltose-binding protein fusion protein containing the C-terminal 267 amino acids of the human isoform of Ksp-cadherin	Human	
LAG-3/CD223	RMab	EP294	IgG	Synthetic peptide corresponding to residues of human LAG-3 (CD223) protein	Human	
Lambda	MMab	BSB-16 (Lamb14)	IgG2a	Purified Kappa Light chains from human myeloma serum	Human, Dog, Cat	
Lambda	RPab	Polyclonal	IgG	Purified human Lambda Light Chains from human serum.	Human	
Lamin-B1	RMab	RBT-LMNB1	IgG	Recombinant human Lamin B1 protein	Human, Mouse, Rat	
Laminin-R/RPSA	MMab	BSB-144	IgG1	Synthetic peptide corresponding to the N-terminus of the human Laminin-R protein	Human, Mouse, Rat	
Langerin	MMab	12D6	IgG2b	Recombinant protein representing the external domain of the Langerin molecule	Human	
Langerin/CD207	RMab	EP349	IgG	Synthetic peptide corresponding to residues of human Langerin (CD207) protein	Human	
LEF-1	RMab	EP310	IgG	Synthetic peptide corresponding to residues of human LEF-1 protein	Human	
LH	MMab	BSB-53	IgG1/K	Synthetic peptide corresponding to N-terminus of the human luteinizing hormone	Human	
LIN28	RMab	EP150	IgG	Synthetic peptide corresponding to residues of the C-terminus of human LIN28A protein.	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Testis, Lung, Stomach, Kidney, Transitional Cell Carcinoma	Membranous, Cytoplasmic	1:50-1:200	Rejection & Autoimmunity, Colon & G.I. Tract, Breast Cancer, Lung Cancer, Prostate Cancer, Ovarian Cancer, all Bladder & Pancreatic Cancer, Kidney Cancer and Urothelial
	Placenta, Tonsil, Ovarian Carcinoma, TCC	Cytoplasmic, Nuclear	1:25-1:100	Gall Bladder & Pancreatic Cancer, Lung Cancer, Kidney & Urothelial Cancer, Melanoma & Skin Cancer, Cervical Cancer, Endometrial & Genital Cancer, Colon & GI Cancer, Cytopathology
	Testis, Seminoma, Testicular Carcinoma	Cytoplasmic	1:50-1:200	Endometrial & Genital Cancer, Ovarian Cancer, Kidney & Urothelial Cancer
	Placenta, Testis, Corpus Luteum, Adrenal Cortex, Testicular Carcinoma	Cytoplasmic	1:25-1:100	Endometrial & Genital Cancer, Ovarian Cancer, Kidney & Urothelial Cancer
	Testis, Brain, Breast, Colon, Kidney, Pituitary, Adrenal, Prostate, Thyroid, Lung, Pancreas, Cervix, Salivary Gland, Astrocytoma, Lymphoblastic Lymphoma, Transitional Cell Carcinoma	Nuclear	1:25-1:100	Sarcoma & Soft Tissue, Neural & Neuroendocrine Cancer, Kidney & Urothelial Cancer
	Testis, Brain, Breast, Colon, Kidney, Pituitary, Adrenal, Prostate, Thyroid, Lung, Pancreas, Cervix, Salivary Gland, Astrocytoma, Lymphoblastic Lymphoma, Transitional Cell Carcinoma	Nuclear	1:25-1:100	Sarcoma & Soft Tissue, Neural & Neuroendocrine Cancer, Kidney & Urothelial Cancer
	Testis, Adrenal, Lung, Prostate, Liver, Placenta, Spleen	Cytoplasmic	1:25-1:100	Rejection & Autoimmunity
	Pancreas, Colon, Tonsil, Neuroendocrine Lung Cancer, Endometrial & Colon Carcinomas	Nuclear	1:50-1:200	Lung Cancer, Neural & Neuroendocrine Cancer, Pituitary, Colon & GI Cancer
	Pancreas, Colon, Tonsil, Neuroendocrine Lung Cancer, Endometrial & Colon Carcinomas	Nuclear	1:25-1:100	Lung Cancer, Neural & Neuroendocrine Cancer, Pituitary, Colon & GI Cancer
	Pancreas	Cytoplasmic	1:50-1:200	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer
	Pancreas	Cytoplasmic	1:250-1:1000	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer
	Pancreas,Testis, Thyroid, Cervix, Skin, Pancreatic Neuroendocrine Cancer	Nuclear	1:25-1:100	Gall Bladder & Pancreatic Cancer
	Tonsil, Lymph Node	Cytoplasmic	1:250-1:1000	Lymphoma, Rejection & Autoimmunity
	Tonsil, Lymph Node	Cytoplasmic	1:250-1:1000	Lymphoma, Rejection & Autoimmunity
	Testis, Tonsil, Bone Marrow, Placenta, Colon, Tonsil, Fallopian Tube, Astrocytoma, Breast Carcinoma, Colon Carcinoma	Nuclear	1:25-1:100	Breast Cancer, Cervical Cancer, Colon & GI Cancer, Lung Cancer, Lymphoma, Melanoma & Skin Cancer, Ovarian Cancer
	Testis, Tonsil, Bone Marrow, Placenta, Colon, Tonsil, Fallopian Tube, Astrocytoma, Breast Carcinoma, Colon Carcinoma	Nuclear	1:25-1:100	Breast Cancer, Cervical Cancer, Colon & GI Cancer, Lung Cancer, Lymphoma, Melanoma & Skin Cancer, Ovarian Cancer
	Kidney, Chromophobe Renal Cell Carcinoma	Cytoplasmic, Membranous	1:250-1:1000	Kidney & Urothelial Cancer
	Testis, Lymph Node, Spleen, Lymphoblastic Lymphoma, TCC	Cytoplasmic, Membranous	1:10-1:50	Leukemia & Histiocytic, Rejection & Autoimmunity , Hodgkin's and NHD Lymphoma, Lymphoma, Immunotherapy
	Tonsil, Lymph Node	Cytoplasmic	1:250-1:1000	Lymphoma, Rejection & Autoimmunity
	Tonsil, Lymph Node	Cytoplasmic	1:250-1:1000	Lymphoma, Rejection & Autoimmunity
	Colon, Breast, Fallopian Tube, Tonsil, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma, Colon Adenocarcinoma	Nuclear	1:50-1:200	Lung Cancer, Colon and GI Cancer, Gallbladder and Pancreatic Cancer
	Placenta, Kidney, Prostate, Tonsil, Spleen, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Cytoplasmic, Membranous	1:50-1:200	Breast Cancer, Colon and GI Cancer, Gallbladder and Pancreatic Cancer, Prostate Cancer, Cervical Cancer, Lymphoma
	Skin, Langerhans Histiocytosis	Cytoplasmic	1:50-1:200	Leukemia & Histiocytic, Sarcoma & Soft Tissues
	Skin, Prostate, Breast, Liver, Cervix, Salivary Gland, Langerhans Histiocytosis	Cytoplasmic	1:50-1:200	Leukemia & Histiocytic, Sarcoma & Soft Tissues
	Breast, Tonsil, Breast Carcinoma, Small Lymphocytic Lymphoma	Nuclear	1:50-1:200	Leukemia & Histiocytic, Lymphoma, Colon & GI Cancer, Brain Cancer
	Normal Pituitary	Cytoplasmic	1:100-1:500	Pituitary, Neural & Neuroendocrine Cancer
	Testis, Seminoma, Dysgerminoma, Yolk Sac Tumor, Embryonal Carcinoma	Cytoplasmic	1:25-1:100	Ovarian Cancer, Testicular Cancer, Liver Cancer, Breast Cancer, Endometrial and Genital Cancer, Colon and GI Cancer, Germ Cell Tumors

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
LM02	RMab	RBT-LM02	IgG	Synthetic peptide corresponding to the N-terminal of the human LM02 protein.	Human	
Lysozyme	RMab	EP134	IgG	Synthetic peptide corresponding to residues of human Lysozyme C protein	Human, Predicted: Mouse	
Lysozyme	RPab	Polyclonal	IgG	Purified human lysozyme from urine of patients with monocytic leukemia	Human	
Macrophage HAM-56	MMab	HAM-56	IgM/K	Sonicated human alveolar macrophages	Human, Monkey	
Mammaglobin	RMab	EP249	IgG	Synthetic peptide corresponding to residues of human Mammaglobin A protein	Human, Mouse, Monkey, Predicted: Rat	
Mart-1/Melan A	MMab	M2-7C10	IgG2b/K	Recombinant human MART-1 protein	Human	
Mart-1/Melan-A	MMab	A103	IgG1	Recombinant human Melan-A protein	Human	
Maspin	MMab	BSB-92	IgG2a	Synthetic peptide against the N-terminus of the human maspin protein	Human	
MCM2	RMab	RBT-MCM2	IgG	Synthetic peptide corresponding to residues of human MCM2 protein	Human	
MCM3	RMab	EP202	IgG	Synthetic peptide corresponding to residues of human MCM3 protein	Human, Predicted: Mouse, Rat	
MCM5	RMab	RBT-MCM5	IgG	Synthetic peptide corresponding to residues of human MCM5 protein	Human	
MDM2	MMab	BSB-64	IgG1	Synthetic peptide against the N-terminus of the human MDM2 protein	Human	
MDR-1	MMab	JSB-1	IgG1	Multidrug-resistant Chinese hamster ovary cell line (CHrC5)	Human	
MDR-1	RMab	EP271	IgG	A protein fragment corresponding to human MDR-1 protein	Human, Mammalia	
Melanoma Cocktail: HMB-45, MART-1 & Tyrosinase	MMab	HMB-45, A103 & BSB-6	IgG1/K, IgG1 & IgG2a	Pigmented melanoma metastases from lymph nodes (HMB45); Recombinant human Melan-A protein (A103) and Recombinant full length human tyrosinase protein (BSB-6)	Human, Dog	
Melanoma KBA.62	MMab	KBA.62	IgG1	Human KAL cells derived from lymph node metastasis of malignant melanoma	Human	
Melanoma PNL2	MMab	PNL2	IgG1	Recombinant C-Terminal of the human SST2 protein	Human, Dog	
Melanosome HMB45	MMab	HMB-45	IgG1/K	Purified pigmented melanoma metastases from lymph nodes (HMB45)	Human	
Mesothelial Cell	MMab	HBME-1	IgM/K	Human mesothelioma cells from patients with malignant epithelial mesothelioma	Human	
Mesothelin	RMab	EP140	IgG	Synthetic peptide corresponding to residues on C-terminus of human mesothelin protein	Human, Dog, Cat	
MGMT/AGAT	RMab	EP337	IgG	A synthetic peptide corresponding to residues of the human MGMT protein	Human	
MiTF	MMab	C5 & D5	IgG1/K & IgG1/K	N-terminal fragment of the human MiTF protein	Human, Dog, Cat	
MLH1	MMab	G168-728	IgG2a	Full length recombinant MLH1 protein	Human, Rat, Mouse	
MMP-9	RMab	EP127	IgG	Synthetic peptide corresponding to residues of human MMP-9 protein	Human, Predicted: Rat	
MNDA	MMab	BSB-157	IgG1	Synthetic peptide corresponding to the C-terminus of the human MNDA protein	Human	
MSH2	RMab	RBT-MSH2	IgG	Synthetic peptide corresponding to the N-terminus of the human MSH2 protein	Human	
MSH2	MMab	BSB-147	IgG1	Recombinant Human MSH2 Protein	Human	
MSH6	MMab	44	IgG1	Synthetic peptide human MSH6	Human, Rat, Mouse, Dog	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Tonsil, Spleen, Placenta, Follicular and Lymphoblastic Lymphoma	Cytoplasmic	1:50-1:200	Lymphoma
	Tonsil, Lymph Node, Liver, Kidney, Spleen, Salivary Gland, Cervix, Pancreas, Bone Marrow, Colon, Lung	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic
	Tonsil, Lymph Node, Liver, Kidney, Spleen, Lung, Salivary Gland, Cervix, Pancreas, Bone Marrow, Colon, Lymphoblastic Lymphoma, Transitional Cell Carcinoma	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic
	Tonsil, Lymph Node, Thymus, Spleen, Placenbta, Colon	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic
	Breast, Skin, Fallopian Tube, Breast Carcinoma	Cytoplasmic	1:25-1:100	Breast Cancer, Carcinomas of Unknown Primary Site
	Normal Skin, Melanoma	Cytoplasmic	1:250-1:1000	Melanoma & Skin Cancer
	Normal Skin, Melanoma	Cytoplasmic	1:250-1:1000	Melanoma & Skin Cancer
	Prostate, Breast,Tonsil	Nuclear, Cytoplasmic	1:25-1:100	Breast Cancer, Prostate Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Lung Cancer
	HSIL, Cervical, Breast Cancer	Nuclear	1:100-1:500	Cervical Cancer
	Colon Carcinoma	Nuclear	1:25-1:100	Breast Cancer, Cervical Cancer, Head & Neck Cancer
	Tonsil, Testis, Breast, Colon, Spleen, Cervical Carcinoma, Colon Carcinoma, Transitional Cell Carcinoma, Lymphoblastic Lymphoma	Nuclear	1:100-1:300	Cervical Cancer
	Testis, Tonsil, Cervix, Placenta, LipoSarcoma & Soft Tissue, Testicular Cancer	Nuclear	1:25-1:100	Sarcoma & Soft Tissues, Breast Cancer
	Skeletal Muscle, Kidney, Adrenal, Liver	Cytoplasmic	1:25-1:100	Breast Cancer
	Skeletal Muscle, Kidney, Adrenal, Liver	Cytoplasmic	1:50-1:200	Breast Cancer
	Skin, Melanoma	Cytoplasmic	1:100-1:500	Melanoma & Skin Cancer
	Melanoma	Membranous	1:50-1:200	Melanoma & Skin Cancer
	Melanoma	Cytoplasmic	1:100-1:500	Melanoma & Skin Cancer, Sarcoma & Soft Tissue, Undifferentiated Tumor
	Melanoma	Cytoplasmic	1:250-1:1000	Melanoma & Skin Cancer
	Breast, Tonsil, Lung, Salivary Gland, TCC, Mesothelioma	Cytoplasmic, Membranous	1:25-1:100	Mesothelioma, Lung Cancer, Head & Neck Cancer, Gall Bladder & Pancreatic Cancer, Cytopathology
	Synthetic peptide corresponding to residues on C-terminus of human mesothelin protein	Cytoplasmic, Membranous	1:50-1:200	Mesothelioma, Lung Cancer, Head & Neck Cancer, Gall Bladder & Pancreatic Cancer, Cytopathology
	Breast, Cervix, Fallopian Tube, Prostate, Testis, Transitional Cell Carcinoma, Lung Adenocarcinoma, Ductal Breast Cacrcinoma, Endometrial Carcinoma	Nuclear, Cytoplasmic	1:50-1:200	Neural & Neuroendocrine Cancer, Breast Cancer, Leukemia and Histocytic Cancers, Melanoma and Skin Cancer, Colon and GI Cancer, Gallbladder and Pancreatic Cancer, Lung Cancer, Prostate Cancer, Lymphoma
	Skin, Melanoma	Nuclear	1:250-1:1000	Skin, Melanoma
	Testis, Tonsil, Colon, Kidney, Colon Carcinoma	Nuclear	1:10-1:50	Colon & GI Cancer, Melanoma & Skin Cancer
	Tonsil, Spleen, Liver, Pituitary, Colon, Lymphoblastic Lymphoma, Transitional Cell Carcinoma	Cytoplasmic	1:50-1:200	Breast Cancer, Colon & GI Cancer
	Breast, Colon, Fallopian Tube, Brain, Tonsil, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Nuclear	1:50-1:200	Leukemia and Histocytic Cancers, Lymphomas, Sarcoma and Soft Tissue Tumors
	Colon, Skin, Breast, Tonsil, Fallopian Tube, Colon Carcinoma	Nuclear	1:50-1:200	Colon & GI Cancer, Melanoma & Skin Cancer
	Colon, Skin, Breast, Tonsil, Fallopian Tube, Colon Carcinoma	Nuclear	1:100-1500	Colon & GI Cancer, Melanoma & Skin Cancer
	Colon Mucosa, Colon Carcinoma	Nuclear	1:50-1:200	Colon & GI Cancer, Melanoma & Skin Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
MSH6	RMab	EP49	IgG	Synthetic peptide corresponding to Human MSH6 aa 1-100 (N terminal)	Human, Predicted: Mouse, Rat	
MTAP	RMab	RBT-MTAP	IgG	Recombinant human MTAP protein	Human	
MUC1	RMab	EP85	IgG	A synthetic peptide corresponding to residues on the C-terminus of human MUC1 protein	Human	
MUC1	MMab	BSB-44	IgG1/K	Synthetic peptide corresponding to the N-terminus of human MUC1	Human	
MUC2	MMab	BSB-45	IgG1/K	Synthetic peptide corresponding to the C-terminus of human MUC2	Human	
MUC2	RMab	EP187	IgG	Synthetic peptide corresponding to residues of human MUC2 protein	Human	
MUC4	MMab	8G7	IgG1	KLH-conjugated linear peptide corresponding to the beta chain tandem repeat region of human MUC4	Human	
MUC4	RMab	EP256	IgG	Synthetic peptide corresponding to residues of human MUC4 protein	Human	
MUC5AC	MMab	CLH2	IgG1	A synthetic peptide of the human MUC5AC tandem repeat protein	Human	
MUC6	MMab	CLH5	IgG1	Synthetic peptide of the Gastric Mucin (Muc-6) tandem repeat sequence purified by HPLC	Human	
MUM1	RMab	EP190	IgG	Synthetic peptide corresponding to residues of human IRF4 (MUM1) protein	Human, Canine, Feline	
Musashi 2	RMab	RM422	IgG	Synthetic peptide corresponding to the internal region of human Musashi 2	Human	
Mycobacterium tuberculosis	RPab	Polyclonal	IgG	Purified PPD	Human	
Myelin Basic Protein	RPab	Polyclonal	IgG	Synthetic peptide conjugated to KLH derived from within residues 150 to the C-terminus of Mouse Myelin Basic Protein	Human, Dog	
Myelin Basic Protein	RMab	EP207	IgG	Synthetic peptide corresponding to residues of human Myelin Basic Protein	Human	
Myeloperoxidase	RMab	EP151	IgG	Synthetic peptide corresponding to residues in human MPO protein	Human	
Myeloperoxidase	RPab	Polyclonal	IgG	Purified human granulocytic MPO	Human, Dog, Cat	
MyoD1	RMab	EP212	IgG	Synthetic peptide corresponding to residues of human MyoD1 protein	Human	
Myogenin	MMab	F5D	IgG1/K	Recombinant protein containing rat myogenin aa 30-224	Human, Canine, Rat, Mouse	
Myoglobin	RMab	EP87	IgG	Synthetic peptide corresponding to residues on the C-terminus of human myglobin protein	Human	
Myoglobin	MMab	BSB-104	IgG1	Recombinant protein representing the full lenght of the human Myoglobin protein	Human	
Myosin Smooth Muscle	MMab	BSB-17 (SMM-H24)	IgG1/K	Synthetic peptide corresponding to residues of human myosin heavy chain protein	Human, Dog, Cat	
Nanog	RMab	EP225	IgG	A synthetic peptide corresponding to residues of human Nanog protein.	Human	
Napsin A	RMab	EP205	IgG	Synthetic peptide corresponding to residues of human Napsin A protein	Human	
Napsin A	MMab	BSB-112	IgG1/K	Synthetic peptide corresponding to residues of human Napsin A protein	Human	
Nestin	RMab	EP287	IgG	Synthetic peptide corresponding to C-terminus of human Nestin protein	Human	
NeuN	MMab	A60	IgG1	Purified cell nuclei from mouse brain	Human, Avian, Chicken, Ferret, Mouse, Pig, Rat, Salamander	
NeuN	RMab	RBT-NeuN	IgG	Recombinant NeuN human protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Colon Mucosa, Colon Carcinoma	Nuclear	1:50-1:200	Colon & GI Cancer, Melanoma & Skin Cancer
	Breast, Colon, Prostate, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma	Cytoplasmic, Nuclear,	1:50-1:200	Mesothelioma, Melanoma and Skin Cancer, Liver Cancer, Colon and GI Cancer, Prostate Cancer
	Breast, Colon, Kidney, Fallopian Tube, Tonsil, Colon Adenocarcinoma	Cytoplasmic	1:50-1:200	Breast, Colon, Kidney, Fallopian Tube, Tonsil, Colon Adenocarcinoma
	Breast, Colon, Kidney, Fallopian Tube, Tonsil, Colon Adenocarcinoma	Cytoplasmic	1:250-1:1000	Breast Cancer, Colon & GI Cancer
	Small Intestine, Colon, Colon Adenocarcinoma	Cytoplasmic	1:250-1:1000	Colon & GI Cancer
	Small Intestine, Colon, Colon Adenocarcinoma	Cytoplasmic	1:25-1:100	Colon & GI Cancer
	Colon, Prostate, Cervix, Placenta, Salivary Gland, Pancreatic Carcinoma, Cervical Squamous Carcinoma, Bladder TCC	Cytoplasmic	1:25-1:100	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Ovarian Cancer, Lung Cancer, Endometrial & Genital Cancer, Cervical Cancer, Sarcoma & Soft Tissue
	Colon, Liver, Kidney, Pancreatic Carcinoma, Cervical Squamous Carcinoma, Bladder TCC	Cytoplasmic	1:25-1:100	Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Ovarian Cancer, Lung Cancer, Endometrial & Genital Cancer, Cervical Cancer, Sarcoma & Soft Tissue
	Stomach, Colon, Kidney	Cytoplasmic	1:25-1:100	Colon & GI Cancer
	Stomach	Cytoplasmic	1:100-1:400	Colon & GI Cancer
	Tonsil, Spleen, Colon, Kidney, Breast, Lymph Node, Plasmacytoma, Hodgkin's Lymphoma	Cytoplasmic, Nuclear	1:25-1:100	Hodgkin's and NHD Lymphoma, Lymphoma
	Testis, Kidney, Colon, Transitional Cell Carcinoma, Breast Cancer	Nuclear, Cytoplasmic	1:50-1:200	Lung Cancer, Leukemias and Histocytic Cancer, Cervical Cancer, Breast Cancer, Neural and Neuroendocrine Cancer, Liver Cancer, Gallbladder and Pancreatic Cancer
	Infected Tissue	Cell Wall	1:250-1:1000	Infectious Diseases, Cytopathology
	Brain, Neuroblastoma	Cytoplasmic	1:50-1:200	Neural & Neuroendocrine Cancer
	Brain, Neuroblastoma	Cytoplasmic	1:25-1:100	Neural & Neuroendocrine Cancer
	Bone Marrow	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic
	Bone Marrow	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic
	Fetal Muscle, RhabdomyoSarcoma & Soft Tissue	Nuclear	1:50-1:200	Sarcoma & Soft Tissue
	RhabdomyoSarcoma & Soft Tissue	Nuclear	1:50-1:200	Sarcoma & Soft Tissue, Undifferentiated Tumor
	Skeletal Muscle Tissue	Cytoplasmic	1:100-1:500	Sarcoma & Soft Tissue
	Skeletal Muscle Tissue	Cytoplasmic, Membranous	1:100-1:500	Sarcoma & Soft Tissue
	Intestine, Breast, Appendix	Cytoplasmic	1:250-1:1000	Breast Cancer
	Testis, Cervix, Seminoma, Embryonal Carcinoma, TCC	Cytoplasmic	1:50-1:200	Ovarian Cancer, Testicular Cancer, Germ Cell Tumor, Breast Cancer, Lung Cancer
	Kidney, Lung, Renal Cell Carcinoma, Lung Carcinoma	Cytoplasmic	1:10-1:50	Lung Cancer, Carcinoma of Unknow Primary Site, Cytopathology
	Kidney, Lung, Renal Cell Carcinoma, Lung Carcinoma	Cytoplasmic	1:100-1:500	Lung Cancer, Carcinoma of Unknow Primary Site, Cytopathology
	Kidney, Breast, Adrenal, Myometrium, Liver Carcinoma	Cytoplasmic	1:50-1:200	Melanoma & Skin Cancer, Breast Cancer
	Brain	Nuclear	1:25-1:100	Neural & Neuroendocrine Cancer
	Brain	Nuclear	1:100-1:250	Neural & Neuroendocrine Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Neurofilament	MMab	2F11	IgG1/K	Purifed human neurofilament preparation.	Human, Canine, Rat, Mouse, Horse	
Neurofilament	RMab	EP79	IgG	Synthetic peptide corresponding to residues in human Neuro-filament M protein	Human	
NGFR	MMab	BSB-18	IgG1	Recombinant human p75 nerve growth factor receptor protein	Human	
NKX2.2	RMab	EP336	IgG	A synthetic peptide corresponding to residues of human NKX2.2 protein	Human, Predicted Mouse and Rat	
NKX3.1	RMab	EP356	IgG	A synthetic peptide corresponding to residues of human NKX3.1 protein	Human	
NKX3.1	RMab	RM430	IgG	A synthetic peptide corresponding to residues of human NKX3.1 protein.	Human	
NPM1/B23	MMab	BSB-124	IgG1/K	Synthetic peptide corresponding to the C-terminals of the human NPM1/B23 protein.	Human	
NRAS	RMab	RBT-NRAS	IgG	Synthetic peptide of human N-Ras protein containing the (Q61R) point mutation	Human	
NSE	MMab	BSB-94	IgG1/K	Purified human neuron-specific enolase (NSE)	Human	
NUT/NUTM1	RMab	RBT-NUTM1	IgG	Recombinant protein corresponding to Human NUTM1	Human	
Oct-2	RMab	EP115	IgG	Synthetic peptide corresponding to residues of human OCT-2 protein	Human	
Oct-4	RMab	EP143	IgG	Synthetic peptide corresponding to residues of human OCT-4 protein	Human	
OLIG2	RMab	EP112	IgG	Synthetic peptide corresponding to residues in human OLIG2 protein	Human, Predicted: Mouse	
Osteonectin/SPARC	MMab	BSB-93	IgG1	Synthetic peptide corresponding to the N-terminus of the human SPARC protein	Human, Rat	
OX-40/CD134	MMab	BSB-90	IgG1	Synthetic peptide corresponding to the N-terminus of the human OX40 protein	Human	
p120 Catenin	RMab	EP66	IgG	Synthetic peptide corresponding to residues in human p120 Catenin protein	Human, Predicted: Mouse, Rat, Rabbit	
p14 ARF	RMab	RBT-p14	IgG	Synthetic peptide corresponding to the C-terminus of the hu-man p14 ARF/CDKN2A.	Human	
p16	MMab	16P04, JC2	IgG1	Purified human recombinant full length p16 protein.	Human	
p16	RMab	RBT-p16	IgG	Purified human recombinant full length p16 protein.	Human	
p16	RMab	RM267	IgG	A peptide corresponding to the C-terminus of human p16INK4a (Cyclin-dependent kinase inhibitor 2A).	Human	
p21	MMab	DCS-60.2	IgG2a	Purified human recombinant fusion p21 protein	Human	
p27	MMab	SX53G8	IgG1/K	Purified glutathione S-transferase (GST)-p27Kip1 fusion protein	Human	
p40	RMab	ZR8	IgG	Synthetic peptide corresponding to the N-terminal domain of human p63	Human	
p53	MMab	DO7	IgG2b/K	Recombinant human wild-type p53 protein	Human, Cat, Cattle, Horse, Sheep, Bovine, Monkey	
p57	MMab	Kp10	IgG2b/K	Recombinant human p57Kip2 protein	Human	
p63	MMab	4A4	IgG2a/K	Recombinant fragment corresponding to Human p63 aa 1-205.	Human	
p63	RMab	EP174	IgG2a/K	Recombinant protein fragment corresponding to amino acids 1-203 of human p63 protein.	Human	
Parafibromin	MMab	BSB-50	IgG1	Synthetic peptide corresponding to the N-terminus of the human parafibromin protein	Human	
Parathyroid Hormone/PTH	MMab	BSB-24	IgG1	Synthetic peptide corresponding to the N-terminus of the human parathyroid hormone protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Brain	Cytoplasmic	1:250-1:1000	Neural & Neuroendocrine Cancer
	Brain	Cytoplasmic	1:100-1:500	Neural & Neuroendocrine Cancer
	Brain, Breast, Prostate, Neuroblastoma, CNS Tumor	Cytoplasmic	1:250-1:1000	Melanoma & Skin Cancer, Breast Cancer
	Pancreas, Brain, Pituitary, Colon, Ewing's Sarcoma & Soft Tissue	Nuclear	1:50-1:200	Sarcoma & Soft Tissue,
	Prostate, Prostate Carcinoma	Nuclear	1:50-1:200	Prostate Cancer, Breast Cancer, Carcinoma of Unknow Primary Site
	Prostate, Prostate Carcinoma	Nuclear	1:50-1:200	Prostate Cancer, Breast Cancer, Carcinoma of Unknow Primary Site
	Breast, Cervix, Testis, Pancreas, RCC, TCC	Cytoplasmic	1:50-1:200	Lymphoma, Leukemia & Histocytic, Colon & GI Cancer.
	Small Intestine, Melanoma, ASTMA2, Lung Carcinoma	Membranous	1:25-1:50	Melanoma & Skin Cancer
	Pancreas, Brain, Pituitary, Adrenal, Thyroid	Cytoplasmic	1:250-1:1000	Neural & Neuroendocrine Cancer, Lung Cancer
	Testis	Nuclear	1:50-1:200	Head and Neck Cancer, Sarcoma and Sof Tissue Tumor, Lymphoma
	Tonsil, Lymph Node	Nuclear	1:100-1:500	Hodgkin's and NHD Lymphoma, Lymphoma
	Seminoma, Dysgerminoma, Testis Carcinoma	Nuclear	1:50-1:200	Ovarian Cancer, Testicular Cancer, Germ Cell Tumor
	Tonsil, Colon, Brain, Astrocytoma	Nuclear	1:50-1:200	Neural & Neuroendocrine Cancer
	Adrnenal, Testis, Placenta, TCC, Testicular Cancer, Cervical Cancer	Cytoplasmic	1:100-1:500	Breast Cancer, Prostate Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer
	Tonsil, Lymph Node, Thymus	Cytoplasmic, Membranous	1:25-1:100	Rejection & Autoimmunity, Melanoma & Skin Cancer; Immunotherapy
	Breast, Testis, Kidney, Prostate, Pancreas, Tonsil, Salivary Gland, Skin, Cervix, Colon, Malignant Melanoma, Transitional Cell Carcinoma, Breast Lobular Carcinoma	Cytoplasmic, Membranous	1:100-1:500	Breast Cancer
	Cervical, Anal and Ovarian Carcinomas	Cytoplasmic	1:25-1:100	Breast Cancer, Colon & GI Cancer, Cervical Cancer, Neural and Neuroendocrine Cancer
	Testis, NSCLC, TCC	Nuclear, Cytoplasmic	1:25-1:100	Cervical Cancer, Breast Cancer, Head & Neck Cancer,
	Testis, NSCLC, TCC	Cytoplasmic, Nuclear	RTU	Cervical Cancer, Breast Cancer, Head & Neck Cancer
	Testis, NSCLC, TCC	Cytoplasmic, Nuclear	1:25-1:100	Cervical Cancer, Breast Cancer, Head & Neck Cancer
	Tonsil, Colon, Fallopian Tube, Breast Cancer, Colon Carcinoma	Cytoplasmic, Nuclear	1:50-1:200	Endometrial & Genital Cancer
	Testis, Breast, Adrenal, Prostate, Tonsil, Lung, Colon, Non-Small Cell Lung Carcinoma, Colon Adenocarcinoma	Nuclear	1:25-1:100	Breast Cancer
	Prostate, Breast, Skin	Nuclear	1:50-1:200	Lung Cancer, Prostate Cancer, Breast Cancer, Melanoma & Skin Cancer, Carcinoma of Unknown Primary Site
	Lung , Breast, Ovarian Prostate, or Colon Carcinomas	Nuclear	1:250-1:1000	Breast Cancer, Colon & GI Cancer, Endometrial & Genital Cancer, Liver Cancer
	Placenta, Colon Carcinoma	Nuclear	1:250-1:1000	Germ Cell Tumor
	Prostate, Breast, Skin, Salivary Gland	Cytoplasmic	1:50-1:200	Cervical Cancer, Breast Cancer, Head & Neck Cancer, Kidney & Urotelial Cancer, Lung Cancer, Prostate Cancer, Thyroid & Parathyroid Cancer, Melanoma & Skin Cancer, Carcinomas of Unknown Primary Site
	Prostate, Breast, Skin, Salivary Gland	Cytoplasmic	1:50-1:200	Cervical Cancer, Breast Cancer, Head & Neck Cancer, Kidney & Urotelial Cancer, Lung Cancer, Prostate Cancer, Thyroid & Parathyroid Cancer, Melanoma & Skin Cancer, Carcinomas of Unknown Primary Site
	Parathyroid, Colon, Testis, Adrenal, Breast, Cervix, Kidney, Pituitary, Brain, Pancreas, Salivary Gland, Lymphoblastic Lymphoma, Bladder TCC, Transitional Cell Carcinoma	Nuclear	1:25-1:100	Thyroid & Parathyroid Cancer
	Parathyroid	Cytoplasmatic, Membranous	1:250-1:1000	Thyroid & Parathyroid Cancer, Head & Neck Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Parvalbumin	RMab	EP300	IgG	Synthetic peptide corresponding to residues of human Parval-bumin protein	Human	
Parvovirus	MMab	R92F6	IgG1	Native parvovirus B19 purified from human plasma	Human	
PAX-2	RMab	EP235	IgG	Recombinant fragment corresponding to residues of the human PAX-2 protein	Human	
PAX-5	RMab	RBT-PAX5	IgG	Synthetic peptide corresponding to the C-terminus of the human PAX-5 protein	Human, Mouse	
PAX-6	RMab	EP341	IgG	A synthetic peptide corresponding to residues of human PAX6 protein	Human, Predicted Mouse and Rat	
PAX-7	MMab	BSB-145	IgG2a	Recombinant PAX-7 of human origin	Human, Mouse, Rat	
PAX-8	RMab	ZR-1	IgG	Synthetic peptide corresponding to the C-terminus of Human PAX8 protein	Human	
PD-1/CD279	RMab	EP239	IgG	A synthetic peptide corresponding to resides of human PD-1 protein	Human	
PD-1/CD279	MMab	NAT-105	IgG1	TY cells (human T/NK cell Leukemia)	Human	
PDGFR-B	RMab	RBT-PDGFRB	IgG	Highly pure (>98%) recombinant hPDGF-B (human Platelet Derived Growth Factor)	Human, Mouse, Rat	
PD-L1/ CD274	RMab	28-8	IgG	Recombinant full length protein corresponding to Human PD-L1 (extracellular)	Human	
PD-L1/CD274	RMab	RBT-PDL1	IgG	Synthetic peptide corresponding to N-terminus residues of the human PD-L1 protein	Human	
PDX1	RMab	EP139	IgG	A synthetic peptide corresponding to residues of human PDX1 protein	Human	
PELP1	RMab	RBT-PLEP1	IgG	Recombinant PELP1 protein	Human, Mouse, Rat	
Perforin	MMab	5B10	IgG1	Recombinant protein corresponding to C-terminal region of human perforin	Human	
PGP 9.5	MMab	BSB-46	IgG1/K	Recombinant full length human PGP 9.5 protein	Human	
PHOX2B	RMab	EP312	IgG	Synthetic peptide corresponding to residues of human PH0X2B protein.	Human	
PLA2R1	MMab	BSB-129	IgG1	Recombinant fragment corresponding to residues of the human phospholipase A2 receptor 1, protein	Human	
PLAP	RMab	EP194	IgG	Synthetic peptide corresponding to residues of human PLAP protein	Human	
PLAP	MMab	BSB-47	IgG2b/K	Recombinant full length human PLAP protein	Human, Rat, Mouse	
PMS2	RMab	EP51	IgG	Synthetic peptide corresponding to residues in human PMS2 protein	Human	
Pygopus 2/Pygo 2	MMab	BSB-156	IgG2a	Synthetic peptide corresponding to the C-terminus of the hu-man Pygopus 2 protein	Human, Mouse, Rat	
Pneumocystis jirovecii	MMab	3F6	IgM/K	Pneumocystis jirovecii cysts isolated from human lung	Human	
Podoplanin/D2-40	MMab	D2-40	IgG1	Resected tissue from dysgeminoma of the ovary	Human, Rat, Mouse	
PRAME	RMab	RBT-PRAME	IgG	Synthetic peptide corresponding to residues of human PRAME protein	Human	
Prealbumin/Transthyretin	MMab	BSB-125	IgG	Synthetic peptide corresponding to the C-terminus of the hu-man Prealbumin protein.	Human	
Progesterone Receptor	RMab	EP2	IgG	Synthetic peptide corresponding to residues near the N-terminus of human progesterone receptor protein	Human	
Progesterone Receptor	RMab	RBT-22	IgG	Recombinant human Progesterone Receptor protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Brain, Kidney, Tonsil, Lymph Node, Chromophobe RCC	Cytoplasmic	1:25-1:100	Kidney & Urothelial Cancer
	Parvovirus Infected Tissue	Cytoplasmic, Nuclear	1:100-1:500	Infectious Diseases
	Kidney, Fallopian Tube, Clear Cell Renal Carcinoma, Ovarian Serous Papillary Carcinoma	Nuclear	1:50-1:200	Kidney & Urothelial Cancer, Ovarian Cancer
	Tonsil, Lymph Node, Spleen, Thymus, Colon, Liver, Lymphoblastic Lymphoma	Nuclear	1:25-1:100	Hodgkin's and NHD Lymphoma, Leukemia & Histiocytic, Colon & GI Cancer
	Pancreas, Pituitary, Neuroendocrine Tumors	Nuclear	1:50-1:200	Gall Bladder & Pancreatic Cancer, Ovarian Cancer, Colon & GI Cancer, Lung Cancer, Carcinomas of Unknown Primary Site
	Placenta, Brain, Testis, Prostate, Papillary Thyroid Carcinoma, Transitional Cell Carcinoma	Nuclear, Cytoplasmic	1:25-1:100	Sarcoma & Soft Tissue, Neural and Neuroendocrine Cancer
	Ovary, Thyroid	Nuclear	1:25-1:100	Kidney & Urotelial Cancer, Ovarian Cancer, Thyroid & Parathyroid Cancer, Carcinomas of Unknown Primary Site
	Tonsil, Lymph Node, Thymus, Spleen	Cytoplasmic, Membranous	1:50-1:200	Lymphoma, Hodgkin's and NHD Lymphoma, Immunotherapy
	Tonsil, Lymph Node, Thymus, Spleen	Cytoplasmic	1:100-1:500	Lymphoma, Hodgkin's and NHD Lymphoma, Immunotherapy
	Placenta, Breast, Kidney, Cervix, Skin, Fallopian Tube,	Cytoplasmic	1:10-1:50	Leukemia & Histiocytic, Sarcoma & Soft Tissue, Endotelial
	Tonsil, Placenta, Lymphoblastic Lymphoma	Membranous	1:25-1:100	Immunotherapy, Lymphoma, Hodgkin's and NHD Lymphoma, Lung Cancer, Melanoma, Kidney & Urotelial Cancer, Ovarian Cancer
	Tonsil, Placenta, Lymphoblastic Lymphoma	Membranous	1:25-1:100	Immunotherapy, Lymphoma, Hodgkin's and NHD Lymphoma, Lung Cancer, Melanoma, Kidney & Urotelial Cancer, Ovarian Cancer
	Pancreas, Colon, Liver, Pancreatic Cancer	Nuclear	1:50-1:200	Gall Bladder & Pancreatic Cancer, Colon & GI Cancer, Prostate Cancer
	Placenta, Breast, Colon, Testis, Transitional Cell Carcinoma, T Cell Lymphoblastic Lymphoma, Seminoma	Nuclear	1:50-1:200	Breast Cancer, Endometrial Cancer, Ovarian Cancer, Prostate Cancer, Colon and GI Cancer
	Spleen	Cytoplasmic, Perinuclear	1:50-1:200	Rejection & Autoimmunity
	Brain, Testis, Colon, Pituitary, Nerve Tissue, Bowel Wall	Cytoplasmic	1:100-1:500	Lung Cancer, Gall Bladder & Pancreatic Cancer, Colon & GI Cancer
	Adrenal, Neuroblastoma	Cytoplasmic	1:25-1:100	Neural & Neuroendocrine Cancer
	Brain, Testis, Kidney, Salivary Gland, Gastic GIST	Cytoplasmic, Membranous	1:50-1:200	Rejection & Autoimmunity , Kidney & Urotelial Cancer
	Placenta	Cytoplasmic	1:100-1:500	Ovarian Cancer, Testicular Cancer, Germ Cell Tumor, Undifferentiated Tumor
	Placenta	Cytoplasmic	1:250-1:1000	Ovarian Cancer, Testicular Cancer, Germ Cell Tumor, Undifferentiated Tumor
	Synthetic peptide corresponding to residues in human PMS2 protein	Nuclear	1:25-1:100	Colon & GI Cancer, Melanoma & Skin Cancer
	Fallopian Tube, Adrenal Gland, Kidney, Transitional Cell Carcinoma, Lung Adenocarcinoma, Lung Neuroendocrine Cancer, Papillary Thyroid Carcinoma	Nuclear	1:50-1:200	Lung Cancer, Neural & Neuroendocrine Cancer, Colon and GI Cancer
	Pneumoscystis jirovecii Infected tissue	Membranous	1:10-1:50	Infectious Diseases, Cytopathology
	Placenta, Breast, Lung, Cervix, Tonsil, Lymph Node, Lymphangioma	Cytoplasmic	1:100-1:500	Endothelial, Sarcoma & Soft Tissue, Mesothelioma, Lung Cancer
	Tonsil, Seminoma	Cytoplasmic, Nuclear	1:50-1:200	Melanoma & Skin Cancer, Breast Cancer
	Liver, Pancreas, Kidney, Leydig Cells, Hepatocellular Carcinoma, Seminoma	Cytoplasmic	1:50-1:200	Neural & Neuroendocrine Cancer, Liver Cancer
	Breast, Myometrium, Cervix, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Endometrial & Genital Cancer, Carcinomas of Unknown Primary Site
	Breast, Myometrium, Cervix, Breast Carcinoma	Nuclear	1:50-1:200	Breast Cancer, Endometrial & Genital Cancer, Carcinomas of Unknown Primary Site

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Progesterone Receptor	MMab	BSB-2	IgG1	Recombinant human Progesterone Receptor protein	Human	
Prolactin	RMab	EP193	IgG	Synthetic peptide corresponding to residues of human Prolactin protein	Human	
Prolactin	MMab	PRL02	IgG1/K	Purified human prolactin	Human	
Prostein/P501S	RMab	EP381	IgG	Synthetic peptide corresponding to the N-terminus of human prostein	Human	
PSA	MMab	BSB-7	IgG1/K	Synthetic peptide corresponding to the C-terminus of human PSA protein	Human	
PSA	RMab	RBT-PSA	IgG	Synthetic peptide corresponding to the C-terminus of human PSA protein	Human	
PSAP	MMab	PASE/4LJ	IgG1	Purified prostatic acid phosphate from human seminal plasma	Human	
PSAP	RMab	EP53	IgG	Synthetic peptide corresponding to residues of human PSAP protein	Human	
PSMA	RMab	EP192	IgG	Synthetic peptide corresponding to residues of human PSMA protein	Human	
PSP94/MSMB	RMab	EP203	IgG	Synthetic peptide corresponding to residues of human MSMB (PSP94) protein	Human	
PTEN	RMab	RBT-PTEN	IgG	Synthetic peptide corresponding to the N-terminus of the human PTEN protein	Human	
PTEN	RMab	RM265	IgG	A peptide corresponding to the C-terminus of human PTEN	Human	
PU.1	RMab	EP18	IgG	Synthetic peptide corresponding to residues near the N terminus of human transcription factor PU.1 protein	Human	
Renal Cell Carcinoma	MMab	PN-15	IgG1/K	Microsomal fraction of human renal cortical tissue homogenate	Human, Rat	
Retinoblastoma/ Rb	MMab	1F8	IgG1/K	Recombinant human Rb protein	Human	
ROS-1	RMab	EP282	IgG	Synthetic peptide corresponding to residues of human ROS1 protein.	Human	
S-100	MMab	4C4.9	IgG2a	Purified bovine brain S100 protein	Human, Dog, Cat, Mouse, Rat, Cattle	
S100A1	RMab	EP184	IgG	Synthetic peptide corresponding to residues of human S100A1 protein	Human, Predicted: Mouse, Rat	
S100A6	RMab	EP313	IgG	A synthetic peptide corresponding to residues of human S100A6 protein	Human	
S100A8/MRP8	RMab	EP90	IgG	Synthetic peptide corresponding to N-terminal region of human MRP8 / S100A8 protein	Human, Predicted: Mouse	
S100A9	RMab	EP185	IgG	Synthetic peptide corresponding to residues of human S100A9 protein	Human	
S100Beta	RMab	EP32	IgG	Synthetic peptide corresponding to residues on the C-terminus of human S100 Beta protein	Human, Predicted: Mouse, Rat, Goat, Zebrafish, Macaque Monkey	
S100P	RMab	EP186	IgG	Synthetic peptide corresponding to residues of human S100P protein	Human	
SALL4	RMab	EP299	IgG	A synthetic peptide corresponding to residues of human SALL4 protein	Human	
SALL4	MMab	6 E 3	IgG1/K	A recombinant polypeptide corresponding to aminoacids 954-1054 of human SALL4 expressed as a GST fusion protein	Human, Mouse	
SARS-CoV-2	MMab	BSB-134	IgG2b	Recombinant SARS-CoV-2 Nucleocapsid	SARS-CoV-2 virus	
SATB2	RMab	EP281	IgG	A synthetic peptide corresponding to residues of human SATB2 protein	Human	
SDHB	MMab	BSB-131	IgG1/K	A Recombinant full length of the human succinate dehydrogenase iron-sulfur protein	Human,Mouse, Rat	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Breast, Myometrium, Cervix, Breast Carcinoma	Nuclear	1:100-1:500	Breast Cancer, Endometrial & Genital Cancer, Carcinomas of Unknown Primary Site
	Normal Pituitary	Cytoplasmic	1:100-1:500	Pituitary, Neural & Neuroendocrine Cancer
	Normal Pituitary	Cytoplasmic	1:100-1:500	Pituitary, Neural & Neuroendocrine Cancer
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:50-1:200	Prostate Cancer, Carcinomas of Unknown Primary Site
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:250-1:1000	Prostate Cancer, Carcinomas of Unknown Primary Site
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:250-1:1000	Prostate Cancer, Carcinomas of Unknown Primary Site
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:250-1:1000	Prostate Cancer, Carcinomas of Unknown Primary Site
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:50-1:200	Prostate Cancer, Carcinomas of Unknown Primary Site
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:50-1:200	Prostate Cancer, Carcinomas of Unknown Primary Site
	Prostate, Prostatic Adenocarcinoma	Cytoplasmic	1:25-1:100	Prostate Cancer
	Breast, Prostate, Breast & Prostatic Adenocarcinoma	Cytoplasmic, Nuclear	1:25-1:100	Breast Cancer, Endometrial & Genital Cancer, Neural & Neuroendocrine Cancer, Prostate Cancer
	Colon, Thymus, Skin, Kidney, Breast, Prostate, Breast Carcinoma, Prostatic Carcinoma	Cytoplasmic, Nuclear	1:50-1:200	Breast Cancer, Endometrial & Genital Cancer, Neural & Neuroendocrine Cancer, Prostate Cancer
	Tonsil, Lymp Node	Nuclear	1:50-1:200	Leukemia & Histiocytic, Lymphoma, Hodgkin's & NH Lymphoma
	Kidney, Breast, Thyroid, Renal Cell Carcinoma	Cytoplasmic, Membranous	1:50-1:200	Kidney & Urotelial Cancer
	Colon, Breast, Skin, Fallopian Tube, Tonsil, Colon Carcinoma	Nuclear	1:25-1:100	Endometrial & Genital Cancer
	Placenta, Lung, SiHa Cells, NSCL ROS1 +	Cytoplasmic	1:50-1:200	Lung Cancer, Neural and Neuroendocrine Cancer, Ovarian Cancer, Colon and GI Cancer
	Melanoma	Cytoplasmic, Nuclear	1:100-1:500	Carcinomas of Unknown Primary Site, Melanoma & Skin Cancer, GIST, Undifferentiated Tumor
	Brain, Breast, Thyroid, Tonsil, Pancreas, Salivary Gland, Renal Onocytomas, Clear Cell Carcinoma	Cytoplasmic, Nuclear	1:25-1:100	Kidney & Urotelial Cancer
	Testis, Kidney, Breast, Tonsil, Colon, Carcinomas	Nuclear, Cytoplasmic	1:50-1:200	Kidney & Urotelial Cancer, Gall Bladder & Pancreatic Cancer, Colon & GI Cancer, Thyroid & Parathyroid Cancer
	Tonsil, Breast, Liver, Fallopian Tube, Lymphoblastic Lymphoma	Cytoplasmic, Nuclear	1:10-1:50	Gall Bladder & Pancreatic Cancer, Breast Cancer
	Tonsil, Liver, Lung, Breast, Cervix, Bone Marrow, Bladder TCC, Thyroid Carcinomas	Cytoplasmic, Nuclear	1:10-1:50	Rejection & Autoimmunity, Lung Cancer, Breast Cancer, Liver Cancer
	Melanoma	Cytoplasmic, Nuclear	1:100-1:500	Carcinomas of Unknown Primary Site, Melanoma & Skin Cancer, GIST
	Colon, Prostate, Pancreatic and Lung Carcinomas	Cytoplasmic, Nuclear	1:25-1:100	Gall Bladder and Pancreatic Cancer, Prostate Cancer, Lung Cancer, Colon & GI Cancer
	Testis, Seminoma, Yolk Sac Tumor	Nuclear	1:10-1:50	Ovarian Cancer, Testicular Cancer, Liver Cancer, Breast Cancer, Endometrial and Genital Cancer, Colon and GI Cancer, Germ Cell Tumors, Undifferentiated Tumor
	Testis, Seminoma, Yolk Sac Tumor	Nuclear	1:50-1:200	Ovarian Cancer, Testicular Cancer, Liver Cancer, Breast Cancer, Endometrial and Genital Cancer, Colon and GI Cancer, Germ Cell Tumors, Undifferentiated Tumor
	SARS-CoV-2 Infected Tissues	Cytoplasmic	1:25-1:100	Infectious Diseases
	Colon, Brain, Colon Carcinoma	Nuclear	1:50-1:200	Colon, Brain, Colon Carcinoma
	Breast, Adrenal, Prostate, Kidney, Spleen, Tonsil, Breast Carcinoma, Hepatocellular Carcinoma, Lung Adeno Carcinoma, Prostate Carcinoma, Papillary Thyroid Carcinoma	Cytoplasmic, Membranous	1:50-1:200	Neural & Neuroendocrine Cancer, Pituitary, Kidney & Urotelial Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
SF-1/Steroidogenic Factor 1	MMab	BSB-149	IgG2a	Synthetic Peptide corresponding to the internal region of the SF-1 of human origin	Human, Mouse, Rat	
SMAD4/DPC4	MMab	BSB-63	IgG1	Synthetic peptide corresponding to the N-terminus of the human SMAD4 protein	Human	
SMAD4/DPC4	RMab	RBT-SMAD4	IgG	Synthetic peptide corresponding to the C-terminus of the human SMAD4 protein	Human	
Smoothelin	MMab	R4A	IgG1	Cytoskeletal smoothelin extract of chicken gizzard	Human	
Somatostatin	RPab	Polyclonal	IgG	Synthetic cyclic peptide (1-14) of somatostatin	Human, Dog, Horse, Lizard	
Somatostatin	MMab	BSB-113	IgG2a/K	Synthetic peptide corresponding to the N-terminus of the human somatostatin protein	Human	
Somatostatin	RMab	EP130	IgG	Synthetic peptide corresponding to residues of human Somatostatin-28 protein	Human	
Somatostatin Receptor 2/SSTR2	RMab	EP149	IgG	Synthetic peptide corresponding to residues on the C-terminus of the human SSTR2 protein	Mouse, Rat, Human	
SOX-10	RMab	EP268	IgG	Recombinant fragment corresponding to residues in human SOX-10 protein	Human, Predicted: Mouse, Rat	
SOX-10	MMab	BSB-62	IgG2b/K	Recombinant fragment corresponding to N-Terminus of human SOX-10	Human	
SOX-11	MMab	CL0142	IgG2a	Recombinant fragment corresponding to amino acids 56-166 of human SOX-11	Human	
SOX-11	MMab	BSB-167	IgG1	Synthetic peptide from human SOX-11 protein	Human	
SOX-2	RMab	EP103	IgG	Synthetic peptide corresponding to residues in human SOX2 protein	Human, Predicted: Mouse	
SOX-2	RMab	RM427	IgG	A peptide corresponding to the C-terminus of human SOX2	Human, Predicted: Mouse	
SOX-9	RMab	EP317	IgG	A synthetic peptide corresponding to residues of human SOX9 protein	Human, Predicted Mouse and Rat	
Spectrin	MMab	RBC2/3D5	IgG2b/K	Native spectrin from human red blood cells membrane	Human	
STAR	RMab	EP226	IgG	Synthetic peptide corresponding to residues of human Steroidogenic Acute Regulatory Protein (STAR) protein.	Human	
STAT6	RMab	EP325	IgG	Synthetic peptide corresponding to residues of human STAT6 protein	Human	
Surfactant protein D/SP-D	MMab	BSB-162	IgG1	Synthetic peptide corresponding to the N-terminus of the human SP-D protein	Cytoplasmic, Membranous	
Stathmin	RMab	EP247	IgG	Synthetic peptide corresponding to residues of human the stathmin protein	Human, Predicted: Mouse, Rat	
Survivin	RMab	EP119	IgG	Synthetic peptide corresponding to residues on the N-terminus of the human Survivin protein	Human	
SV40	MMab	Pab101	IgG2a	SV40 transformed mouse line B4	Human	
Synaptophysin	RMab	EP158	IgG	A synthetic peptide corresponding to residues on the C-terminus (cytoplasmic domain) of human Synaptophysin protein	Human, Predicted: Mouse, Rat, Donkey	
Synaptophysin	RPab	Polyclonal	IgG	Synthetic peptide conjugated to KLH derived from within residues 1 - 100 of Human Synaptophysin.	Human, Dog, Cat	
TAG-72	MMab	BSB-21 (Tag72-22)	IgG1/K	Recombinant TAG-72 human tumor associated glycoprotein	Human	
Tau	MMab	BSB-115	IgG1/K	Synthetic peptide conjugated to KLH corresponding to C-terminal residues of the human Tau protein	Human, Mouse, Rat, Canine	
T-Bet/TBX-2	RMab	EP263	IgG	Synthetic peptide corresponding to residues of human TBX21 protein	Human	
TCL1	RMab	EP105	IgG	Synthetic peptide corresponding to residues in human TCL1 protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Breast, Fallopian Tube, Colon, Bone Marrow, Testis, Transitional Cell Carcinoma, Lung Adenocarcinoma, Papillary Thyroid Carcinoma, Prostate Adenocarcinoma	Nuclear	1:50-1:200	Germ Cell Tumor Antibodies, Ovarian Cancer, Endometrial Cancer
	Pancreas, Thyroid, Placenta, Cervix, TCC & Lympoblastic Lymphoma	Cytoplasmic, Nuclear	1:50-1:200	Gall Bladder and Pancreatic Cancer, Liver Cancer; Colon & GI Cancer
	Pancreas, Testis, Breast, Bone Marrow, Colon	Nuclear, Cytoplasmic	1:50-1:200	Gall Bladder and Pancreatic Cancer, Liver Cancer; Colon & GI Cancer
	Leiomyoma, Bladder, Prostate, Myometrium, Fallopian Tube, Colon, Transitional Cell Carcinoma	Cytoplasmic	1:25-1:100	Kidney & Urothelial Cancer
	Pancreas	Cytoplasmic	1:100-1:500	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer, Colon and GI Cancer
	Pancreas, Colon, Adrenal, Brain	Cytoplasmic	1:250-1:1000	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer, Colon and GI Cancer
	Pancreas, Brain, Pituitary	Cytoplasmic	1:250-1:1000	Gall Bladder & Pancreatic Cancer, Neural & Neuroendocrine Cancer, Colon and GI Cancer
	Placenta, Brain, Testis, Prostate, Papillary Thyroid Carcinoma, Transitional Cell Carcinoma	Nuclear, Cytoplasmic, Membranous	1:25-1:100	Neural & Neuroendocrine Cancer, Lung Cancers, Breast Cancer, Gallbladder and Pacreatic Cancer
	Skin, Salivary Gland, Breast, Melanoma, Schwannoma	Nuclear	1:50-1:200	Melanoma & Skin Cancer, Head & Neck Cancer, Undifferentiated Tumor
	Skin, Salivary Gland, Breast, Melanoma, Schwannoma	Nuclear	1:25-1:100	Melanoma & Skin Cancer, Head & Neck Cancer, Undifferentiated Tumor
	Mantle Cell Lymphoma, Lung Neuroendocrine Carcinoma	Nuclear	1:25-1:100	Lymphomas, Lung Cancer
	Mantle Cell Lymphoma, Lung Neuroendocrine Carcinoma	Nuclear	1:25-1:100	Lymphomas, Lung Cancer
	Brain, Oligodendroglioma, Squamous Cell Carcinoma	Nuclear	1:50-1:200	Lung Cancer, Germ Cell Tumor
	Brain, Oligodendroglioma, Squamous Cell Carcinoma	Nuclear	1:50-1:200	Lung Cancer, Germ Cell Tumor
	Colon, Prostate, Skin, Breast, Tonsil, Lymph Node, Colon Carcinoma	Nuclear	1:50-1:200	Colon & GI Cancer, Lung Cancer, Prostate Cancer, Gall Bladder & Pancreatic Cancer, Liver Cancer, Ovarian Cancer
	Bone Marrow, Spleen	Membranous	1:25-1:100	Hematopoietic, Leukemia & Histiocytic
	Leydig cells of Testis, Adrenal & Leydig Cell Tumors	Cytoplasmic	1:50-1:200	Pituitary, Ovarian Cancer, Kidney and Urothelial Cancer, Testicular Cancer
	Solitary Fibrous Tumor	Nuclear	1:50-1:200	Sarcoma & Soft Tissues, Lung Cancer
	Placenta, Lung, Pancreas, Adrenal Gland, Lung Squamous Cell Carcinoma, Lung Adenocarcinoma, Gastric GIST	Human	1:25-1:100	Lung Cancer, Ovarian Cancer, Gallbladder and Pancreatic Cancer
	Testis, Tonsil, HSIL Cervical Carcinoma, Lymphoblastic Lymphoma, Bladder TCC	Cytoplasmic, Membranous	1:50-1:200	Cervical Cancer, Endometrial & Genital Cancer, Ovarian Cancer, Cytopathology
	Colon, Placenta, Testis, Tonsil, Bone Marrow, Colon Carcinoma, Lymphoblastic Lymphoma, Bladder TCC	Nuclear	1:50-1:200	Kidney & Urothelial Cancer, Ovarian cancer, Liver Cancer, Prostate Cancer, Breast Cancer
	SV40 Infected Tissue	Nuclear	1:25-1:100	Infectious Diseases
	Pancreas, Brain, Pituitary, Adrenal, Colon	Cytoplasmic	1:100-1:500	Lung Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Sarcoma & Soft Tissue, Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Undifferentiated Tumor, Carcinomas of Unknown Primary Site
	Pancreas, Brain, Pituitary, Adrenal, Colon	Cytoplasmic	1:250-1:1000	Lung Cancer, Colon & GI Cancer, Gall Bladder & Pancreatic Cancer, Sarcoma & Soft Tissue, Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer, Undifferentiated Tumor, Carcinomas of Unknown Primary Site
	Testis, Spleen, Cervix, Colon, Breast Carcinoma	Cytoplasmic	1:250-1:1000	Breast Cancer, Gall Bladder & Pancreatic Cancer, Mesothelioma
	Brain, Kidney, Pituitary, Pancreas, Cervix, Skin, Salivary Gland, Astrocytoma	Nuclear, Cytoplasmic	1:100-1:500	Neural & Neuroendocrine Cancer
	Spleen, Tonsil, Cervix, Liver, Breast, Hairy Cell Leukemia & Histiocytic, Lymphoblastic lymphoma, Bladder TCC	Nuclear	1:25-1:100	Lymphoma, Leukemia & Histiocytic
	Tonsil, Lymph Node	Nuclear, Cytoplasmic	1:100-1:500	Lymphoma, Leukemia & Histiocytic

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
TCR Alpha	MMab	BSB-126	IgG1/K	Synthetic peptide corresponding the N-Terminus of the human TCR alpha protein.	Human	
TCR Beta	MMab	BSB-117	IgG1/K	Human TCR ß chain constant region	Human	
TCR Delta	MMab	BSB-127	IgG1/K	Recombinant protein corresponding the human TCR delta protein.	Human	
TDP-43/TARDBP	MMab	BSB-166	IgG2a	Synthetic peptide corresponding to the N-terminus of the human TARDBP protein	Human, Mouse, Rat, Horse, Dog, Bovine	
TdT	RMab	RBT-TdT	IgG	Synthetic peptide conjugated to KLH corresponding to N-terminal residues of the human TdT protein	Human	
TdT	RMab	EP266	IgG	Synthetic peptide corresponding to residues of the human TdT protein	Human	
TdT	RPab	Polyclonal	IgG	Synthetic peptide conjugated to KLH corresponding to N-terminal residues of the human TdT protein	Human	
TFE3	RMab	EP285	IgG	A synthetic peptide corresponding to residues of human TFE3 protein	Human	
TIGIT	MMab	BSB-152	IgG2b	Recombinant human TIGIT protein	Human, Rat	
TIM-3/HAVCR2/CD366	MMab	BSB-163	IgG2c	Recombinant extracellular domain of the human TIM3 protein	Human	
Thrombomodulin/ CD141	RMab	EP175	IgG	A synthetic peptide corresponding to residues at the C-terminus of human thrombomodulin protein	Human	
Thyroglobulin	RMab	EP250	IgG	Synthetic peptide corresponding to residues of human Thyro-globulin protein	Human	
Thyroglobulin	MMab	BSB-49	IgG1	Recombinant human tyroglobulin protein	Human, Cat	
Thyroglobulin	MMab	2H11 & 6E1	IgG1/K & IgG1/K	Purified human thyroglobulin protein	Human, Dog, Cat	
Thymidylate synthase/TS	MMab	BSB-160	IgG2a	Synthetic peptide corresponding to the C-terminus of human TS protein	Human, Mouse, Rat	
Thyroid Peroxidase	RMab	EP159	IgG	Synthetic peptide corresponding to residues in the C-terminus of human TPO protein	Human	
TIA-1	MMab	TIA-1	IgG1	Recombinant fragment corresponding to a region within amino acids 1 and 165 of Human TIA1	Human	
TIA-1	RMab	RBT-TIA1	IgG	Recombinant fragment corresponding to the N Terminus of the human TIA1.	Human	
TLE1	MMab	1F5	IgG1/K	Synthetic peptide corresponding to amino acids amino acids 200-350 of TLE1 of mouse origin	Human	
TLE-1	MMab	BSB-142	IgG2a	Recombinant human TLE1 fragment	Human, Mouse	
TMPRSS2	MMab	BSB-136	IgG1	Synthetic peptide corresponding to residues in the internal region of the human TMPRSS2 protein	Human, Mouse, Rat	
TNFa-IP2	MMab	BSB-141	IgG1	Recombinant protein corresponding to the TNFα-induced protein 2 of human origin	Human, Mouse, Rat	
Topoisomerase IIa	RMab	RBT-Topo2a	IgG	Synthetic peptide corresponding to the C-terminal residues of human Topoisomerase II alpha protein	Human	
Toxoplasma gondii	RPab	Polyclonal	IgG	Toxoplasma gondii	Human	
TRAcP	MMab	9C5	IgG2b	Purified human TRAcP protein	Human	
Treponema pallidum	RPab	Polyclonal	IgG	Purified treponema pallidum	Eubacteria	
TRK	RMab	RBT-TRK	IgG	Synthetic peptide corresponding to the C-terminal residues of human pan TRK protein	Human	
TRK	RMab	RM423	IgG	Synthetic peptide corresponding to the C-terminus of the human TRK protein	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Thymus, Tonsil, Lymph Node, Spleen, Hodgkin's Lymphoma & BDCM & CCRF-CEM Cell Line	Cytoplasmic	1:25-1:100	Lymphoma, Leukemia & Histiocytic
	Tonsil, Lymph Node	Cytoplasmic	1:25-1:100	Lymphoma, Leukemia & Histiocytic
	Thymus, Tonsil, Lymph Node, Spleen	Cytoplasmic, Membranous	1:10-1:50	Lymphoma, Leukemia & Histiocytic
	Breast, Fallopian Tube, Testis, Skin, Transitional Cell Carcinoma, Glioblastoma	Nuclear, Cytoplasmic	1:50-1:200	Breast Cancer, Melanoma and Skin Cancer, Liver Cancer, Lung Cancer, Sarcoma and Soft Tissue Cancer, Endometrial Cancer, Gastric Cancer, Ovarian Cancer
	Thymus, Lymphoblastic Lymophoma	Nuclear	1:50-1:200	Lymphoma, Leukemia & Histiocytic
	Thymus, Lymphoblastic Lymophoma	Nuclear	1:50-1:200	Lymphoma, Leukemia & Histiocytic
	Thymus, Lymphoblastic Lymophoma	Nuclear	1:100-1:500	Lymphoma, Leukemia & Histiocytic
	Testis, Adrenal, Kidney, Testicular Cancer, RCC with Xp11.2 translocation, Alveolar Soft Part Sarcoma & Soft Tissue	Nuclear	1:50-1:200	Kidney & Urotelial Cancer, Sarcoma & Soft Tissue, Carcinoma of Unknown Primary Site
	Cervix, Fallopian Tube, Skin, Prostate, Testis, Transitional Cell Carcinoma, Papillary Thyroid Carcinoma, Lung Adenocarcinoma	Cytoplasmic, Membranous	1:50-1:200	Immunotherapy, Melanoma and Skin Cancer
	Colon, Testis, Tonsil, Liver	Cytoplasmic	1:25-1:100	Immunotherapy, Leukemia and Histiocytic Cancer, Lymphoma, Breast Cancer, Melanoma and Skin Cancer
	Placenta, Liver, Kidney, Tonsil, Cervix, Bladder, Mesothelioma, Transitional Cell Carcinoma	Membranous, Cytoplasmic	1:10-1:50	Kidney & Urotelial Cancer, Mesothelioma
	Thyroid, Thyorid Carcinoma	Cytoplasmic	1:250-1:1000	Thyroid & Parathyroid Cancer, Head & Neck Cancer
	Thyroid, Thyorid Carcinoma	Cytoplasmic	1:250-1:1000	Thyroid & Parathyroid Cancer, Head & Neck Cancer
	Thyroid, Thyorid Carcinoma	Cytoplasmic	1:250-1:1000	Thyroid & Parathyroid Cancer, Head & Neck Cancer
	Bone Marrow, Colon, Tonsil, Testis, T Cell Lymphoblastic Lymphoma, Ductal Breast Carcinoma	Nuclear, Cytoplasmic, Membranous	1:25-1:100	Gallbladder and Pancreatic Cancer, Breast Cancer, Ovarian Cancer, Lung Cancer, Head and Neck Cancer
	Thyroid, Thyorid Carcinoma	Cytoplasmic	1:100-1:500	Thyroid & Parathyroid Cancer, Head & Neck Cancer
	Tonsil, Spleen, Liver, Anaplastic Large Cell Lymphoma	Cytoplasmic (Granular)	1:25-1:100	Hodgkin's and NHD Lymphoma, Lymphoma, Leukemia & Histiocytic, Melanoma & Skin Cancer
	Tonsil, Spleen, Anaplastic Large Cell Lymphoma	Cytoplasmic	1:50-1:200	Hodgkin's and Non-Hodgkin Lymphoma, Lymphoma, Leukemia & Histiocytic, Melanoma & Skin Cancer
	Synovial Sarcoma	Cytoplasmic, Nuclear	1:10-1:50	Sarcoma & Soft Tissue
	Synovial Sarcoma	Cytoplasmic, Nuclear	1:50-1:200	Sarcoma & Soft Tissue
	Testis, Colon, Kidney, Brain, Stomach, Pancreas, Prostate	Nuclear, Membranous	1:50-1:200	Infectious Diseases, Prostate Cancer, Colon & GI Cancer, Kidney Cancer, and Lung Cancer
	Testis, Tonsil, Lung, Kidney	Membranous, Cytoplasmic	1:50-1:200	Rejection & Autoimmunity, Kidney & Urothelial, Breast Cancer, Head and Neck Cancer, Gall Bladder & Pancreatic Cancer, Lymphoma, Ovarian Cancer, Cervical Cancer, Infectious Diseases
	Testis, Skin, Colon, Fallopian Tube, Tonsil, Lymph Node, Spleen, HSIL Cervical Cancer, Breast Cancer, Bladder TCC	Nuclear	1:50-1:200	Breast Cancer, Cervical Cancer
	Toxoplasma gondii Infected Tissue	Nuclear	1:50-1:200	Infectious Diseases
	Tonsil, Spleen, Lymph Node, Hairy Cell Leukemia	Cytoplasmic	1:100-1:500	Leukemia & Histiocytic, Lymphoma
	Infected Tissue	Cell Wall	1:250-1:1000	Infectious Diseases
	Brain, Lung Neuroendocrine	Nuclear, Cytoplasmic	1:10-1:50	Lung Cancer, Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer
	Brain, Lung Neuroendocrine	Nuclear, Cytoplasmic	1:25-1:100	Lung Cancer, Neural & Neuroendocrine Cancer, Thyroid & Parathyroid Cancer

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

Antibody Name	Ab Type	Clone	Isotype	Immunogen	Species Reactivity	
Trop-2/EGP-1	MMab	BSB-148	IgG1	Synthetic peptide corresponding to the extracellular domain of the human TROP-2 protein	Human, Mouse, Rat	
Tryptase	RMab	EP259	IgG	Recombinant protein of human Tryptase protein	Human	
Tryptase	MMab	G3	IgG1	Purified human tryptase protein	Human	
TSH	MMab	BSB-56	IgG1/K	Recombinant human thyroid stimulating hormone receptor protein	Human	
TSH	RMab	EP254	IgG	Synthetic peptide corresponding to residues of human TSH (subunit beta) protein	Human, Predicted: Rabbit	
TTF-1	MMab	8G7G3/1	IgG1	Recombinant rat TTF-1 protein	Human, Dog	
Tyrosinase	MMab	BSB-6 (Ty/G5)	IgG2a	Recombinant full length human tyrosinase protein	Human	
Uroplakin III	RMab	EP321	IgG	A synthetic peptide corresponding to residues of human Uroplakin III protein	Human	
Uroplakin III	RPab	Polyclonal	IgG	Synthetic peptide corresponding to the C-terminus of the human uroplakin III protein	Human	
Varicella Zoster Virus	MMab		SG1, SG1-S	Varicella-Zoster virus lysate	Human	
VEGF	RMab		IgG	Recombinant human vascular endothelial growth factor protein	Human	
Villin	RMab	EP163	IgG	A synthetic peptide corresponding to residues in human Villin-1 protein	Human	
Villin	MMab	CWWB1	IgG1	Human Villin protein	Human	
Vimentin	RMab	EP21	IgG	Synthetic acetylated peptide corresponding to the C-term of human Vimentin protein was used	Human, Predicted: Mouse, Rat, Rhesus Monkey	
Vimentin	MMab	V9	IgG1/K	Synthetic acetylated peptide corresponding to the C-term of human Vimentin protein was used	Human, Dog, Cat, Rat, Rabbit, Cattle, Horse, Guinea Pig	
WT1	MMab	6F-H2	IgG1/K	Recombinant protein corresponding to amino acids 1-181 of human WT1	Human	
YAP1	MMab	BSB-146	IgG1	Synthetic peptide corresponding to the C-terminus of the human YAP1 protein	Human, Mouse, Rat	
Zap-70	MMab	2F3.2	IgG2a	GST-fusion to tandem SH2 domains of human ZAP-70 corresponding to residues 1-254	Human	

Antibody Type, Clone, Isotype, Control, Localization, Dilution Range

	Tissue Control	Localization	Dilution Range	Application
	Breast, Prostate, Skin, Transitional Cell Carcinoma, Papillary Thyroid Carcinoma, Pancreatic Carcinoma	Membranous	1:25-1:100	Thyroid and Parathyroid Cancer, Gallbladder and Pancreatic Cancer, Cervical Cancer, Gastric Cancer
	Liver, Kidney, Tonsil, Uterus, Cervix, Skin, Colon	Cytoplasmic	1:50-1:200	Hematopoietic
	Liver, Kidney, Tonsil, Uterus, Cervix, Skin, Colon	CytoPlasmic	1:100-1:500	Hematopoietic
	Pituitary	Cytoplasmic	1:250-1:1000	Pituitary, Neural & Neuroendocrine Cancer
	Pituitary	Cytoplasmic	1:250-1:1000	Pituitary, Neural & Neuroendocrine Cancer
	Lung, Thyroid, Adenocarcinoma of Lung	Nuclear	1:250-1:1000	Lung Cancer, Thyroid & Parathyroid, Mesothelioma, Carcinomas of Unknown Primary Site, Liver Cancer
	Skin, Malignant Melanoma	Cytoplasmic	1:50-1:200	Skin, Malignant Melanoma
	A synthetic peptide corresponding to residues of human Uroplakin III protein	Nuclear	1:50-1:200	Kidney & Urotelial Cancer
	Bladder, Bladder Carcinoma	Cytoplasmic, Membranous	1:25-1:100	Kidney & Urotelial Cancer
	Varicella Zoster Virus Infected Tissue	Cytoplasmic, Membranous	1:25-1:100	Infectious Diseases
	Placenta, Angioma, AngioSarcoma & Soft Tissue	Cytoplasmic, Cell Surface	1:10-1:50	Endothelial, Cervical Cancer, Liver Cancer
	Kidney, Colon, Small Bowel Mucosa, Colonic Mucosa	Cytoplasmic, Membranous	1:100-1:500	Colon & GI Cancer, Liver Cancer, Gall Bladder and Pacreatic cancer, Carcinomas of Unknown Primary Site
	Kidney, Colon, Small Bowel Mucosa, Colonic Mucosa	Cytoplasmic, Membranous	1:25-1:100	Colon & GI Cancer, Liver Cancer, Gall Bladder and Pacreatic cancer, Carcinomas of Unknown Primary Site
	Tonsil, Lymph Node, Colon	Cytoplasmic	1:50-1:200	Endometrial & Genital Cancer, Kidney & Urotelial Cancer, Melanoma & Skin Cancer, Sarcoma & Soft Tissue, Undifferentiated Tumor, Liver Cancer
	Tonsil, Lymph Node, Colon	Cytoplasmic	1:250-1:1000	Endometrial & Genital Cancer, Kidney & Urotelial Cancer, Melanoma & Skin Cancer, Sarcoma & Soft Tissue, Undifferentiated Tumor, Liver Cancer
	Kidney, Testis, Malignant Mesothelioma	Nuclear	1:100-1:500	Lung Cancer, Ovarian Cancer, Kidney & Urotelial Cancer, Mesothelioma, Carcinomas of Unknown Primary Site, Sarcoma and Soft Tissue
	Placenta, Breast, Fallopian Tube, Testis, Transitional Cell Carcinoma, HER2 Negative Breast Cancer	Nuclear, Cytoplasmic	1:25-1:100	Lung Cancer, Head and Neck Cancer, Breast Cancer, Colon and GI Cancer, Liver Cancer, Gallbladder and Pancreatic Cancer, Kidney and Urothelial Cancer, Neural and Neuroendocrine Cancer
	Tonsil, Lymph Node, Thymus, Chronic Lymphocytic Leukemia	Cytoplasmic	1:250-1:1000	Leukemia & Histiocytic, Lymphoma


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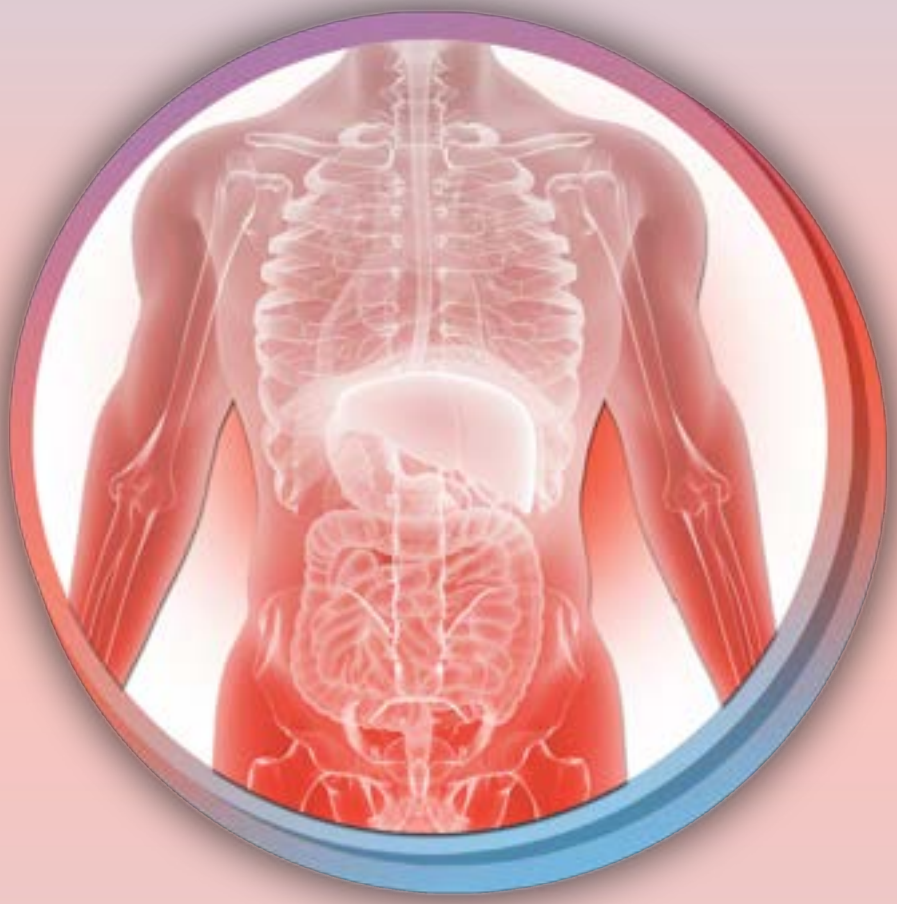
Immunophenotyping of Cancer by Immunohistochemistry



Carcinomas

CARCINOMAS 1	CK Cocktail	CK7	CK20	CK, LMW	CK, HMW	CK5	p63	Vimentin	TTF-1 (cytoplsm.)	Thyroglobulin
Hepatocellular Carcinoma	-	-	-	-	-	-	-	-	+	-
Renal Cell Carcinoma	+	-	-	+	-	-	-	+	-	-
Bladder Adenocarcinoma	+	+	+/-	+	+	-	-	-	-	-
Salivary Gland Carcinoma	+	+	-	+	+	+	+	-		-
Thyroid Carcinoma	+	+	-	+		-	-	+	+	+
Breast Carcinoma	+	+	-	+	+	-	-	-	-	+
Lung Adenocarcinoma	+	+	-	+	+	-	-	-	+	-
Colorectal Adenocarcinoma	+	-	+	+	-	-	-	-	-	-
Prostatic Adenocarcinoma	+	-	-	+	-	-	-	-	-	-
Transitional Cell Carcinoma	+	+	+	+	+	+	+	-	-	-
Ovarian Carcinoma, Non Mucinous	+	+	-	+	+	+	-	-	-	-
Cervical Carcinoma	+	+	-	-		-	-	-	-	-
Sweat Gland Carcinoma	+	+	-			+	+	-		-
Pancreatic Carcinoma	+	+	-	+	+/-	-	-	-	-	-
Gastric Carcinoma	+	+	-			-	-	-	-	-
Squamous Cell Carcinoma	+	-	-	+	+	+	+	-	-	-
Endometrial Adenocarcinoma	+	+	-	+				+	-	-

CARCINOMAS 1	GCDFP-15	ER/PR	CEA (poly)	CDX-2	Villin	Hep-Par1	RCC	CD10	Beta-Catenin	A-1-Antitrypsin
Hepatocellular Carcinoma	-	-	+	-	-	+	-	+	-	+/-
Renal Cell Carcinoma	-	-	-	-	-	-	+	+	-	+
Bladder Adenocarcinoma	-	-		+	+	-	-		+	-
Salivary Gland Carcinoma	-	-	+	-	-	-	-		-	-
Thyroid Carcinoma	-	-	-	-	-	-	-		-	-
Breast Carcinoma	+	+/-	-	-	-	-	-	+	-	-
Lung Adenocarcinoma	-	-	+	-	-	-	-		-	-
Colorectal Adenocarcinoma	-	-	+	+	+	-	-	+	+	-
Prostatic Adenocarcinoma	-	-	-	-	-	-	-	+	-	-
Transitional Cell Carcinoma	-	-	-	-	-	-	-	+	-	-
Ovarian Carcinoma, Non Mucinous	-	+	-	-	-	-	-	-	-	-
Cervical Carcinoma	-	-	+	-	-	-	-		-	-
Sweat Gland Carcinoma	-	-	+	-	-	-	-		-	-
Pancreatic Carcinoma	-	-	+	-	-	-	-	+/-	-	-
Gastric Carcinoma	-	-	+	+	+	-	-		-	-
Squamous Cell Carcinoma	-	-	-	-	-	-	-	-	-	-
Endometrial Adenocarcinoma	-	+	-	-	-	-	-		+	-

CARCINOMAS 2	CK7	CK20	CDX-2	Villin	TTF-1	Napsin A	PSA/PSAP	Caveolin-1	Mammaglobin	GCDFP-15
Breast Carcinoma	+	-	-	-	-	-	-	+	+	+
Lung Adenocarcinoma	+	-	-	-	+	+	-	-	-	-
Transitional Cell (Bladder) Carcinoma	+	+	-	-	-	-	-	-	-	-
Colorectal Adenocarcinoma	-	+	+	+	-	-	-	+	-	-
Prostatic Adenocarcinoma	-	-	-	-	-	-	+	+/-	-	-

SQUAMOUS VS. TRANSITIONAL CARCINOMAS	CK, 34bE12	p63	CK5	Thrombomodulin	CK7	CK20	Uroplakin III	COX-2
Squamous Carcinoma	+	+	+	+	-	-	-	-
Transitional Cell Carcinoma	+	+	-/+	+	+	+	+	+

Carcinomas

SMALL CELL VS. MERKEL CELL CARCINOMAS	TTF-1	CEA	CK20	Chromogranin A	E-Cadherin (nuclear)	Neurofilament	CD117	Synaptophysin
Merkel Cell Carcinoma	-	-	+	+	+	+	+	+
Small Cell Carcinoma	+	-	-	-	-	-	+/-	+

CUTANEOUS NEOPLASMS	CD10	Androgen Receptor	CK20	CD34	Ber-EP4	bcl-2	CK19
Basal Cell Carcinoma	+	+	-	-	+	+	+
Trichoepithelioma	-	-	+	+	+	+	+
Merkel Cell Carcinoma	-	-	+	-	+	+	+
Microcystic Adnexal Carcinoma	+/-	-	-	-	-/+	+	
Sebaceous Carcinoma	+/-	+	-	-	+	+/-	-
Sebaceous Adenoma	-	+	-	-	+	+	-

CARCINOMAS: DIFFERENTIAL DIAGNOSIS	Androgen Receptor	BCA-225	GDDFP-15	ER/PR	Mammaglobin	Ny-BR-1	PSA/PSAP	CD44
Salivary Duct Carcinoma	+	+	+	-	-	-	-	-
Breast Carcinoma	+(aprocrine)	+	+	+/-	+	+	-	+
Prostate Carcinoma (nuclear)	+	-	-	-	-	-	+	+

PROSTATE LESIONS	PSA/PSAP	P504s	CK, 34bE12	p63	CK7	Thrombomodulin	Uroplakin III	PAX-2
Prostate Carcinoma	+	+	-	-	-	-	-	-
Urothelial Carcinoma	-	-	+	+	+	+	+	-
Nephrogenic Adenoma	-	+	+/-	-	+	-	-	+

LUNG CARCINOMAS	CD56	Chromogranin A	Synaptophysin	CK7	Napsin A	p63	TTF-1	BG8	GLUT-1
Small Cell Carcinoma	+	-/+	+/-	-	-	-	+	+	-
Adenocarcinoma	-	-	-	+	+	-	+	+	+/-
Squamous Cell Carcinoma	-	-	-	-	-	+	-	+	+
Large Cell Neuroendocrine Carcinoma	+	+	+	+/-	-	-	+/-		

COLON VS. OVARIAN CARCINOMA	CK7	CK20	CEA	CDX-2	Villin	CA19-9	Ep-CAM	WT1	CA-125	CK5/6	PAX-8
Ovarian Carcinoma, Serous	+	-	+	-	+	+	+	+	+	-	+
Ovarian Carcinoma, Mucinous	+/-	+/-	-	+	+	+	+	-	-		-
Ovarian Endometrioid Carcinoma	+	-	-	-		+/-	+	-/+	+	-	+
Colon Carcinoma	-	+	+	+	+	+	+	-	-	-	-

Carcinomas

CARCINOMAS: MUCIN EXPRESSION IN NEOPLASMS	MUC1	MUC2	MUC5AC	MUC6
Pancreatic Adenocarcinoma	+	-	+	-
Lung Carcinoma, Signet Ring	+	-	+	
Ovarian Adenocarcinoma	+	-	+	
Gastric Carcinoma	-	-/+	+	-/+
Cervical Adenocarcinoma	+	-	+	-
Esophageal Carcinoma	+	-	+	
Paget's Extramammary	+	-/+	+	-
Cholangiocarcinoma	+	-	+/-	-
Salivary Duct Adenocarcinoma	-	+	-	+
Colon Carcinoma, Signet Ring	-	+	-	-
Prostate Carcinoma	-	+/-	-	-
Pancreatic Intraductal Papillary Carcinoma	-	+	+	+
HCC	-	-	-	-
Adrenocortical Carcinoma	-	-	-	-
Breast Carcinoma	+	-	-	-
Lung Carcinoma	+	-	-	
Kidney Carcinoma	+	-	-	
Bladder Carcinoma	+	-	-	
Endometrial Carcinoma	+	-	-	-
Ovarian Carcinoma, Mucinous	+	-	+	
Renal Cell Carcinoma	+	-	-	
Urothelial Carcinoma	+	-	-	
Appendiceal Adenocarcinoma	-	+	+	-
Barrett's Esophagus	+	+	+	-
Pancreatic Mucinous Cystic	-	-	+	-
Breast Colloid Carcinoma	+	+	-	+

MUCIN EXPRESSION IN ORGANS	MUC1	MUC2	MUC4	MUC5AC	MUC6
Stomach	+	-	+	+	+
Small Intestine	-	+	-	-	+
Colon	-	+	-	-	
Pancreas	+	-	-	-	+

AMPULLARY CARCINOMA (ENTERIC VS DUCTAL)	CK17	Hep-Par1	CDX-2
Enteric	-	+	-
Ductal	+	-	-/+

COLON VS. PROSTATE ADENOCARCINOMA	CDX-2	CK20	CEA	CA19-9	PSA	P504s
Colon Adenocarcinoma	+	+	+	+	-	-
Prostate Adenocarcinoma	-	-	-	-	+	+

Organ Specific

ORGAN SPECIFIC: PANCREATIC TUMORS	Synaptophysin	Chromogranin_A	Insulin	Glucagon	Gastrin	Somatostatin	MUC4	CD56
Pancreatic Adenocarcinoma	-	-	-	-	-	-	+	-
Neuroendocrine Tumor	+	+	+/-	+/-	+/-	+/-	-	+
Solid Pseudopapillary	+	-	-	-	-			+
Pancreatic Ductal Carcinoma	-	-	-	-	-			-
Acinic Cell Carcinoma	-	-	-	-	-			-
Pancreatoblastoma	-	+	-	-	-	-	-	+
Benign Pancreas	+	+	+	+	-	+	-	-

ORGAN SPECIFIC: PANCREATIC TUMORS	B-Catenin	PGP 9.5	CK19	CA19-9	bcl-10	E-Cadherin	CD10	Maspin
Pancreatic Adenocarcinoma	-	-	+	+		-	+/-	+
Neuroendocrine Tumor	+	+	+/-	+/-	-	-	-	-
Solid Pseudopapillary	+	-	-	-	-	-	+	-
Pancreatic Ductal Carcinoma	+/-		-	+	-	+/-	+/-	+
Acinic Cell Carcinoma	+	-	+	-/+	+	+	+/-	-
Pancreatoblastoma	+	-	-	-	+	-	-	+
Benign Pancreas	+	-	-	-		-	-	-

ORGAN SPECIFIC: BRAIN CNS TUMORS	GFAP	Neurofilament	Synaptophysin	S-100	CK Cocktail	PR	EMA	Vimentin	NGFR	INI-1	SOX2
Astrocytoma	+/-	-	-	+	-	-	-	+	+	+	+
Glioblastoma	+	-	-	+	-	-	-	+	-	+	+
Oligodendroglioma	-	-	-	+	-	-	-	+	-	+	+
Ependymoma	+/-	-	-	+	-	-	-	-/+	+	+	+
Choroid Plexus Carcinoma	-/+	-	+	+	+	-	-		-	+	
Central Neurocytoma	-/+	-	+/-	-	-	-	-	-	+	+	+
Neuroblastoma	+/-	+	+/-	+/-	-	-	-	-	+	+	-
Pineocytoma	-/+	-	+	+	-	-	-		-	+	-
Meningioma	-	-	-	-	-	+	+	+	-	+	-
Schwannoma	+	-	-	+	-/+	-	-	+	+		-
Rhabdoid Tumors	-	+/-		+/-	+		+	+		-	
Metastatic Carcinoma	-	-	-	-	+	-/+	+	-/+	-		-

ORGAN SPECIFIC: KIDNEY RENAL EPITHELIAL TUMORS	RCC	CD10	PAX-2	Vimentin	Ksp-Cadherin	Parvalbumin	CD117	Ep-CAM	Caveolin-1	PAX-8	pVHL
Clear Cell Renal Cell Carcinoma	+	+	+	+	-	-	-	-	+	+	+
Chromophobe RCC	-	-	-	-	+	+	+	+	+	+	+
Oncocytoma	-	-	-	-	+	+	+	-	+/-	+	+

ORGAN SPECIFIC: BREAST CARCINOMAS	CK7	CK20	ER/PR	CD44	CA15-3	CA19-9	p63	CK5	CD117
Infiltrating Ductal Carcinoma	+	-	+	+	+	-	-	-	-
Adenoid Cystic Carcinoma	+	-	-	-	+	+	+	+	+

ORGAN SPECIFIC: BREAST VS. LUNG VS. PROSTATE CARCINOMAS	GCDFP-15	Mammaglobin	CA15-3	Caveolin-1	PSA	TTF-1	Napsin A
Breast Carcinoma	+	+	+	+	-	-	-
Lung Carcinoma	-	-	-	-	-	+	+
Prostate Carcinoma	-	-	-	+/-	+	-	-

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Organ Specific

ORGAN SPECIFIC: DIFFERENTIAL DIAGNOSIS OF PARATHYROID TUMORS	Chromogranin A	Synaptophysin	PTH	S-100	TTF-1	Calcitonin	PAX-8
Parathyroid Tumors	+	+	+	-	-	-	-
Follicular Cell Tumors	-	-	-	+/-	+	-	+
Medullary Thyroid Carcinoma	+	+	-	-	+	+	+

ORGAN SPECIFIC: SEX CORD STROMAL TUMORS	Calretinin	Inhibin	CD99	CK7	EMA	Vimentin	MART-1
Granulosa Cell Tumors	+	+	+	-	-	+	+
Sertoli-Leydig Cell Tumors	+	+	-/+	+	-	+	+
Gynandroblastoma	+	+					
Gonadoblastomas	+	+	+	-	-	+	-

ORGAN SPECIFIC: UTERUS: TROPHOBLASTIC CELLS	1st Trimester		2nd Trimester		3rd Trimester	
	hCG	hPL	hCG	hPL	hCG	hPL
Cytotrophoblast	-	-	-	-	-	-
Intermediate Trophoblast	1-24%	25-49%	-/+	50-74%	1-24%	1-49%
Syncytiotrophoblast	>75%	1-24%	25-49%	50-74%	1-24%	>75%

ORGAN SPECIFIC: UTERUS : TROPHOBLASTIC PROLIFERATIONS	p57	hCG	PLAP	hPL	CK Cocktail	Vimentin
Partial Mole	+	weak, diffuse	+	weak, diffuse	strong, diffuse	-
Complete Mole	-	strong, diffuse	weak, focal	weak, focal	strong, diffuse	-
Choriocarcinoma	-	strong, diffuse	weak, focal	weak, focal	strong, diffuse	-
Placental Site Tumor		strong, focal	strong, diffuse	strong, diffuse	strong, diffuse	strong, diffuse

ORGAN SPECIFIC: SKIN: ADNEXAL TUMORS	CK7	CK20	S-100	EMA	GCDFP-15	CD15
Merkel Cell Carcinoma	-	+	-	+	-	-
Sebaceous Tumor	+	-	-	-	-	+
Apocrine Tumor		-	-	+/-	+	+/-
Eccrine Tumor		-	+	+	-	-

ORGAN SPECIFIC: BREAST LESION	GCDFP-15	Mammaglobin	B-Catenin	E-Cadherin	CK, 34bE12	p120
Lobular	+	+	-	-	+	+ (cytoplasmic)
Ductal	+	+	+ (membranous)	+	-	+ (membranous)

ORGAN SPECIFIC: MENINGIOMAS FROM HISTOLOGIC MIMICS	Claudin 1	EMA	S-100	CD34	GFAP
Meningothelial Meningioma	+	+	-	-	-
Atypical Meningioma	+	+	-	+	-
Fibrous Meningioma	-	+	+	-	-
Solitary Fibrous Tumor	-	-	-	+	-
Meningeal Hemangiopericytoma	-	-	-	+	-
Schwannoma	+/-	-	+	-	+

ORGAN SPECIFIC: RENAL CELL CARCINOMA VS. HEMANGIOBLASTOMA	D2-40	FLI-1	CD31	CK Cocktail	CD10
Metastatic Renal Cell Carcinoma	-	-	-	+	+
Hemangioblastoma	+	+	+	-	-

Organ Specific

ORGAN SPECIFIC: OVARIAN CARCINOMAS	PAX-8	WT1	CA-125	CEA	pVHL
Ovarian Carcinoma, Serous	+	+	+	+	-
Ovarian Carcinoma, Mucinous	-	-	-	-	-
Ovarian Endometrioid Carcinoma	+	-	+	-	-
Ovarian Clear Cell Carcinoma	+	-	+	-	+

ORGAN SPECIFIC: SKIN: PAGETOID TUMORS	CK, LMW	CK, HMW	S-100	CEA	Vimentin
Melanoma	-	-	+	-	+
Paget's Disease	+	-	-/+	+	-
Bowen's Disease	+	+	-	-	-

ORGAN SPECIFIC: SKIN: BASAL VS. SQUAMOUS CELL CARCINOMA	CK Cocktail	Ep-CAM	EMA	bcl-2
Basal Cell Carcinoma	+	+	-	+
Squamous Cell Carcinoma	+	-	+	-

ORGAN SPECIFIC: PERINEURIOMA VS. NEUROFIBROMA	Claudin 1	EMA	S-100	GLUT1
Perineurioma	+	+	-	+
Neurofibroma	+	+	-	-

ORGAN SPECIFIC: BREAST CARCINOMA IN SITU VS. INFILTRATING BREAST CARCINOMA	Calponin	SM Myosin	p63
Breast Carcinoma in-situ	+	+	+
Infiltrating Breast Carcinoma	-	-	-

ORGAN SPECIFIC: PANCREAS VS. PANCREATIC ADENOCARCINOMA	pVHL	S-100	Maspin
Pancreas	+	-	-
Pancreatic Intraepithelial Neoplasia	-	+	+
Pancreatic Adenocarcinoma	-	+	+

Lymphomas

LYMPHOMAS: B-CELL LYMPHOMAS	CD45	CD20	CD79a	bcl-2	bcl-6	CD10	CD23	Cyclin D1	PAX-5	BOB.1	Oct-2	PU.1
Follicular	+	+	+	+	+	+	-	-	+	+	+	+
CLL/SLL	+	+	+	+	-	-	+	-	+	+	+	+
Mantle Cell	+	+	+	+	-	-	-	+	+	+	+	+
Marginal Zone BCL	+	+	+	+	-	-	-	-	+	+	+	+
Lymphoplasmacytic	+	+	+	+	-	-	-	-	+	+		
Diffuse Large Cell Lymphoma	+	+	+	+	+	-	-	-	+	+	+	+
Burkitt Lymphoma	+	+	+	-	+	+	-	-	+			
Hairy Cell Leukemia	+	+	+	+	-	-	-	-	+			

LYMPHOMAS: B-CELL LYMPHOMAS	p27/Kip1	IgD	MUM1	T-beta	TRAcP	Annexin A1	CD5	CD43	CD3	ZAP-70	CD25	FOXP1	TCL1
Follicular	+	+	-	-	-	-	-	-	-	-		-	+
CLL/SLL	+	+	+	+	-	-	+	+	-	+/-			+
Mantle Cell	+	+	-	-	-	-	+	+	-	-	-	-/+	+
Marginal Zone BCL	+	-/+	+	+	+/-	-	-	-	-	-			-
Lymphoplasmacytic	+	-	+	+	-	-	-	-	-	-	-		+
Diffuse Large Cell Lymphoma	-	-	+	-	-		-	-	-	-		+	-/+
Burkitt Lymphoma	-	-	-	-	-		-	+	-	-			+
Hairy Cell Leukemia	-	-		+	+	+	-	-	-		+		

LYMPHOMAS: T-CELL LYMPHOMAS	CD45	CD2	CD3	CD4	CD5	CD7	CD8	CD25	CD45RO	PD-1	CD56	CD57	Perforin	Granzyme_B	TCL1
Angioblastic	+	+	+	+	+	+	+/-	+	+	+					
Lymphoblastic	+	+/-	+	+/-	+	+	+/-	+	+	-					-
Subcutaneous Panniculitic	+	+	+	-	+	+	+/-	-	+	-	-		+	+	
Lennert's	+	+	+	-	+		-	+	+	-				-	
NK-Type	+	+	+	-	-	+	-	+	+	-	+/-	+/-	-	+	+
Cutaneous	+	+	+	+	-	+	-	-	-	-			+	+	-
Peripheral	+	+	+	+	+	-	-	+	+	-	-	-	-	-	-
Mycosis Fungoides	+	+	+	+	+	-	-	+	+	-	-				-

LYMPHOMAS: ACUTE MYELOID LEUKEMIA	MPO	CD68	Factor VIII	CD61A	Hemoglobin A	BOB.1	Oct-2	Glycophorin A	Spectrin	CD34	CD43	CD74	CD45	Lysozyme	CD138
Acute Myeloid, M0	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+
Myeloblast, M1&2	+	+	-	-	-			-	-	-	+	+	+	+	+
Promyelocytic, M3	+	+	-	-	-	+	+			-	+		-		
Myelomonocytic, M4	+	+	-	-	-	-	+	-	-	+	+	+	+	+	
Monoblastic, M5	+	+	-	-	-	-	+	-	-	-	+	+	+	+	
Acute Myeloid, M6	+	-	-		-	-	-	+	+	-			-		+
Megakaryocytic, M7	-	-	+	+	-	+/-	-			-					-
Megakaryoblast	+	+	+		+										-

LYMPHOMAS: LYMPHOBLASTIC LYMPHOMAS: BCL VS. TCL	TDT	CD10	PAX-5	CD20	CD19	CD3	CD5	CD7	CD117	CD74
Lymphoblastic BCL	+	+/-	+	+/-	+	-	-	-	-	+
Lymphoblastic TCL	+	+	-	-	-	+	+/-	+	-	-

LYMPHOMAS: PLASMA CELLS	CD138	CD79a	EMA	MUM1	CD56	Cyclin D1	CD43	CD20	CD19
Plasma Cell Tumor	+	+	+	+	+	-	-	-	-

Lymphomas

LYMPHOMAS: LYMPH NODE HISTIOCYTOSIS	CD68	S-100	CD1a	Lysozyme	CD21/CD35	FDC	PD-1
Reactive	+	-	-	+	-	-	-
Langerhans	+	+	+	+	-	-	-
Sinus Histiocytosis with Massive Lymphadenopathy	+	+	-	+	-	-	-
Follicular Dendritic Cell Tumor	-	-	-	-	+	+	+
Dermatopathic Lymphadenitis	-	+	+	+	-	-	-

LYMPHOMAS: HISTIOCYTIC LESIONS	CD45	CD4	CD68	Lysozyme	CD163	Factor XIIIa	CD20	CD3
Histiocytic Lesions	+	+	+	+	+	+	-	-

LYMPHOMAS: HISTIOCYTIC PROLIFERATION	S-100	CD68	Vimentin	Lysozyme	CD1a	Factor XIIIa	HAM56
Juvenile Xanthogranuloma	-	+	+	+	-	+	+
Langerhans Cell Histiocytosis	+	+	+	+	+	-	+
Dermatobroma	-	+	+	-	-	+	+

LYMPHOMAS: IMMUNOGLOBULIN: HEAVY AND LIGHT CHAIN	IgA	IgG	IgD	IgM	Kappa	Lambda
Secretory Meningioma	+	-	-	+		
Microvillous Lymphoma	-	-	-	+		
Cutaneous Lymphoma	-	-	-	-		
Myeloma	+	+	+/-	-	+	+
Diffuse LBCL	-	+	-	+	+	+
Marginal Zone Lymphoma	-	-	-/+	+	+	+
SLL/CLL	-	-	+	+	+	+

LYMPHOMAS: B-CELL MATURATION	CD20	CD79a	CD19
Pro-B	-	+	+
Pre-B	-	+	+
Late Pre-B	+	+	+
Mantle B-cells	+	+	+
Centroblastic	+	+	+
Centrocytic	+	+	+
Plasmablasts	-	+	-
Plasma cells	-	+	-

LYMPHOMAS: HIGH GRADE LYMPHOMA: BCL VS. TCL	CD20	CD45R	CD43	CD45RO	CD3
Low Grade BCL	+	+	-	-	-
High Grade BCL	+	+	-	-	-
Low Grade TCL	-	-	+	+	+
High Grade TCL	-	-	+	+	+/-

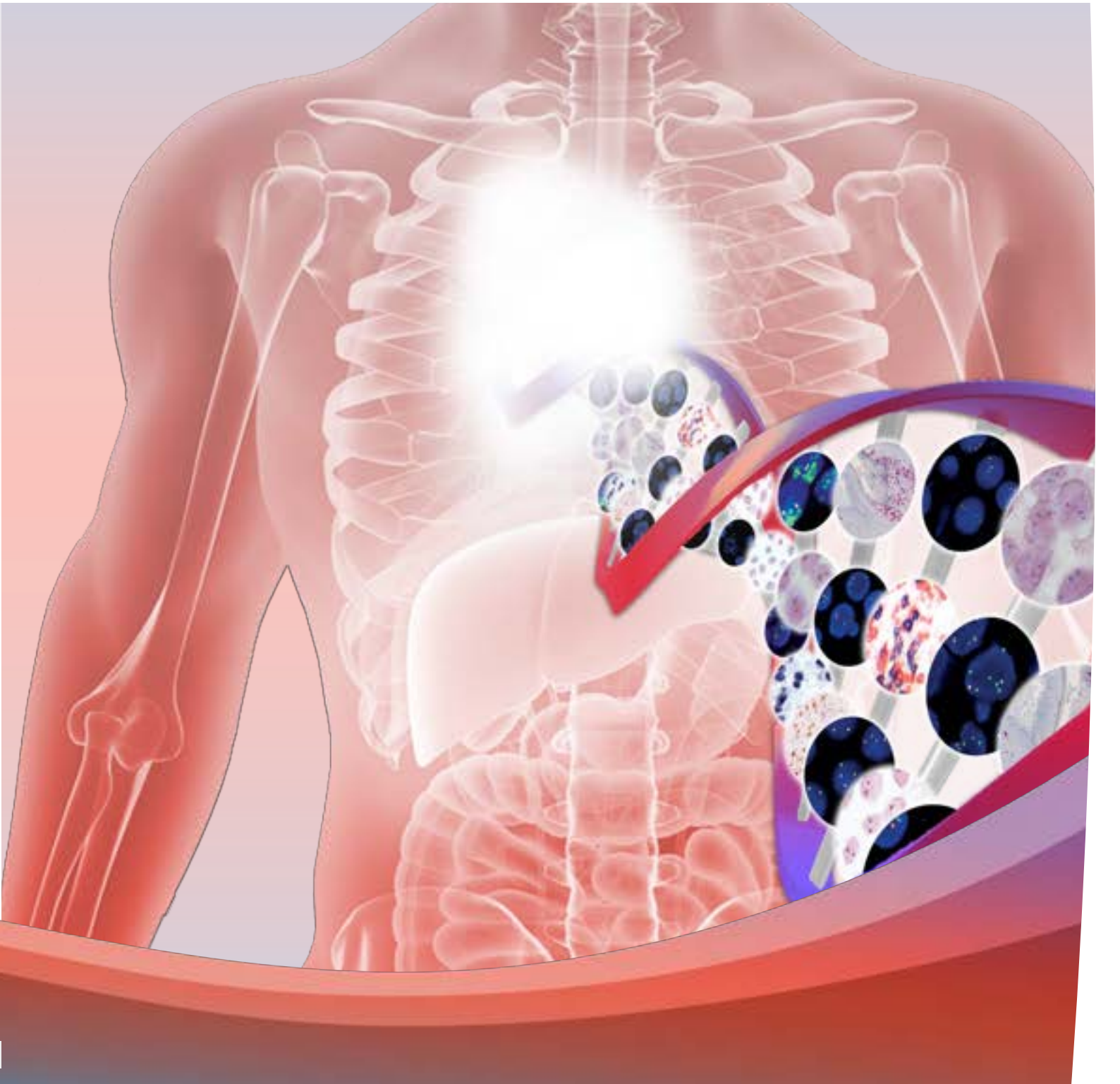
LYMPHOMAS: FOLLICULAR LYMPHOMA VS. REACTIVE FOLLICLES	bcl-2	bcl-6	CD10	Ki-67
Follicular Lymphoma	+	+	+	-
Reactive Follicles	-	+	+	+

Lymphomas

LYMPHOMAS: MASTOCYTOSIS	Tryptase	CD117	CD25	CD163	CD2
Mastocytosis	+	+	+	-	+
Reactive Mast Cells	+	+	-	+	-
Myelomastocytic Leukemia	+	+	-		-

LYMPHOMAS: SPLENIC HEMATOPOIETIC PROLIFERATIONS IN NEOPLASTIC AND BENIGN DISORDERS	MPO	CD34	CD117	CD68	Hemoglobin A
Chronic Myelogenous Leukemia	+	-/+	+/-	+	-
Chronic Idiopathic Myelofibrosis	+	+/-	-/+		-
Myelodysplastic Syndrome		+	-/+		-
Myelodysplastic / Myeloproliferative Disorders	+	-	-	+	-
Mastocytosis	+	-	+		-
Erythroid Disorders	+/-	-	-	-/+	+
Splenic Lymphoma	-/+	-	-		-
Acute Myeloid Leukemia	+	+	+	+	-
Polycythemia Vera		+	+		+

ZytoLight Interpretation Guides



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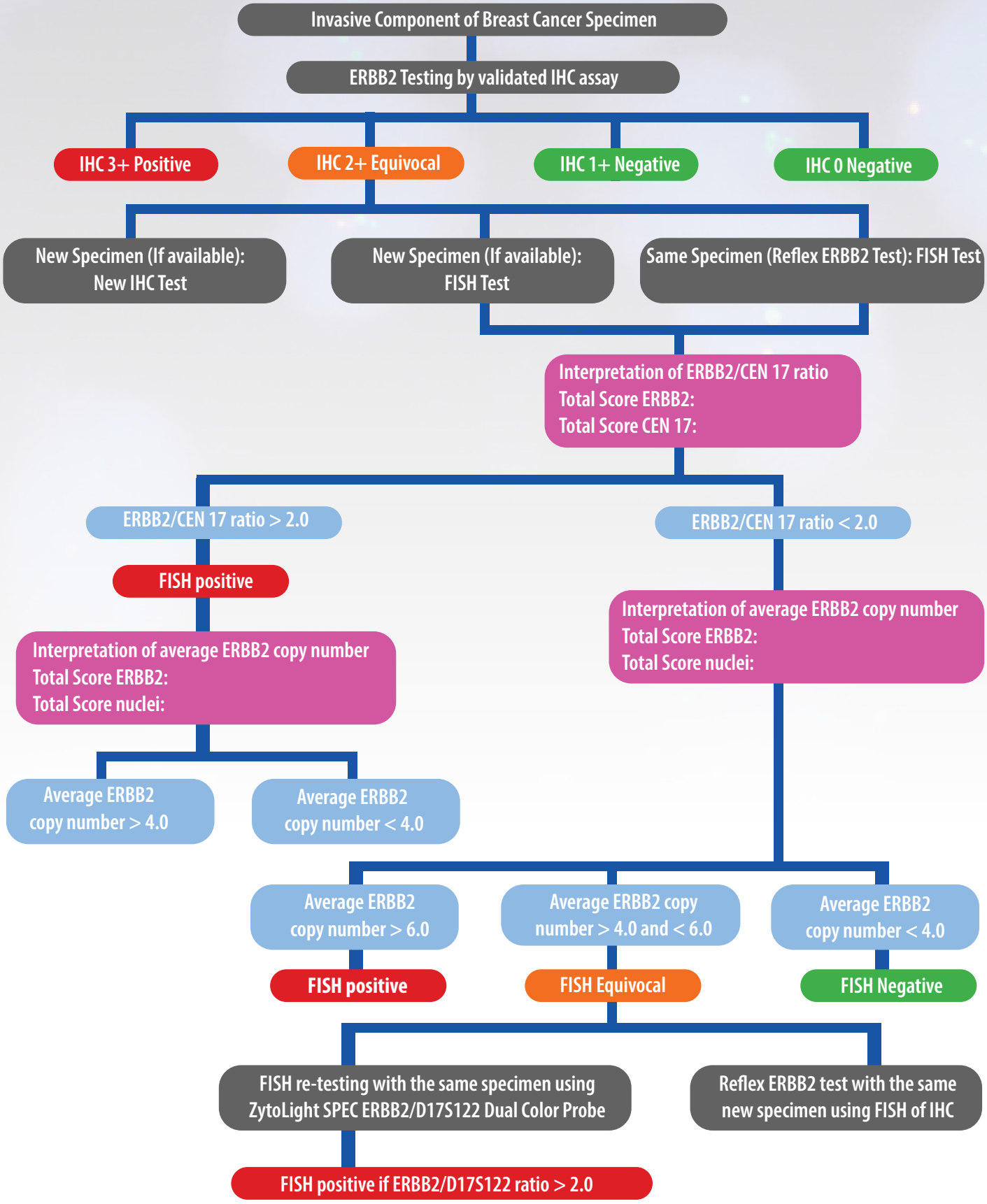
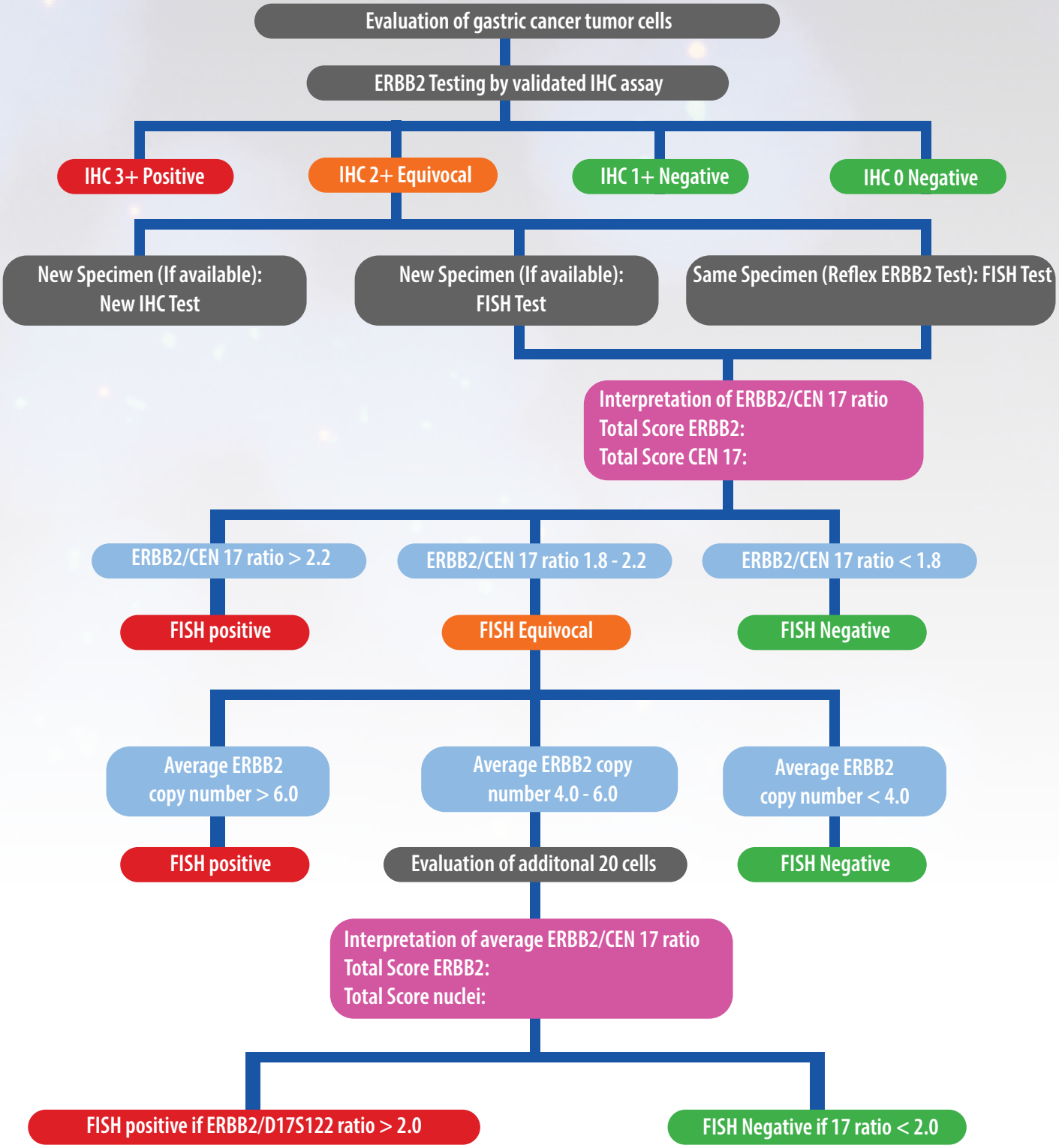
HER-2 neu/ERBB2 Interpretation Guide

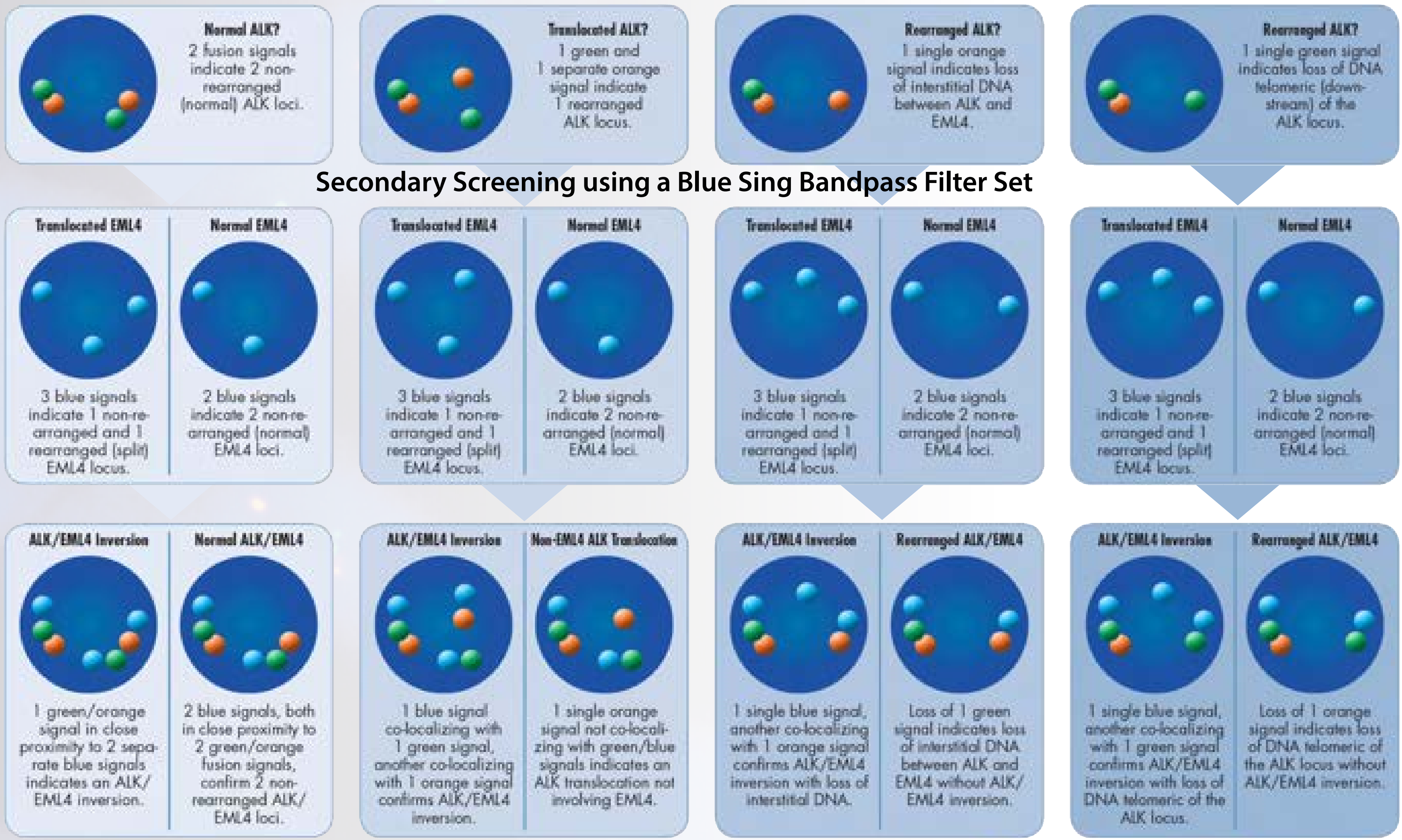


HER-2 neu/ERBB2 Interpretation Guide



ZytoLight SPEC ALK/EML4 TriCheck Probe - Recommended Evaluation Scheme

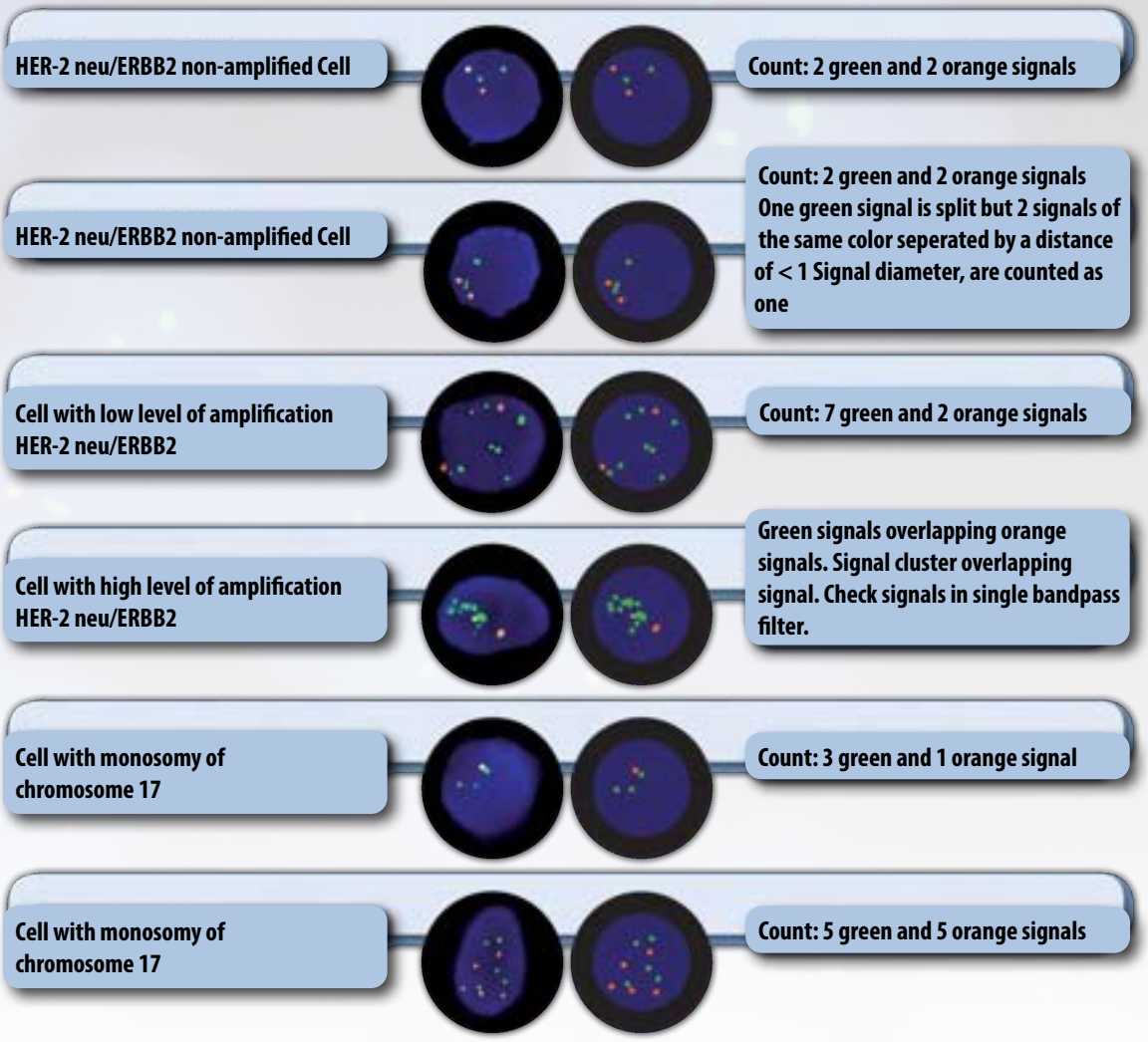
Initial Screening using a Green/Orange Dual Bandpass Filter Set



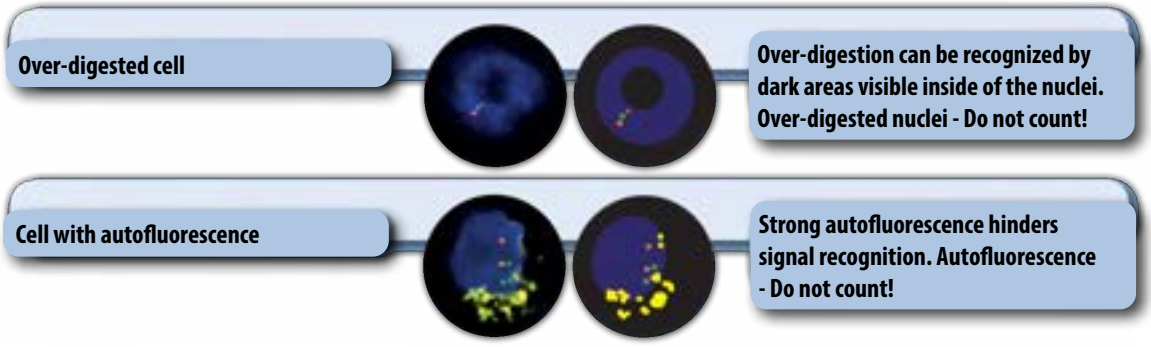
Signal patterns other than those shown above may be observed. It is advised to analyze metaphase spreads for the interpretation of those atypical signal patterns.

Also Observable:

HER-2 neu/ERBB2 FISH Signal Interpretation Guide



- Artifacts (crush or edge artifacts) that make interpretation difficult should be excluded from counting.
- Do not count if controls are not as expected.
- If > 25% of signals are weak the test cannot be scored.
- The test should be repeated if >10% of signals occur every cytoplasm.



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Selected Lung Cancer Probes of the ZytoLight Portfolio

Prod. No.	Product	Label	Tests (Volume)*
Z-2124	Zyto*Light* SPEC ALK Dual Color Break Apart Probe	🟢 / 🟠	5/20 (50 ul/200 ul)
Z-2117	Zyto*Light* SPEC ALK/EML4 TriCheck Probe	🟢 / 🟠 / 🔵	5/20 (50 ul/200 ul)
Z-2137	ZytoLight SPEC CARS Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2179	ZytoLight SPEC CD274, PDCD1LG2/CEN 9 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2033	ZytoLight SPEC EGFR/CEN 7 Dual Color Probe	🟢 / 🟠	5/20 (50 ul/200 ul)
Z-2136	ZytoLight SPEC EML4 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2072	ZytoLight SPEC FGFR1/CEN 8 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2122	ZytoLight SPEC FGFR2/CEN 10 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2082	ZytoLight SPEC FGFR3/ CEN 4 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2131	ZytoLight SPEC KIF5B Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2115	ZytoLight SPEC KRAS/CEN 12 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2087	ZytoLight SPEC MET/CEN 7 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2167	ZytoLight SPEC NTRK1 Dual Color Break Apart Probe	🟢 / 🟠	20 (200 ul)
Z-2148	ZytoLight SPEC RET Dual Color Break Apart Probe	🟢 / 🟠	5/20 (50 ul/200 ul)
Z-2144	ZytoLight SPEC ROS1 Dual Color Break Apart Probe	🟢 / 🟠	5/20 (50 ul/200 ul)
Z-2127	ZytoLight SPEC SOX2/CEN 3 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2133	ZytoLight SPEC TFG Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Related Products			
Z-2028-5	ZytoLight FISH-Tissue Implementation Kit Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; Wash Buffer SSC, 150 ml; 25x Wash Buffer A, 50 ml; DAPI/DuraTect-Solution, 0.2 ml		5
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 ml		20
Z-2099-20	ZytoLight FISH-Cytology Implementation Kit Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x PBS, 50 ml; Cytology Stringency Wash Buffer SSC, 500 ml; Cytology Wash Buffer SSC, 500 ml; DAPI/DuraTect-Solution, 0.8 ml		20

ZytoLight Fluorochromes

Two Factors that mainly influence FISH analyses:

- **Fluorochromes of the FISH probes**
- **Appropriate filter sets**

Fluorochrome	Excitation	Emission	Equivalent to
🔵 ZyBlue	418 nm	467 nm	DEAC
🟢 ZyGreen	503 nm	528 nm	FITC
🟠 ZyOrange	547 nm	572 nm	Rhodamine

Recommended Filter Sets

All Filter sets have a superior signal-to-noise ratio and need to be assembled in fluorescence filter holders specific for the respective microscope.

Prod. No	Product	Detected Fluorochrome
E-4030-1	DAPI Single Bandpass Filter Set v2	DAPI
E-4026-1	ZyBlue Single Bandpass Filter Set v2	🔵
E-4012-1	ZyGreen Single Bandpass Filter Set v2	🟢
E-4013-1	ZyOrange Single Bandpass Filter Set v2	🟠
E-4016-1	ZyGreen/ZyOrange Dual Bandpass Filter Set v2	🟢 / 🟠
E-4010-1	DAPI/ZyGreen/ZyOrange Triple Bandpass Filter Set v2	DAPI / 🟢 / 🟠
E-4025-1	ZyBlue/ZyGreen/ZyOrange Triple Bandpass Filter Set v2	🔵 / 🟢 / 🟠

Selected Sarcoma Probes of the ZytoLight Portfolio

Prod. No.	Product	Label	Tests (Volume)*
Z-2103	Zyto*Light* SPEC CDK4/CEN 12 Dual Color Probe	🟢 / 🟠	20 (200 ul)
Z-2121	Zyto*Light* SPEC COL1A1 Dual Color Break Apart Probe	🟢 / 🟠	20 (200 ul)
Z-2116	ZytoLight SPEC COL1A1/PDGFB Dual Color Dual Fusion Probe	🟠 / 🟢	5/20 (50 ul/200 ul)
Z-2100	ZytoLight SPEC DDIT3 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2096	ZytoLight SPEC EWSR1 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2139	ZytoLight SPEC FOXO1 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2018	ZytoLight SPEC FOXO1/PAX3 Dual Color Single Fusion Probe	🟠 / 🟢	5/20 (50 ul/200 ul)
Z-2019	ZytoLight SPEC FOXO1/PAX7 Dual Color Single Fusion Probe	🟠 / 🟢	5/20 (50 ul/200 ul)
Z-2130	ZytoLight SPEC FUS Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2132	ZytoLight SPEC JAZF1 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2013	ZytoLight SPEC MDM2/CEN 12 Dual Color Probe	🟢 / 🟠	5/20 (50 ul/200 ul)
Z-2145	ZytoLight SPEC NR4A3 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2119	ZytoLight SPEC PDGFB Dual Color Break Apart Probe	🟢 / 🟠	20 (200 ul)
Z-2178	ZytoLight SPEC SMARCB1/22q12 Dual Color Probe	🟢 / 🟠	5 (50 ul)
Z-2097	ZytoLight SPEC SS18 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2109	ZytoLight SPEC TFE3 Dual Color Break Apart Probe	🟢 / 🟠	20 (200 ul)
Z-2151	ZytoLight SPEC USP6 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2142	ZytoLight SPEC WT1 Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Z-2175	ZytoLight SPEC YWHAE Dual Color Break Apart Probe	🟢 / 🟠	5 (50 ul)
Related Products			
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E-4016-1	ZyGreen/ZyOrange Dual Bandpass Filter Set v2	🟢 / 🟠
E-4010-1	DAPI/ZyGreen/ZyOrange Triple Bandpass Filter Set v2	DAPI / 🟢 / 🟠

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RETURN POLICY
Reagents are covered by the following Total Quality Assurance policy which states:

If you are not completely satisfied with the quality of our reagents, you may return them to us for a refund, replacement or credit memo, at our option. Bio SB's liability is limited to a refund or replacement, at our option. Please obtain a Return Material Authorization (RMA) number from Customer Service prior to the return of a product. Returns, which are not caused by unsatisfactory product performance, must be made within 30 days of delivery and will be subject to a 30% processing fee. Returns or replacements cannot be accommodated for expired products. All products sent without a RMA number will be returned to sender.

TROUBLESHOOTING
Should you have technical difficulties, please submit a Product troubleshooting fand complaint form online using the at the following URL:
https://www.biosb.com/product-troubleshootingcomplaint-form/.

COMPLAINTS
Complaints need to be sent with a Prodciut Troubleshooting and Complaint (Form 00020) per FDA/ISO Regulations. To recieve form email techncial@biosb.com. Returns will be processed with a returned authorization form.

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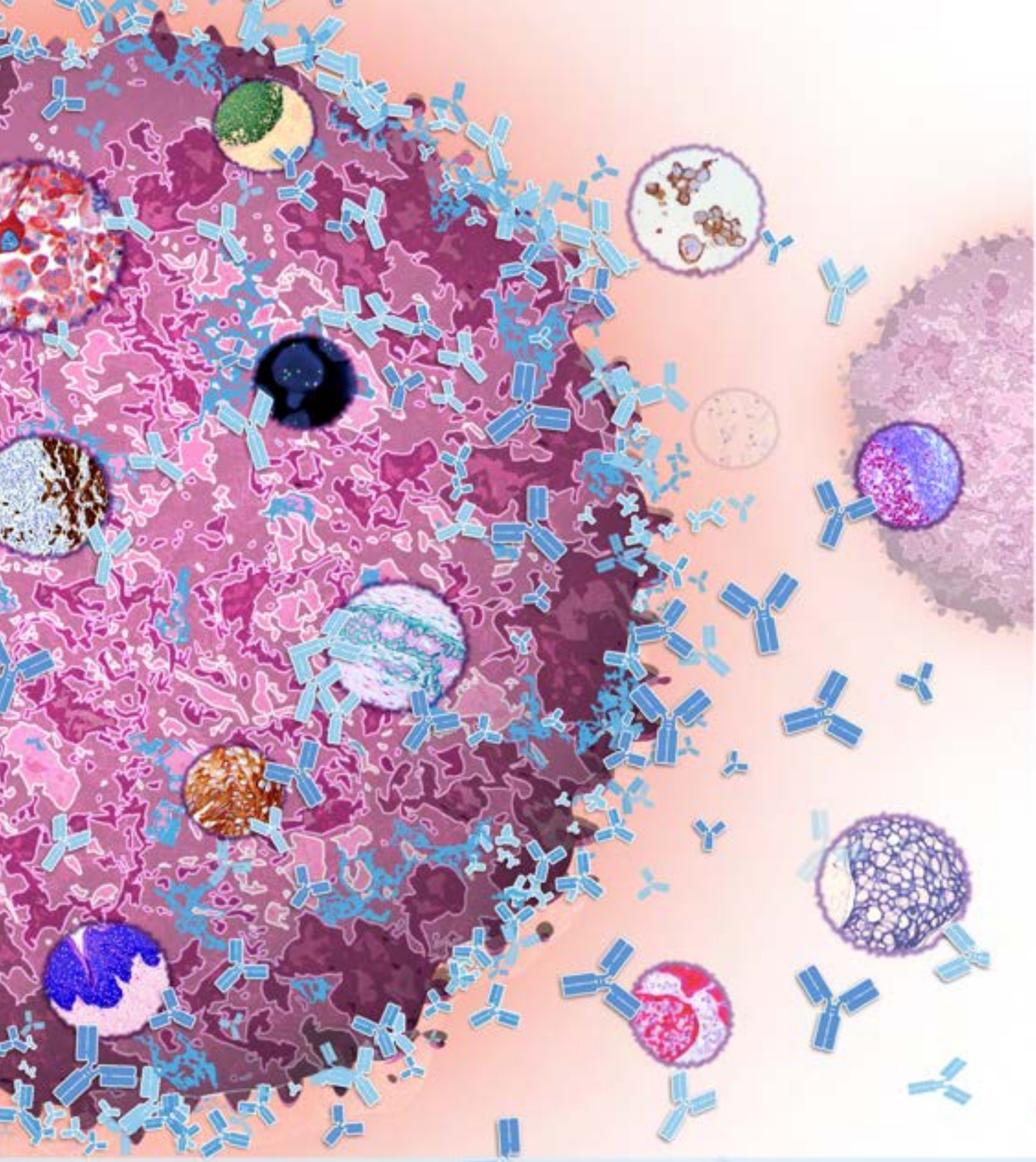

Bio SB

SCIENCE FOR THE WORLD

Products for Molecular Pathology

Volume 5

At Bio SB our passion is providing biomedical laboratories with the tools to improve the diagnosis, prognosis and therapies that benefit patients worldwide. Bio SB manufactures and develops products in accordance with FDA QSR 21 CFR Part 820 cGMP and ISO 13485:2016. These guidelines enable us to produce an IVD product that meets the highest in vitro diagnostic standards.

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