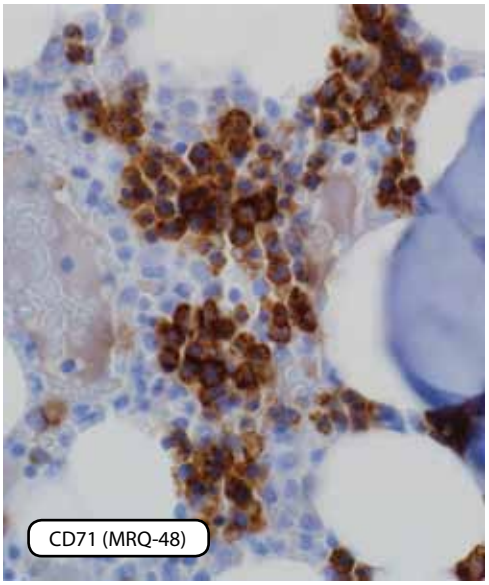
CELL MARQUE

Immunohistochemistry

reference guide, vol. 10

New Products


CD71 (MRQ-48)


S100P (16/f5)

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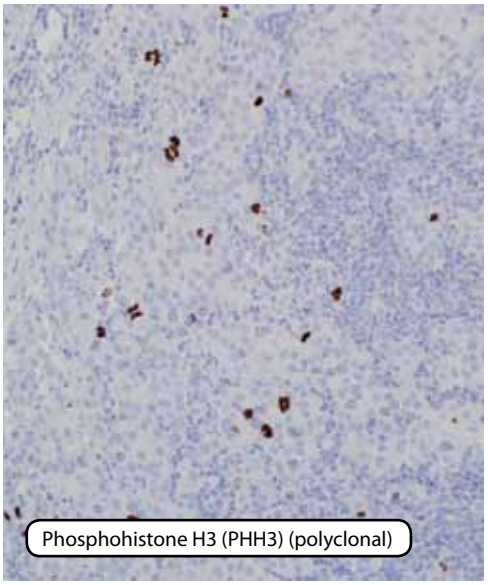
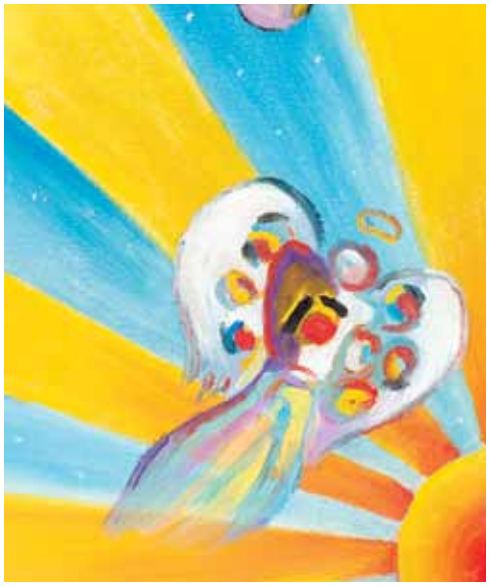
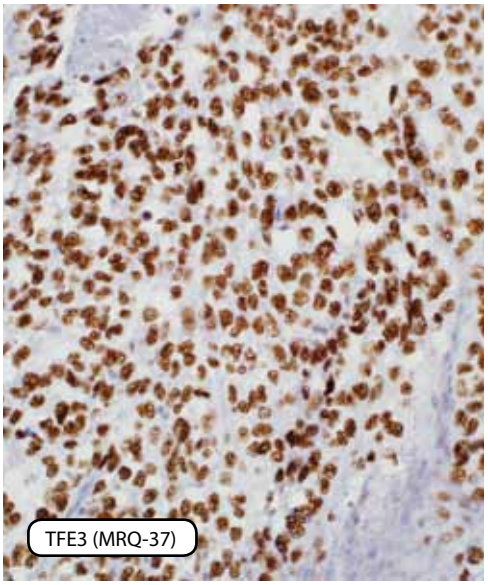
ABOUT CELL MARQUE



Phosphohistone H3 (PHH3) (polyclonal)



PRODUCTS



TFE3 (MRQ-37)

SCIENTIFIC, TECHNICAL, & REFERENCE

From Passion to Product to Patient.®

Leadership

With each passing year, I'm excited to share with you our dedication to excellence and our passion for state-of-the-art IHC reagents and services. I truly believe Cell Marque's success not only comes from the energy of our organization, but also as a result of the symbiosis achieved through our relationships with external customers, our vendors, our business partners, and our consultants. It is you, our customers, and of course the patients you serve, that give true meaning to the concerted effort needed "to make it all happen." I am proud to be the owner and President of such a company, and it is through the culture we have cultivated at Cell Marque that I am confident to say that every year will top the year previous. I am fortunate to work alongside some of the brightest and most educated professionals in our industry, and I extend my gratitude to all involved. – **Nora Lacey, President & CEO**

Executive Team *(left to right)- Michael Lacey, M.D., Medical Director & Pathologist; Nora Lacey, President & CEO; S. Carlos Del Buono, Vice-President Operations; Sarah Aghassi, Esq., Vice-President Legal Affairs; David Zembo, E.A., Chief Financial Officer; Veronica Runyan, Vice-President Regulatory & Quality Affairs; Mark Corl, Vice-President Sales & Marketing; Paul Ardi, Senior Vice-President*

Our Mission

Our world class team strives to be the leading supplier of advanced histopathology reagents through a culture of innovation, continuous improvement, and relentless dedication to both those we serve and perfection of the art.

Our Vision and Values

Customer: In all we do, we are dedicated to exceeding the expectations of our customers.

Employee: We empower and equip our employees to make our brand the most trusted and sought after in our industry.

Leadership: We cultivate organizational synergy in the pursuit of excellence.

Loyalty: We promote brand loyalty by delivering exceptional value and distinguished service.

Market Share: We will be first in the mind of the customer.

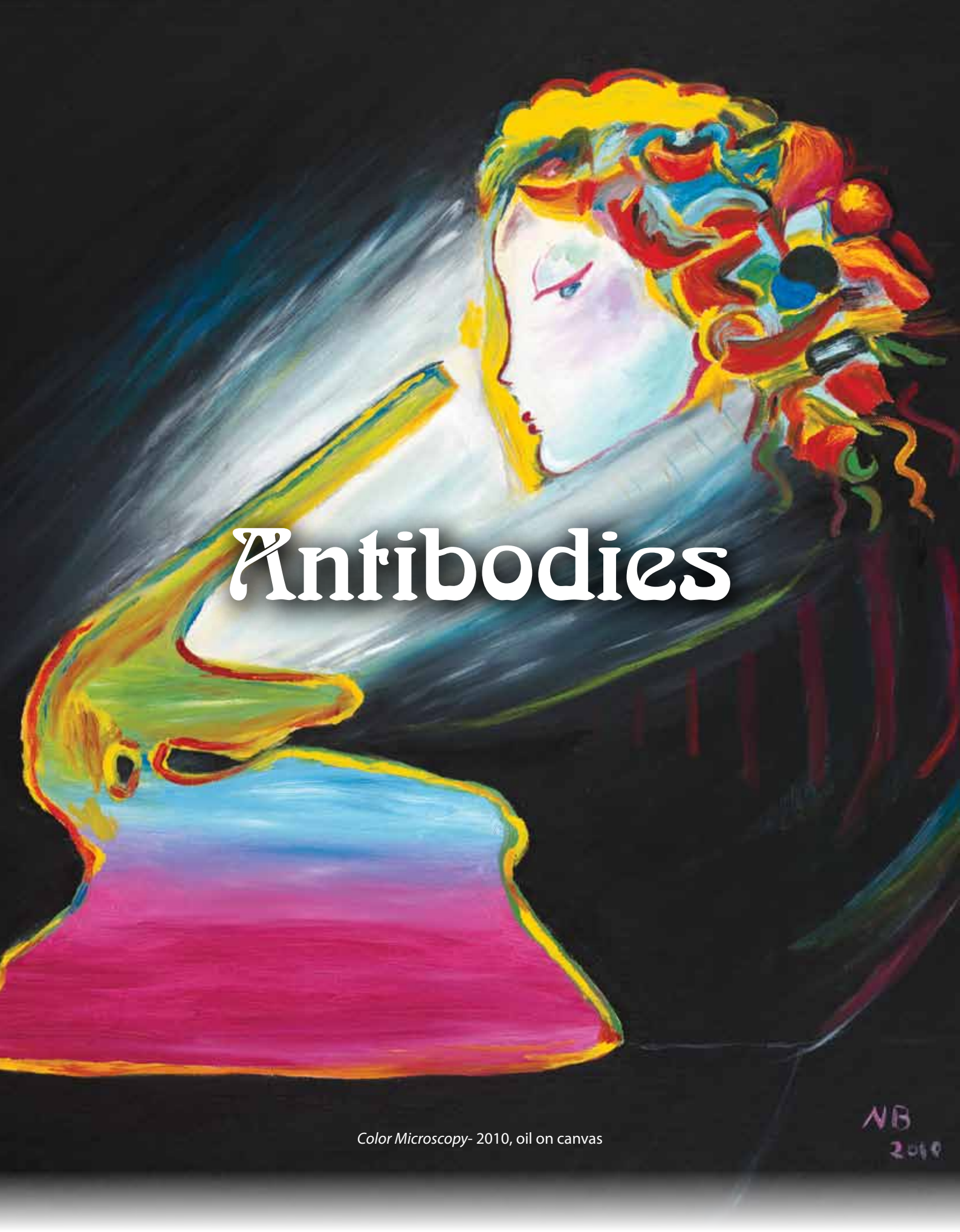
Alliance: We foster mutually beneficial relationships with global strategic partners.

Research: We commit resources to continually identify and offer products to further advance the art of histopathology.

Quality: We believe that service to the customer begins with quality.

Universal: We serve the healthcare needs of the global community through universal applications of our products.

Execution: From Passion to Product to Patient.®

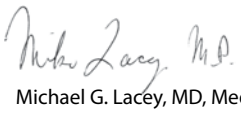


Color Microscopy- 2010, oil on canvas

Categorical Quick Reference

Fellow Pathologists,

It is, of course, you who carry the responsibility of properly applying and interpreting the results of the tests utilizing the products found in this catalog. We have attempted to make it the most useful, practical, and informative catalog to date. There are many new products, the applicable literature for which, may have been limited at the time of publication. Please keep this in mind when reviewing the material herein. It is my goal to present current information, and yet maintain a conservative approach keeping in mind that the perceived utility of primary antibodies may change to a certain degree with time and experience. Having said this, I hope you find the pages herein useful in your practice as a quick reference, as it is hard to overstate the importance of the application of these tools in the current practice of pathology.



Michael G. Lacey, MD, Medical Director

Breast Markers

Carcinoma Markers

Endothelial Markers

Germ Cell Tumor

Harmony™ Cocktails

Hematolymphoid Markers

Categorical Quick Reference

A-1-Antichymotrypsin

The alpha-1-antichymotrypsin primary 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 Langerhans cell histiocytosis, the reaction for this marker is heterogeneous in intensity and distribution. In fibrous histiocytomas on the other hand, a diffuse homogeneous reaction may be observed. Acinar tumors of the pancreas and salivary gland may also exhibit anti-alpha-1-antichymotrypsin positivity.

Liver: Malignant vs. Benign									
	A1ACT	Hep-Par1	Glypican-3	CD34	p53	AFP	pCEA	mCEA	TTF-1
Hepatocellular Carcinoma	-/+	+	+	+	+	-/+	+	-	+ Cytoplasmic
Hepatoblastoma	+	+	+	-	+	+	+	-	-
Benign Liver Nodules	+/-	+	-	-	-	-	-	-	+ Cytoplasmic

Soft Tissue Tumor										
	A1ACT	CK Cocktail	MS Actin	SM Actin	Desmin	A1AT	S-100	CD99	TFE-3	Calretinin
PNET/ES	-	-/+	-	-	-	-	+	+	-	-
Desmoplastic Small Round Cell	-	+	-	-	+	-	-	-	-	-
Alveolar Soft Part Sarcoma	-	-	+	+	-	-	-	-	+	-
PEComa	-	-	-	+	+/-	+	-	-	-	+
Fibrous Histiocytoma	+	-	-	-	-	+	-	-	-	-

Skin: Spindle Cell Tumors									
	A1ACT	FLI-1	CD10	SM Actin	HHV-8	CD99	CD34	S-100	Collagen IV
Spindle Cell Melanoma	-	+	-	-	-	-	-	+	-
Atypical Fibroxanthomas	+	-	+	+	-	+	-	-	-
Angiosarcoma	-	+	-	-	-	-	+	-	+/-
Glomus Tumor	-	-	-	+	-	-	+/-	-	+
Hemangioma	-	+	-	+	-	-	+	-	+
Kaposi's Sarcoma	-	+	-	+	+	-	+	-	+/-

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Tonsil

Stability
Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Isaacson P, et al. Lancet 1979;2:964-965
2. Palmer PE, et al., Am J Clin Pathol 1974;62:350-354
3. Palmer PE, et al. Cancer 1980;45:1424-1431
4. Kindblom LG, et al. Hum Pathol 1982;13:834-840

Rabbit Polyclonal

0.1 ml, concentrate.....222A-14
0.5 ml, concentrate.....222A-15
1 ml, concentrate 222A-16
1 ml, prediluted 222A-17
7 ml, prediluted 222A-18
Positive control slides 222S

Rabbit Polyclonal

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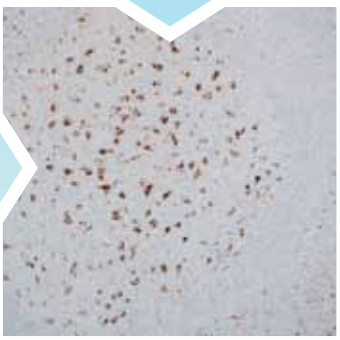

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The immunohistochemical staining of alpha-1-antitrypsin is considered to be very useful in the study of inherited AAT deficiency, benign and malignant hepatic tumors, and yolk sac carcinomas. Positive staining for A-1-antitrypsin may also be used in detection of benign and malignant lesions of an 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 uncertain etiology.

Liver: Malignant vs. Benign									
	A1AT	Hep-Par1	Glypican-3	CD34	p53	AFP	pCEA	mCEA	TTF-1
Hepatocellular Carcinoma	-/+	+	+	+	+	-/+	+	-	+ Cytoplasmic
Hepatoblastoma	+	+	+	-	+	+	+	-	-
Benign Liver Nodules	+/-	+	-	-	-	-	-	-	+ Cytoplasmic

Soft Tissue Tumor										
	A1AT	CK Cocktail	MS Actin	SM Actin	Desmin	A1ACT	S-100	CD99	TFE-3	Calretinin
PNET/ES	-	-/+	-	-	-	-	+	+	-	-
Desmoplastic Small Round Cell	-	+	-	-	+	-	-	-	-	-
Alveolar Soft Part Sarcoma	-	-	+	+	-	-	-	-	+	-
PEComa	+	-	-	+	+/-	-	-	-	-	+
Fibrous Histiocytoma	+	-	-	-	-	+	-	-	-	-

Skin: Spindle Cell Tumors									
	A1AT	FLI-1	CD10	SM Actin	HHV-8	CD99	CD34	S-100	Collagen IV
Spindle Cell Melanoma	-	+	-	-	-	-	-	+	-
Atypical Fibroxanthomas	+	-	+	+	-	+	-	-	-
Angiosarcoma	-	+	-	-	-	-	+	-	+/-
Glomus Tumor	-	-	-	+	-	-	+/-	-	+
Hemangioma	-	+	-	+	-	-	+	-	+
Kaposi's Sarcoma	-	+	-	+	+	-	+	-	+/-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Isaacson P, et al. Lancet 1979;2:964-965
2. Meridan Z, et al. Am J Surg Pathol 2011;35:981-88
3. Palmer PE, et al. Cancer 1980;45:1424-1431
4. Kindblom LG, et al. Hum Pathol 1982;13:834-840

Rabbit Polyclonal

0.1 ml, concentrate.....223A-14
0.5 ml, concentrate.....223A-15
1 ml, concentrate 223A-16
1 ml, prediluted 223A-17
7 ml, prediluted 223A-18
Positive control slides 223S

Rabbit Polyclonal

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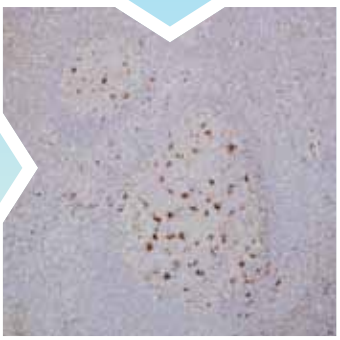

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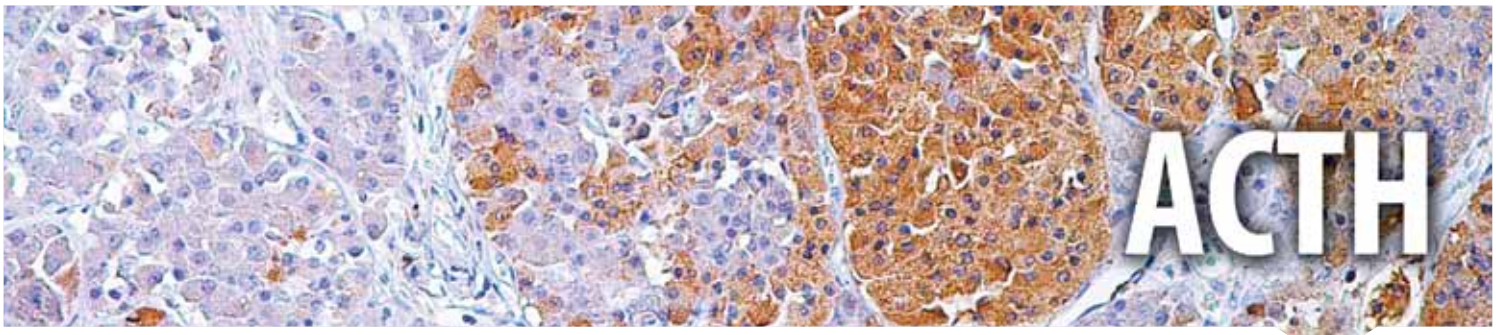

ACTH is synthesized from pre-pro-opiomelanocortin (pre-POMC). The removal of the single peptide during translation produces the 267 amino acid polypeptide POMC, which undergoes a series of post-translational modifications such as phosphorylation and glycosylation before it is proteolytically cleaved by endopeptidases to yield various polypeptide fragments with varying physiological activity. These fragments include ACTH, β-lipotropin, γ-lipotropin, Melanocyte Stimulating Hormone (MSH), and β-endorphin. POMC, ACTH, and β-lipotropin are secreted from corticotropes in the anterior lobe (or adenohypophysis) of the pituitary gland in response to the hormone corticotropin-releasing hormone (CRH) released by the hypothalamus. ACTH is also produced by cells of immune system (T-cells, B-cells, and macrophages) in response to stimuli associated with stress.

Anti-ACTH is a useful marker in classification of pituitary tumors and the study of pituitary disease. It reacts with ACTH-producing cells (corticotrophs). It also may react with other tumors (e.g. some small cell carcinomas of the lung) causing paraneoplastic syndromes by secreting ACTH.

Pituitary Panel						
	ACTH	FSH	GH	LH	Prolactin	TSH
Pituitary	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Pituitary

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Pizarro CB, et al. Braz J Med Biol Res. 2004 Feb;37(2):235-43
2. Viacava P, et al. J Endocrinol Invest. 2003 Jan;26(1):23-8
3. Kageyama K, et al. Am J Med Sci. 2002 Dec;324(6):326-30
4. Fan X, et al. J Histochem Cytochem. 2002 Nov;50(11):1509-16

Rabbit Polyclonal

0.1 ml, concentrate.....206A-74
0.5 ml, concentrate.....206A-75
1 ml, concentrate 206A-76
1 ml, prediluted 206A-77
7 ml, prediluted 206A-78
Positive control slides 206S

Rabbit Polyclonal

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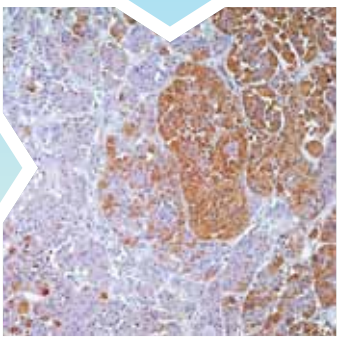

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Actin, Muscle Specific

Actin is a major component of the cytoskeleton. This antibody recognizes actin of skeletal, cardiac, and smooth muscle cells. It is not reactive with other mesenchymal cells except for myoepithelium. Actin can be resolved on the basis of its isoelectric points into three distinctive components: alpha, beta, and gamma in order of increasing isoelectric point. Anti-muscle specific actin recognizes alpha and gamma isotypes of all muscle groups. Non-muscle cells such as vascular endothelial cells and connective tissues are non-reactive. Also, 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.

Soft Tissue Sarcoma									
	MS Actin	CK Cocktail	EMA	SM Actin	Desmin	CD56	CD34	TFE-3	Myogenin
Epithelioid Sarcoma	-/+	+	+	-	-	-	+	-	-
Alveolar Soft Part Sarcoma	+	-	-	+	-	-	-	+	-
Leiomyosarcoma	+	-/+	-/+	+	+	+	-/+	-	-
Rhabdomyosarcoma	-/+	-	-	-/+	+	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Skeletal Muscle

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gown, et al., A. J. P. 1986;,125:191
2. Schmidt R., et al. A. J. P 1988;131:199
3. Azumi N, et al. Modern Pathology 1988, 1:469-474
4. Rangdaeng L., et al. Am J Clin Pathology 1991;96:32-45

Mouse Monoclonal Clone: HHF35

0.1 ml, concentrate.....201M-94
0.5 ml, concentrate.....201M-95
1 ml, concentrate 201M-96
1 ml, prediluted 201M-97
7 ml, prediluted 201M-98
25 ml, prediluted.....201M-90
Positive control slides 201S

Mouse Monoclonal Clone: HHF35

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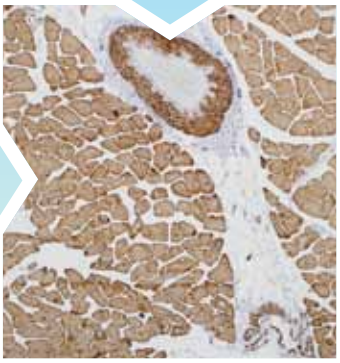

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Actin, Smooth Muscle

Actin is a major component of the cytoskeleton and is present in most cell types. Anti-smooth muscle actin does not stain cardiac or skeletal muscle; however, it does stain myofibroblasts and myoepithelial cells. This antibody could be used together with anti-muscle specific actin in making a diagnosis of smooth muscle and skeletal muscle tumors. In most cases of rhabdomyosarcoma, this antibody yields negative results whereas anti-muscle specific actin is positive. Leiomyosarcomas are positive with both anti-muscle specific actin and anti-smooth muscle actin.

Muscle Malignant Tumors										
	SM Actin	MS Actin	Myogenin	PGP 9.5	Caldesmon	Myoglobin	Calponin	CD57	Vimentin	INI-1
Leiomyosarcoma	+	+	-	-	+	-	+	+/-	+	
Rhabdomyosarcoma	-/+	-/+	+	+	-	+	-	-	+	+

Soft Tissue Neoplasms										
	SM Actin	Calretinin	TFE-3	CD56	CD34	CK Cocktail	Desmin	MS Actin	S-100	HMB-45
Leiomyosarcoma	+	-	-	+	- /+	-/+	+	+	-	-
PEComa	+	+	-	+	-	-	-	-	+	+
Clear Cell Sarcoma	-	-	-	-	-	-	-	-	+	+
Alveolar Soft Part Sarcoma	+	-	+	-	-	-	-	+	-	-

Spindle Cell Tumors										
	SM Actin	β-Catenin	PGP 9.5	ALK	CD56	EMA	CK Cocktail	Calponin	MS Actin	Desmin
Myofibroblastic Tumor	+	-	-	+	+	-	-	+	+	+
Endometrial Stromal Tumor	+	+/-	+	-	-	-	-	+	+	-
Smooth Muscle	+	-	-	-	-	-	-	+	+	+
Fibromatosis	+	+	+	-	-	-	-	-	-	-
Leiomyosarcoma	+	-	-	-	+	+/-	-/+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Appendix

Stability Up to 36 mo. at 2-8°C

Isotype IgG/k

Protocols

- Pretreatment: EDTA/Trilogy™, No pretreatment with *ultra*View™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 32 min.+AMP at 37° C

Please refer to product insert for complete protocol.

References

1. Cooke PH. J Cell Biol. 1976; 68-539-556
2. Skalli O, et al.. J Cell Biol. 1986; 103:2787-2796
3. Gown AM, et al. J Cell Biol. 1985; 100:807-813

Mouse Monoclonal Clone: 1A4

0.1 ml, concentrate.....202M-94
0.5 ml, concentrate.....202M-95
1 ml, concentrate 202M-96
1 ml, prediluted 202M-97
7 ml, prediluted 202M-98
25 ml, prediluted.....202M-90
Positive control slides 202S

Mouse Monoclonal Clone: 1A4

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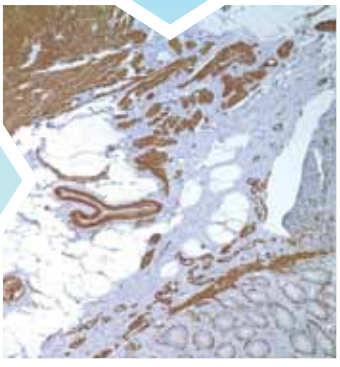

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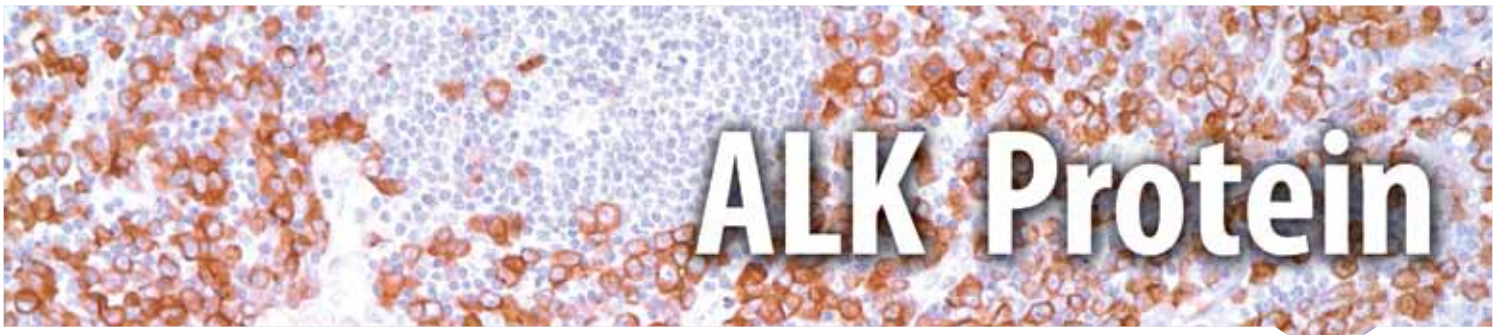

ALK-1 is a fusion protein which is detected in 50%-85% of ALK+, anaplastic large cell lymphomas (ALCL) and has been shown to indicate improved prognosis in the ALK-1 (+) ALCL. Studies have demonstrated approximately 5%-10% of non-small cell lung carcinoma can express ALK protein recognized by this antibody producing a cytoplasmic staining pattern.

Hodgkin vs. Non-Hodgkin Lymphomas										
	ALK-1	CD79a	CD15	CD30	Fascin	Granzyme B	BCL6	PU.1	MUM1	EMA
Hodgkin Lymphoma, Classic	-	-	+	+	+	-	-	-	+	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-	+	-	-	-	-	+	+	-/+	+
T-cell Rich LBCL	-	+	-	-	-	-	+	-	+	-
Anaplastic Large Cell Lymphoma	+	-	-	+	-	+	+/-	-	-	+

Soft Tissue Tumor										
	ALK-1	CK Cocktail	Calretinin	MS Actin	SM Actin	S-100	TLE-1	CD56	CD99	TFE-3
Synovial Sarcoma	-	+	+/-	-	-	-	+	+	+	-
Epithelioid Sarcoma	-	+	-	-/+	-	-	-	-	-	-
Clear Cell Sarcoma	-	-	-	-	-	+	-	-	-	-
PNET/ES	-	-/+	-	-	-	+	-	-	+	-
Desmoplastic Small Round Cell	-	+	-	-	-	-	-	-	-	-
Myxoid Chondrosarcoma	-	-	+	-	-	+/-	-	-		-
Alveolar Soft Part Sarcoma	-	-	-	+	+	-	-	-	-	+
PEComa	-	-	+	-	+	-	-	-	-	-
Fibrous Histiocytoma	-	-	-	-	-	-	-	-	-	-
Inflammatory Myofibroblastic Tumor	+	-	-	+	+	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Anaplastic Large Cell Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_3/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Cataldo KA, et al. Am J Surg Pathol 32(1):1386-1392, 1999
2. Sasaki T, et al. European Joural Cancer. 2010;46:1773-1780.

Mouse Monoclonal
Clone: ALK-1

0.1 ml, concentrate..... 204M-14
0.5 ml, concentrate..... 204M-15
1 ml, concentrate 204M-16
1 ml, prediluted 204M-17
7 ml, prediluted 204M-18
Positive control slides 204S

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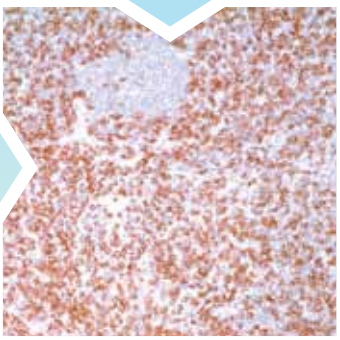

** ultraView is a trademark of Roche.*

Alpha-Fetoprotein

Positive staining with anti-AFP 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. Correspondingly, in conjunction with elevated serum levels, AFP has been immunohistochemically demonstrated in yolk sac tumor of gonadal and extragonadal sites, in hepatic malignancies, and a few other neoplasms. The antigen is not denatured by most fixatives.

Liver: Malignant vs. Benign									
	AFP	Hep-Par1	Glypican-3	CD34	p53	A1AT	pCEA	mCEA	TTF-1
Hepatocellular Carcinoma	-/+	+	+	+	+	-/+	+	-	+ Cytoplasmic
Hepatoblastoma	+	+	+	-	+	+	+	-	-
Benign Liver Nodules	-	+	-	-	-	+/-	-	-	+ Cytoplasmic

Germ Cell Tumors										
	AFP	Oct-4	Vimentin	EMA	Inhibin	hPL	CD30	Glypican-3	CD117	PLAP
Seminoma	-	+	+	-	-	-	-	-	+	+
Embryonal Carcinoma	-	+	-	-	-	-	+	-	-	+
Choriocarcinoma	-	-	-/+	+	-	+	-	+	-	+
Yolk Sac Tumor	+	-	-	-	-	-	-	+	-	+
Granulosa Cell Tumor	-	-	+	-	+	-	-	-	-	-
Hypercalcaemic Small Cell Carcinoma	-	-	-	+	-	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Fetal Liver

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Jacobsen GK, et al. Am J Surg Pathol 1981;5:257-66
2. Peyrol S, et al. Digestion 1978;18:351-370
3. Tsung SH. Arch Pathol Lab Med 1977;101:572-574
4. Goodman ZD, et al. Cancer 1985;55:124-135

Rabbit Polyclonal

0.1 ml, concentrate.....203A-14
0.5 ml, concentrate.....203A-15
1 ml, concentrate 203A-16
1 ml, prediluted 203A-17
7 ml, prediluted 203A-18
Positive control slides 203S

Rabbit Polyclonal

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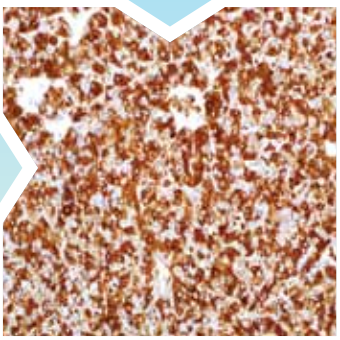

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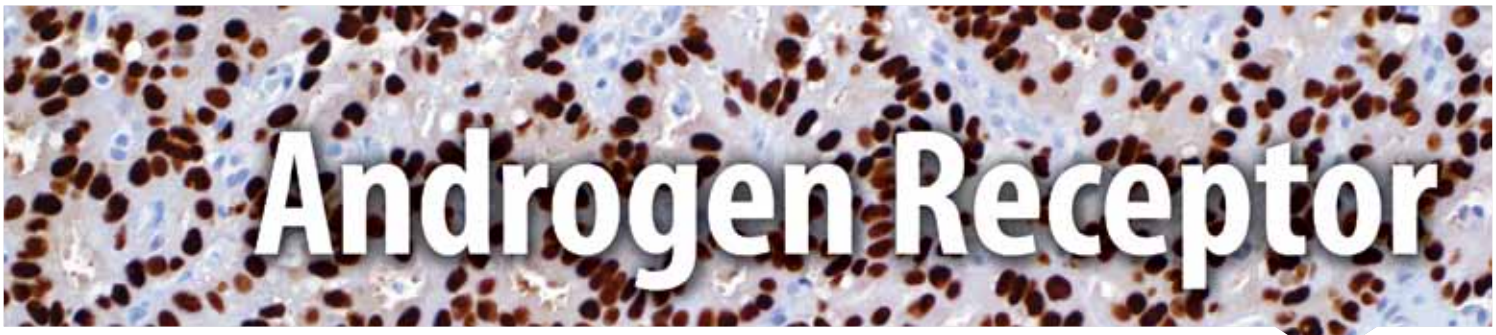

Anti-androgen receptor has been useful clinically in differentiating morpheaform basal cell carcinoma (mBCC) from desmoplastic trichoepithelioma (DTE) in the skin. Immunohistochemical analysis and binding assays have demonstrated the presence of androgen receptors in all histological types of prostatic carcinoma, both therapy-responsive and therapy-unresponsive. Studies have shown that patients with 48% or more androgen receptor-positive cells have a statistically significant better outcome in terms of both progression-free and cause-specific survival. The variability of androgen receptor protein content per unit nuclear area has been shown to increase with increasing histological grade, suggesting that this variability might account for the response to endocrine therapy in high grade tumors.

Prostate: Malignant vs. Benign							
	Androgen Receptor	PSA/PSAP	P504s	CK, 34βE12	p63	CK 5&6	CK 14
Prostate Carcinoma	+	+	+	-	-	-	-
Benign Prostate	+	+	-/+	+	+	+	+

Carcinoma: Differential Diagnosis							
	Androgen Receptor	BCA-225	GCDFP-15	ER/PR	Mammaglobin	PSA/PSAP	CD44
Salivary Duct Carcinoma	+	+	+	-	-	-	-
Breast Carcinoma	+(apocrine)	+	+	+/-	+	-	-
Prostate Carcinoma	+	-	-	-	-	+	+

Cutaneous Neoplasm							
	Androgen Receptor	CD10	CK 20	CD34	Ber-EP4	BCL2	CK 19
Basal Cell Carcinoma	+	+	-	-	+	+	+
Trichoepithelioma	-	-	+	+	+	+	+
Merkel Cell Carcinoma	-	-	+	-	+	+	+
Microcystic Adnexal Carcinoma	-	+/-	-	-	-/+	+	
Sebaceous Carcinoma	+	+/-	-	-	+	+/-	-

Reactivity Paraffin

Visualization Nuclear

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Katona TM, et al. J Cutan Pathol 2008; 35: 174-179.
2. Izikson L, et al. Am J Dermatopathol 2005 Apr; 27(2): 91-5
3. Magi-Galluzzi C, et al. Modern Pathology 1997; 10:839-45.

Rabbit Monoclonal Clone: SP107

0.1 ml, concentrate.....200R-14
0.5 ml, concentrate.....200R-15
1 ml, concentrate 200R-16
1 ml, prediluted 200R-17
7 ml, prediluted 200R-18
Positive control slides 200S

Rabbit Monoclonal Clone: SP107

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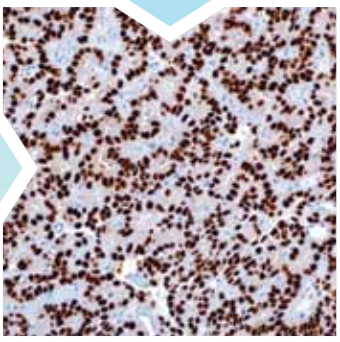

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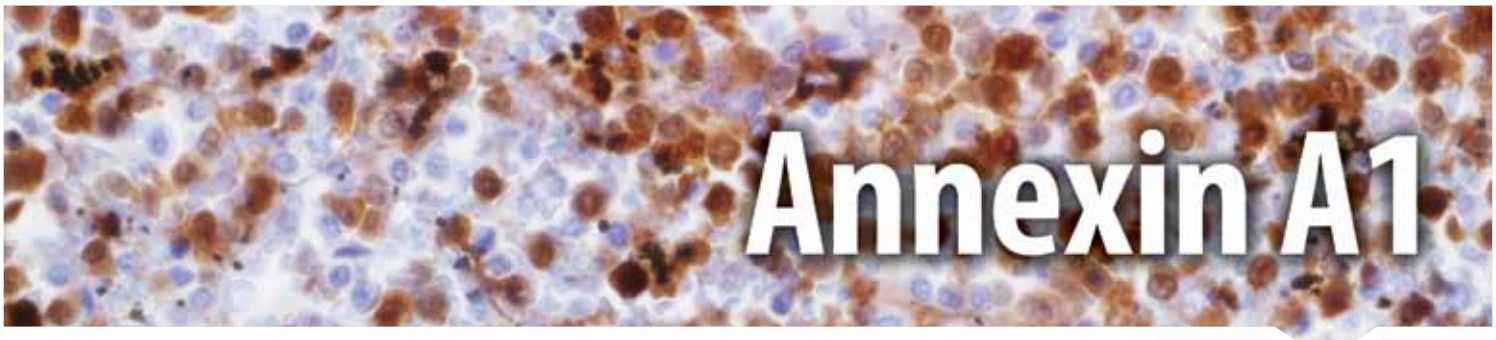

Annexin A1 (ANXA1) is strongly expressed on the cell membrane and occasionally in the cytoplasm of tumor cells in 97% of hairy cell leukemia. By contrast, any B-cell lymphomas other than hairy cell leukemia (HCL), including typical splenic marginal zone lymphoma, variant hairy cell leukemia, and prolymphocytic leukemia, are ANXA1-negative. Anti-ANXA1 has been reported as 100% sensitive and specific for hairy cell leukemia. Normal mature B-cells were ANXA1-negative. The expression of ANXA1 in myeloid cells and T-cell subset serves as positive control. ANXA1 is a molecule specific to HCL that can be used to differentiate this disease from other B-cell lymphomas. However, anti-ANXA1 is not a suitable marker for monitoring minimal residual disease of HCL in bone marrow. A more suitable approach for assessment for residual disease after therapy includes immunostaining using antibodies against CD20, T-bet, TRAcP, CD11c and DBA.44 in combination with anti-ANXA1.

B-cell Lymphomas										
	Annexin A1	CD79a	BCL6	CD10	CD23	Cyclin D1	CD5	MUM1	TRAcP	CD11c
Follicular	-	+	+	+	-	-	-	-	-	
CLL/SLL	-	+	-	-	+	-	+	+	-	-/+
Mantle Cell	-	+	-	-	-	+	+	-/+	-	-
Marginal Zone	-	+	-	-	-	-	-	+	+/-	+
Lymphoplasmacytic	-	+	-	-	-	-	-	+	-	-
Diffuse Large Cell	-	+	+	-/+	-	-	-/+	+	-	
Burkitt	-	+	+	+	-	-	-	-	-	
Hairy Cell Leukemia	+	+	-	-	-	+(weak)/-	-		+	+

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Hairy Cell Leukemia

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Jöhrens K, et al. Am J Surg Pathol. 2007 Aug;31(8):1181-5.
2. Falini B, et al. Lancet. 2004 Jun 5;363(9424):1869-70. Erratum in: Lancet. 2004 Jun 26;363(9427):2194.

Mouse Monoclonal Clone: MRQ-3

0.1 ml, concentrate.....221M-14
0.5 ml, concentrate.....221M-15
1 ml, concentrate 221M-16
1 ml, prediluted 221M-17
7 ml, prediluted 221M-18
Positive control slides 221S

Mouse Monoclonal Clone: MRQ-3

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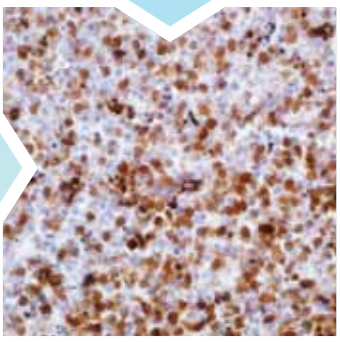

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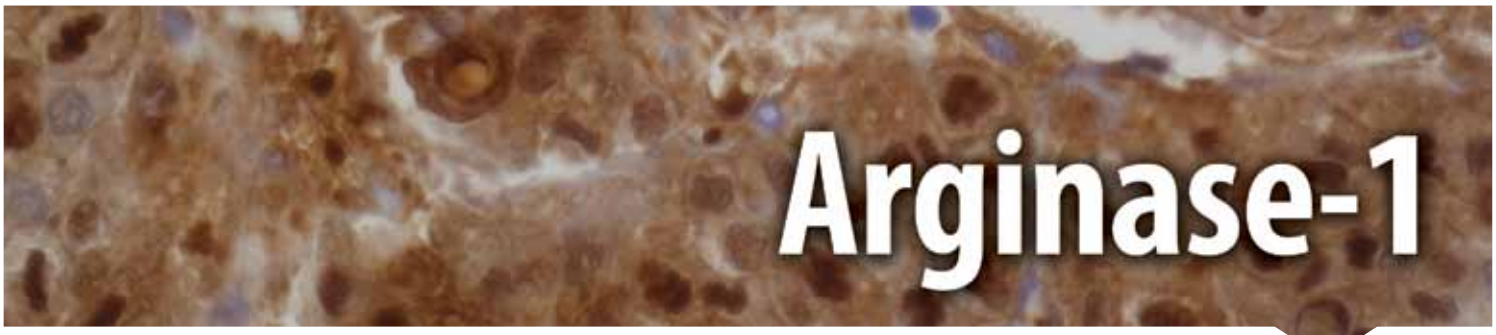

Arginase-1

Hepatocellular carcinoma (HCC) is the most common primary malignant tumor of the liver accounting for an estimated 70% - 85% of total liver cancers worldwide. Diagnostic pitfalls exist in the morphologic distinction of HCC from other hepatocellular and non-hepatocellular mass lesions. In difficult or equivocal cases, the application of immunohistochemical (IHC) panels has been shown to aid in the distinction of benign and malignant liver lesions. In particular, the application of IHC using antibodies against CD10, polyclonal carcinoembryonic antigen, alpha-fetoprotein, HepPar-1, and glypican-3 (GPC-3) has proven valuable in liver biopsy and FNA cytology specimens. Recent studies have shown the usefulness of anti-Arginase-1 as an IHC marker of hepatocellular differentiation in benign and malignant lesions of liver on both biopsy as well as fine needle aspiration specimens. Arginase-1 expression was present in all (100%) of well-differentiated HCC, 92% cases of moderately differentiated HCC and was absent in all cases of poorly differentiated HCC (0%).

Liver Neoplasms					
	Arginase-1	Hep Par-1	Glypican-3	CD10	pCEA
Hepatic Adenoma	+	+	-	+	+
Hepatocellular Carcinoma	+	+	+	+	+
Metastatic Adenocarcinoma	-	-	-	-/+	-/+

Top: Arginase-1 stains hepatocellular carcinoma in nuclear and cytoplasmic pattern while endothelial cells are negative.
Right lower corner: Arginase-1 is strongly and diffusely positive for hepatocellular carcinoma.

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Normal Liver, Hepatocellular Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Yan BC, et al. J Surg Pathol. 2010;34:1147-1154.
2. McKnight, R. et al. Cancer Cytopathology. 2012, published on- line. DOI: 10.1002/cncy.21184

Rabbit Monoclonal
Clone: SP156

0.1 ml, concentrate	380R-14
0.5 ml, concentrate	380R-15
1 ml, concentrate	380R-16
1 ml, prediluted	380R-17
7 ml, prediluted	380R-18
Positive control slides	380S

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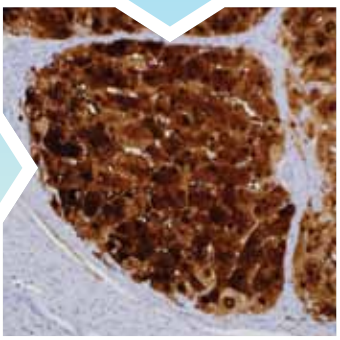
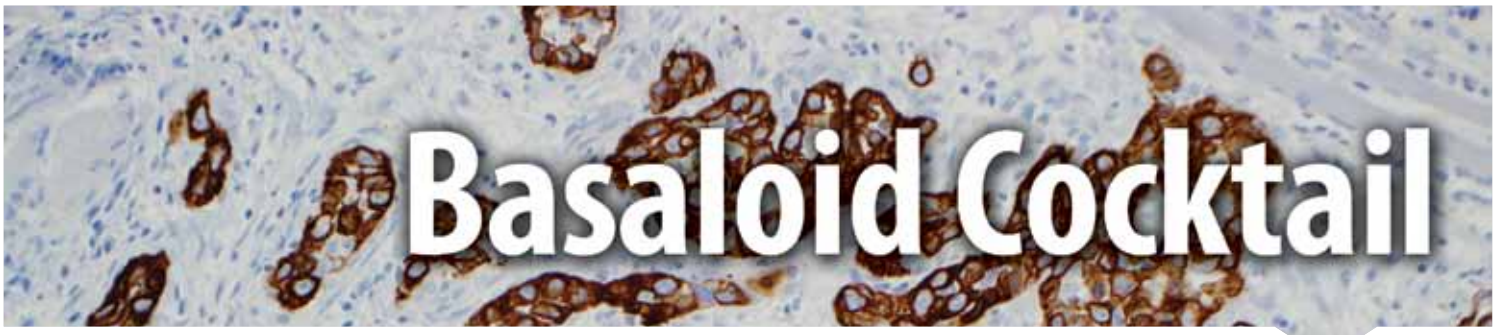


** ultraView is a trademark of Roche.*



Cytokeratin 5 (EP1601Y‡) + Cytokeratin 14 (LL002)

Cytokeratin 5 is an intermediate filament protein of 58 kD molecular wt. amongst the cytokeratin family. It is a type II (basic) cytokeratin. Antibodies to this protein identify basal cells of squamous and glandular epithelia, myoepithelia, and mesothelium. Cytokeratin 14 is a 50 kD polypeptide found in basal cells of squamous epithelia, some glandular epithelia, myoepithelium, and mesothelial cells.

Anti-Cytokeratin 5 has been useful in the differential diagnosis of metastatic carcinoma in the pleura versus epithelial mesothelioma. Almost all squamous cell carcinomas, half of transitional carcinomas, and many undifferentiated large cell carcinomas immunostain with CK5. Anti-CK14 has been demonstrated to be useful in differentiating squamous cell carcinomas from other epithelial tumors. Anti-CK5, along with anti-CK14, has found application in identifying the basaloid phenotype of breast carcinoma, a tumor with poor prognosis.

Reactivity Paraffin

Visualization Cytoplasmic

Control Basaloid Carcinoma of Breast, Esophagus

Stability Up to 36 mo. at 2-8°C

Isotype IgG + IgG_3

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Clarke CL, et al.,J Pathol. 2004 Oct;204(2):147-52.
2. Comin CE, et al., Am J Surg Pathol. 2007 Aug;31(8):1139-48.
3. Dabbs DJ, et al., Mod Pathol. 2006 Nov;19(11):1506-11. Epub 2006 Aug 25.

Harmony™ antibody cocktails

Basaloid Cocktail
Rabbit + Mouse Cocktail

1 ml, prediluted 905H-07
7 ml, prediluted 905H-08

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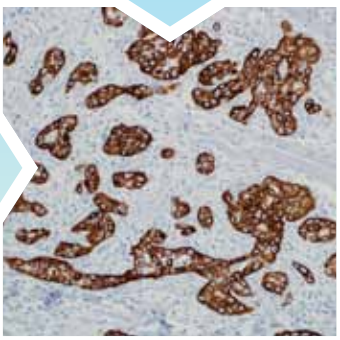
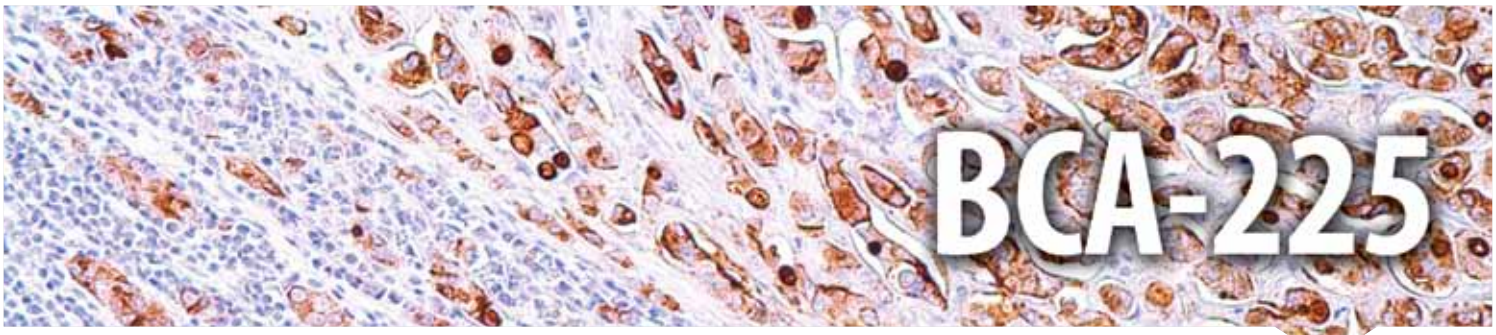


* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



BCA-225 is a glycoprotein identified in human breast carcinoma cells that has been reported to show a restricted distribution in other human tissues. However, one study showed that BCA-225 expression was found to be common in adenocarcinomas of the breast (98%), kidney (94%), ovary (80%), and lung (74%) but was infrequent in adenocarcinomas of gastrointestinal tract (10%-16%). Adenocarcinomas of the prostate, bile ducts, thyroid, endometrium, endocervix, and pancreas showed an intermediate frequency of BCA-225 expression (36%-68%). Hepatocellular carcinomas showed no reactivity for BCA-225.

Anti-BCA-225, used in conjunction with antibodies against CEA, CA19-9, and CA125, is a useful marker for detecting the origin of common metastatic adenocarcinomas (BCA225-, CEA+, and CA125- for colon tumors; BCA225+, CEA+ and CA19-9- for lung tumors; BCA225+, CEA- and CA125- for breast tumors). Anti-BCA-225 is also useful in discriminating adenocarcinoma from reactive mesothelium in cell block preparations.

Carcinoma: Differential Diagnosis

	BCA-225	Androgen Receptor	GCDFP-15	ER/PR	Mammaglobin	PSA/PSAP
Salivary Duct Carcinoma	+	+	+	-	-	-
Breast Carcinoma	+	+(apocrine)	+	+/-	+	-
Prostate Carcinoma	-	+	-	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ceriani RL. Monoclonal Ab's and breast cancer. Boston, Martinus, Nijhoff, 1985
2. Mesa-Tejada R, et al. Am J Pathol; 1988 130:305-314
3. Loy TS, et al. Am J Clin Pathol. 1991 Sep;96(3): 326-9

Mouse Monoclonal Clone: Cu-18

0.1 ml, concentrate.....225M-14
0.5 ml, concentrate.....225M-15
1 ml, concentrate 225M-16
1 ml, prediluted 225M-17
7 ml, prediluted 225M-18
Positive control slides 225S

Mouse Monoclonal Clone: Cu-18

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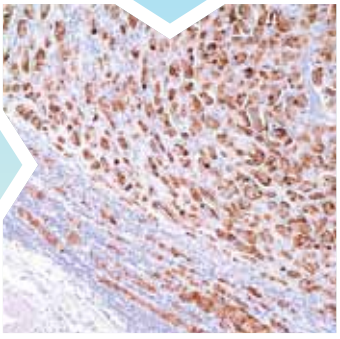

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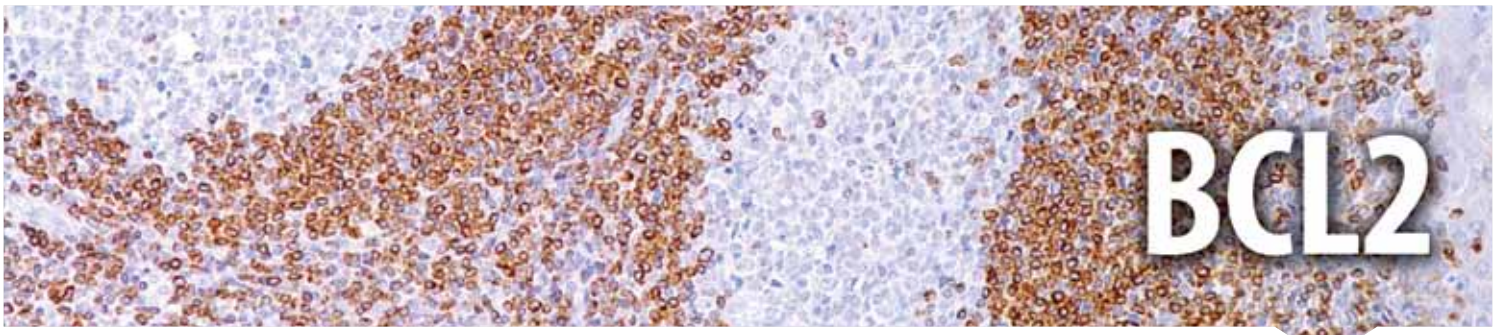

Anti-BCL2 has shown consistent negative reaction on reactive germinal centers and positive staining of neoplastic follicles in follicular lymphoma. Consequently, this antibody is valuable when distinguishing between reactive and neoplastic follicular proliferation in lymph node biopsies. This antibody may also be used in distinguishing between those follicular lymphomas that express BCL2 protein and the small number in which the neoplastic cells are BCL2 negative.

Cutaneous Neoplasm							
	BCL2	CD10	Androgen Receptor	CK 20	CD34	Ber-EP4	CK 19
Basal Cell Carcinoma	+	+	+	-	-	+	+
Trichoepithelioma	+	-	-	+	+	+	+
Merkel Cell Carcinoma	+	-	-	+	-	+	+
Microcystic Adnexal Carcinoma	+	+/-	-	-	-	-/+	
Sebaceous Carcinoma	+/-	+/-	+	-	-	+	-
Sebaceous Adenoma	+	-	+	-	-	+	-

B-cell Lymphomas									
	BCL2	PAX-5	BCL6	Annexin A1	IgD	MUM1	CD10	CD23	Cyclin D1
Follicular	+	+	+	-	+	-	+	-	-
CLL/SLL	+	+	-	-	+	+	-	+	-
Mantle Cell	+	+	-	-	-/+	-/+	-	-	+
Marginal Zone	+	+	-	-	+	+	-	-	-
Lymphoplasmacytic	+	+	-	-	-	+	-	-	-
Diffuse Large Cell	+	+	+	-	-	+	- /+	-	-
Burkitt	-	+	+	-	-	-	+	-	-
Hairy Cell Leukemia	+	+	-	+	-		-	-	+(weak)/-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP66: IgG_1
E17‡: IgG
124: IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Tsujimoto Y, et al. Prac Natl Acad Scie (USA) 1986;83:5214-5218
2. Cleary ML, et al. Cell 1986;47:19-28

Rabbit Monoclonal Clone: SP66

0.1 ml, concentrate.... 226R-24
0.5 ml, concentrate.... 226R-25
1 ml, concentrate 226R-26
1 ml, prediluted 226R-27
7 ml, prediluted 226R-28
Positive control slides . 226S

Rabbit Monoclonal Clone: E17‡

0.1 ml, concentrate.... 226R-14
0.5 ml, concentrate.... 226R-15
1 ml, concentrate 226R-16
1 ml, prediluted 226R-17
7 ml, prediluted 226R-18
Positive control slides . 226S

Mouse Monoclonal Clone: 124

0.1 ml, concentrate.... 226M-94
0.5 ml, concentrate.... 226M-95
1 ml, concentrate 226M-96
1 ml, prediluted 226M-97
7 ml, prediluted 226M-98
25 ml, prediluted..... 226M-90
Positive control slides . 226S

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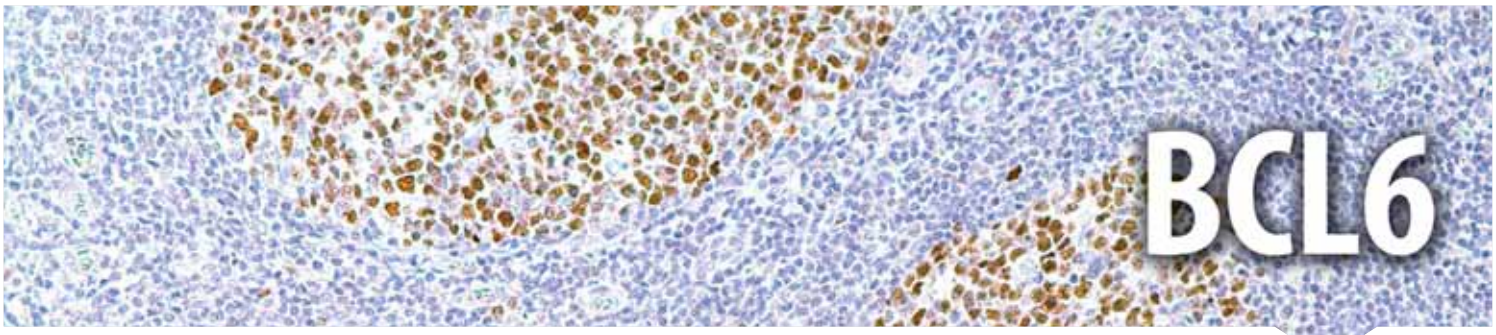
* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



BCL6 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 (benign or malignant) in lymphoid follicles, and interfollicular malignant cells in follicular lymphoma, diffuse large B-cell lymphomas, and Burkitt lymphoma, as well as the majority of the Reed-Sternberg cells in nodular lymphocyte predominant Hodgkin lymphoma. Anti-BCL6 rarely stains mantle cell lymphoma and MALT lymphoma. BCL6 expression is seen in approximately 68% of ALK+ anaplastic large cell lymphomas (ALCL) but 28% of ALK- ALCL, NK/T-cell lymphoma (27%), peripheral T-cell lymphoma, NOS (8.6%), and T-lymphoblastic lymphoma (9.1%). BCL6 expression can also be observed in angioimmunoblastic T-cell lymphoma (66%-96%).

B-cell Lymphomas									
	BCL6	TRAcP	Annexin A1	CD79a	BCL2	CD10	CD23	Cyclin D1	MUM1
Follicular	+	-	-	+	+	+	-	-	-
CLL/SLL	-	-	-	+	+	-	+	-	+
Mantle Cell	-	-	-	+	+	-	-	+	-/+
Marginal Zone	-	+/-	-	+	+	-	-	-	+
Lymphoplasmacytic	-	-	-	+	+	-	-	-	+
Diffuse Large Cell	+	-	-	+	+	- /+	-	-	+
Burkitt	+	-	-	+	-	+	-	-	-
Hairy Cell Leukemia	-	+	+	+	+	-	-	+(weak)/-	

Hodgkin vs. Non-Hodgkin Lymphomas										
	BCL6	CD79a	CD15	CD30	Fascin	Granzyme B	PU.1	MUM1	ALK-1	EMA
Hodgkin Lymphoma, Classic	-	-	+	+	+	-	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	+	+	-	-	-	-	+	-/+	-	+
T-cell Rich LBCL	+	+	-	-	-	-	-	+	-	-
Anaplastic Large Cell Lymphoma	+/-	-	-	+	-	+	-	-	+	+
Angioimmunoblastic T-cell Lymphoma	+	-	-	-	-	-	-	-	-	-

BCL6 is protected by U.S. patents 6,174,997 and 6,783,945 (Cancer Genetics, Inc.)

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype GI191E/A8: IgG_1
SP155: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. José-Francisco Garcia, et al. J. Histochem Cytochem. doi:10.1369/jhc.5A6646.2005
2. A Dogan, et al. Am J Surg Pathol 24(6):846-852, 2000

Mouse Monoclonal Clone: GI191E/A8

0.1 ml, concentrate.....227M-94
0.5 ml, concentrate.....227M-95
1 ml, concentrate 227M-96
1 ml, prediluted 227M-97
7 ml, prediluted 227M-98
Positive control slides 227S

Mouse Monoclonal Clone: GI191E/A8

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Rabbit Monoclonal Clone: SP155

0.1 ml, concentrate.....227R-14
0.5 ml, concentrate.....227R-15
1 ml, concentrate 227R-16
1 ml, prediluted 227R-17
7 ml, prediluted 227R-18
Positive control slides 227S

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Beta-catenin is a 92 kD protein normally found in the cytoplasm of the cell in the submembranous 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 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. Nuclear accumulation of beta-catenin has also been demonstrated in colorectal carcinoma.

Breast Lesion						
	β-Catenin	GCDFP-15	Mammaglobin	E-cadherin	CK, 34βE12	p120
Lobular	-	+	+	-	+	+(cytoplasmic)
Ductal	+(membranous)	+	+	+	-	+(membranous)

Pancreatic Tumors										
	β-Catenin	Synapto-physin	Chromo-granin A	E-cadherin	CD10	Gastrin	MUC4	CD56	CK 19	CA19-9
Pancreatic Adenocarcinoma	-	-	-	-	+/-	-	+	-	+	+
Neuroendocrine	+	+	+	-	-	+/-	-	+	+/-	+/-
Solid Pseudopapillary	+	+	-	-	+	-		+	-	-
Pancreatic Ductal Carcinoma	+/-	-	-	+/-	+/-	-		-	-	+
Acinic Cell Carcinoma	+	-	-	+	+/-	-		-	+	-/+
Pancreatoblastoma	+	-	+	-	-	-	-	+	-	-
Benign Pancreas	+	+	+	-	-	-	-	-	-	-

Spindle Cell Tumors							
	β-Catenin	PGP 9.5	MS Actin	SM Actin	EMA	CK Cocktail	Calponin
Spindle Cell Carcinoma	+/-	+	-	-	+/-	+	-
Endometrial Stromal Tumor	+/-	+	+	+	-	-	+
Fibromatosis	+	+	-	+	-	-	-

Reactivity Paraffin

Visualization Nuclear (in fibromatosis), Membranous (in ductal carcinoma of breast)

Control Fibromatosis of Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Alman BA, et al. Am J Pathol. 1997 Aug;151(2):329-34
2. Li C, et al. Am J Pathol. 1998 Sep;153(3):709-14

Mouse Monoclonal Clone: 14

0.1 ml, concentrate.....224M-14
0.5 ml, concentrate.....224M-15
1 ml, concentrate 224M-16
1 ml, prediluted 224M-17
7 ml, prediluted 224M-18
Positive control slides 224S

Mouse Monoclonal Clone: 14

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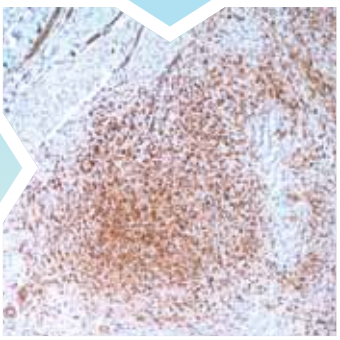

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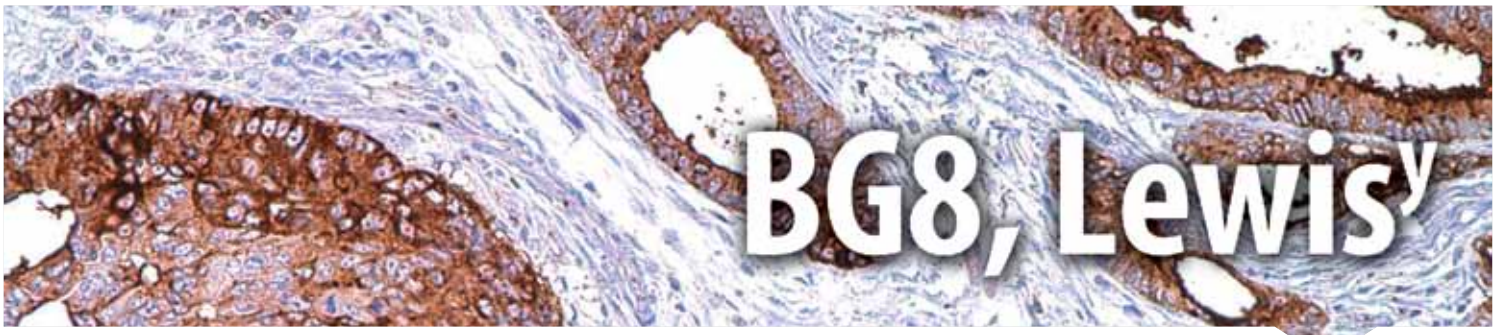

Blood group antigens have been examined as potential discriminators between pulmonary adenocarcinoma (PACA) and epithelioid mesotheloma (EM). Lewis^y is the only one of these that appears to have some merit. BG8 is raised from the SK-LU-3 lung cancer line and its ability to distinguish between PACA and EM was first reported by Jordon and colleagues in 1989. Three groups have since reported their results. These studies included 231 cases of PACA and 197 cases of EM. Sensitivity and specificity for PACA were both 93%. Yaziji H et al. reported a senstitivy of nonmesothelial antigens for adenocarcinoma as organ dependent, with BG8 performing at 98% in the breast cancer group, and 100% in the lung cancer group. They concluded using logical regression analysis that a three-antibody immunohistochemical panel including anti-calretinin, anti-BG8, and anti-MOC-31 (Ep-CAM) would provide 96% sensitivity and 100% specificity for distinguishing EM from adenocarcinoma from various sources (lung, ovary, breast, stomach).

Thymus								
	BG8	CK 5	p63	BCL2	CD117	CD5	CD1a	CD57
Thymic Carcinoma	+	+	+	+	+	+	-	-
Thymoma	-	+	+	-	-	-	+	+

Pleura: Adenocarcinoma vs. Mesothelioma										
	BG8	Calretinin	CK 5&6	D2-40	Caldesmon	E-cadherin	TTF-1	TAG-72	TAG-72	Ep-CAM
Adenocarcinoma	+	-	-	-	-	+	+	+	+	+
Mesothelioma	-	+	+	+	+	-	-	-	-	-

Skin: Spindle Cell Tumors										
	BG8	FLI-1	Factor VIII	HHV-8	CK 8 & 18	CD34	SM Actin	NGFR	CD10	S-100
Spindle Squamous Cell Ca	-	-	-	-	+	-	-	-	-	-
Spindle Cell Melanoma	-	+	-	-	-	-	-	+	-	+
Atypical Fibroxanthomas	-	-	-	-	-	-	+	-	+	-
DF-SP	-	-	-	-	-	+	-	+	+/-	-
Peripheral Nerve Sheath	-	-	-	-	-	-	-	-	-	+/-
Angiosarcoma	-	+	+	-	-	+	-	-	-	-
Hemangioma	+	+	+	-	-	+	+	-	-	-
Kaposi's Sarcoma	-	+	+	+	-	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Adenocarcinoma of Lung

Stability Up to 36 mo. at 2-8°C

Isotype IgM

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Davidson B, et al. Virchows Arch. 1999 Jul;435(1):43-9.
2. King JE, et al. Histopathology. 2006 Feb;48(3):223-32. Review.
3. Yaziji H, et al. MMod Pathol. 2006 Apr;19(4):514-23.

Mouse Monoclonal Clone: F3

0.1 ml, concentrate.....228M-14
0.5 ml, concentrate.....228M-15
1 ml, concentrate 228M-16
1 ml, prediluted 228M-17
7 ml, prediluted 228M-18
Positive control slides 228S

Mouse Monoclonal Clone: F3

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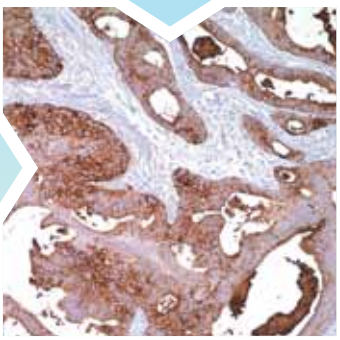

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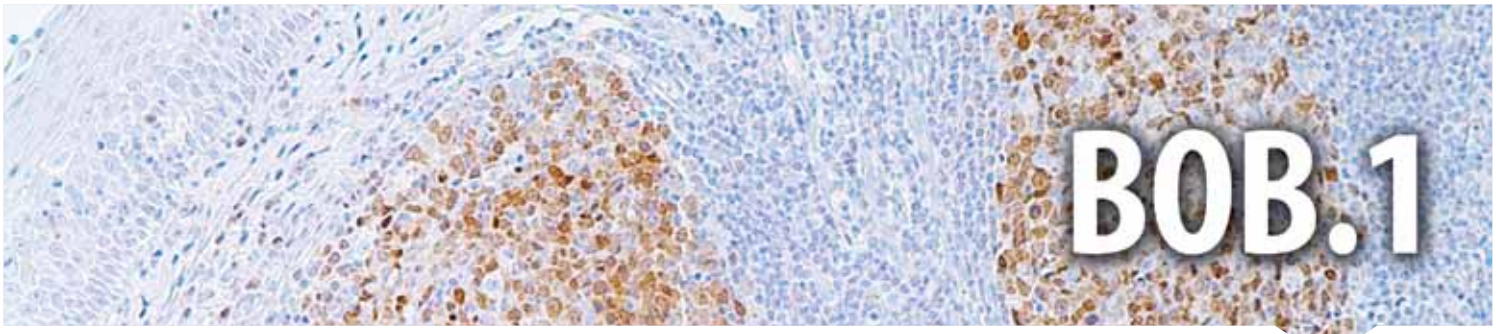

The BOB.1/OBF.1 coactivator has shown to be a critical determinant of octamer-dependent gene transcription in B-lymphocytes. Expression of BOB.1/OBF.1 is restricted largely to B-lymphocytes. Analyses of BOB.1/OBF.1 expression in a variety of established B-cell lines representing different stages of B-cell development has suggested a constitutive, B-cell-specific expression pattern. Interestingly, expression of BOB.1/OBF.1 can be induced in T-lymphocytes by costimulation with phorbol ester (PMA) and ionomycin. BOB.1 is expressed in germinal center B-cells, mantle B-cells, and plasma cells. Various lymphomas are also positive for this marker including the following: B-chronic lymphocytic leukemia, mantle cell lymphoma, follicular lymphoma, marginal zone lymphoma, plasmacytoma, Burkitt lymphoma, diffuse large cell lymphoma, diffuse large B-cell lymphoma, T-cell rich B-cell lymphoma, and nodular lymphocyte predominant Hodgkin lymphoma.

B-cell Lymphomas										
	BOB.1	MUM1	PU.1	CD79a	p27	BCL6	IgD	CD10	CD23	Cyclin D1
Follicular	+	-	+	+	+	+	+	+	-	-
CLL/SLL	+	+	+	+	+	-	+	-	+	-
Mantle Cell	+	-	+	+	+	-	+	-	-	+
Marginal Zone BCL	+	+	+	+	+	-	-/+	-	-	-
Lymphoplasmacytic	+	+		+	+	-	-	-	-	-
Diffuse Large Cell Lymphoma	+	+	+	+	-	+	-	-	-	-

Hodgkin vs. Non-Hodgkin Lymphomas										
	BOB.1	CD45	MUM1	EMA	CD15	CD30	Fascin	BCL6	Oct-2	PU.1
Hodgkin Lymphoma, Classic	-	-	+	-	+	+	+	-	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	+	+	-/+	+	-	-	-	+	+	+
T-cell Rich LBCL	+	+	+	-	-	-	-	+	+	-

Acute Myeloid Leukemia								
	BOB.1	MPO	Factor VIII	CD61	Oct-2	CD43	CD138	CD68
Promyelocytic, M3	+	+	-	-	+	+		+
Megakaryoblastic, M7	+/-	-	+	+	-		-	-

Reactivity Paraffin

Visualization Nuclear

Control B-Cell Lymphoma, Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Valsami S, et al. Haematologica. 2007 Oct;92(10):1343-50.
2. Kuroda H, et al. Breast Cancer. 2007;14(3):317-22.
3. Saito M, et al. Int J Hematol. 2007 Jun;85(5):421-5.

Rabbit Monoclonal Clone: SP92

0.1 ml, concentrate.....294R-14
0.5 ml, concentrate.....294R-15
1 ml, concentrate 294R-16
1 ml, prediluted 294R-17
7 ml, prediluted 294R-18
Positive control slides 294S

Rabbit Monoclonal Clone: SP92

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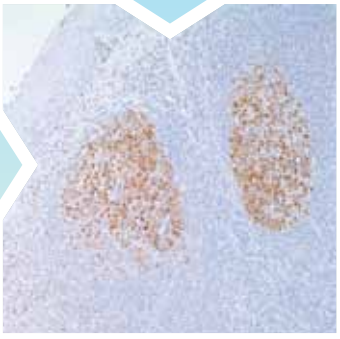

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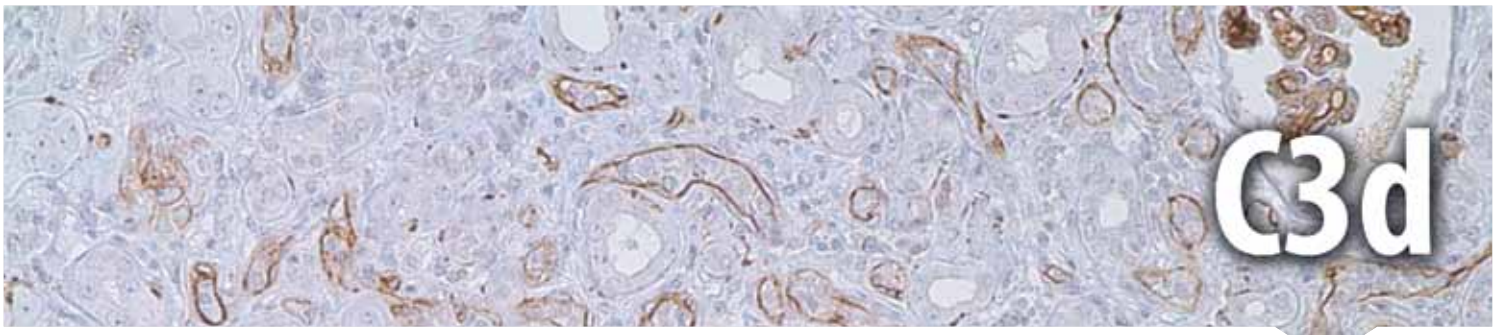

Complement component C3 plays a central role in the activation of complement system. Its activation is required for both classical and alternative complement activation pathways. C3d deposition in the renal transplant PTCs (peritubular capillaries) is indicative of AR (acute rejection) with subsequent high probability of graft loss. Anti-C3d, combined with anti-C4d, can be utilized as a tool for diagnosis of AR that may serve to warrant prompt and aggressive anti-rejection treatment.

Pfaltz et al. have shown that anti-C3d labeled the epidermal basement membrane in 97% (31/32) cases of bullous pemphigoid (BP), with none of the normal controls demonstrating such findings. In the same study 27% (3/11) cases of pemphigus vulgaris (PV) demonstrated intercellular C3d deposition. Anti-C3d immunohistochemistry is a helpful adjunct in the diagnosis of BP (and perhaps PV), especially in the cases in which only formalin-fixed, paraffin-embedded tissue is available for analysis.

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Acutely Rejected Kidney Transplant

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bickerstaff A, et al. Am J Pathol. 2008 Aug; 173 (2):347-57
2. Kuypers DR, et al. Transplantation, 2003 Jul 15;76 (1):102-8
3. Pfaltz K et al., J Cutan Pathol. 2009 Oct 15 (Epub ahead of print)

Rabbit Polyclonal

0.1 ml, concentrate.....403A-74
0.5 ml, concentrate.....403A-75
1 ml, concentrate 403A-76
1 ml, prediluted 403A-77
7 ml, prediluted 403A-78
Positive control slides 403S

Rabbit Polyclonal

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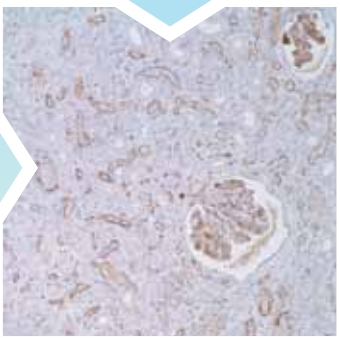

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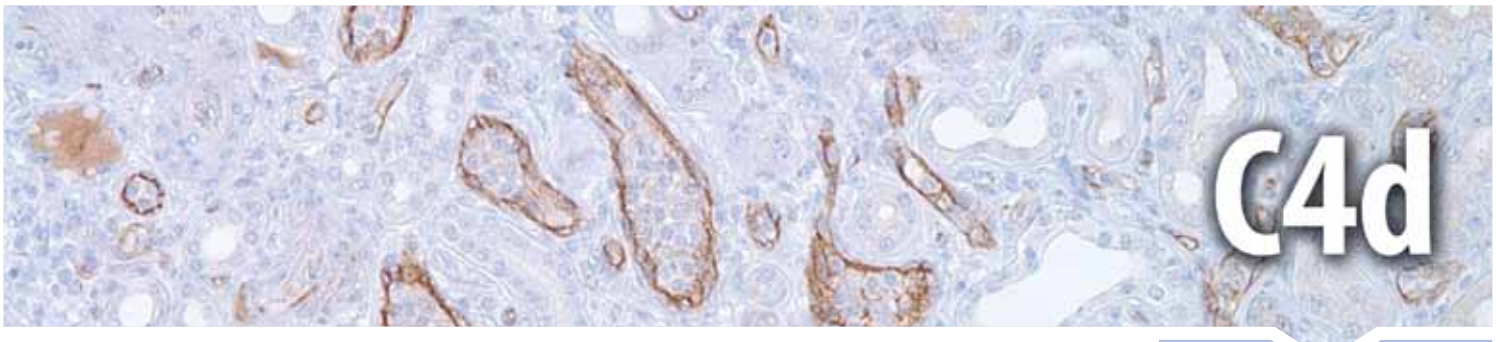

C4d is a stable split product remnant of classical complement activation which becomes covalently bound to endothelium and basement membrane after induction of the classical antibody-induced pathway. As an established marker of antibody-mediated acute renal allograft rejection and its proclivity for endothelium, this component 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. Anti-C4d, combined with anti-C3d, can be utilized as a tool for diagnosis of AR that may serve to warrant prompt and aggressive anti-rejection treatment.

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Lymph Node, Tonsil, Acutely Rejected Kidney

Stability Up to 36 mo. at 2-8°C

Isotype SP91: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Jianghua C, et al. Clin Transplant. 2005 Dec;19(6):785-91.
2. Kayler LK, et al. Transplantation. 2008 Mar 27;85(6):813-20.

Rabbit Polyclonal

0.1 ml, concentrate.....404A-14
0.5 ml, concentrate.....404A-15
1 ml, concentrate 404A-16
1 ml, prediluted 404A-17
7 ml, prediluted 404A-18
Positive control slides 404S

Rabbit Polyclonal

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Rabbit Monoclonal Clone: SP91

0.1 ml, concentrate.....404R-14
0.5 ml, concentrate.....404R-15
1 ml, concentrate 404R-16
1 ml, prediluted 404R-17
7 ml, prediluted 404R-18
Positive control slides 404S

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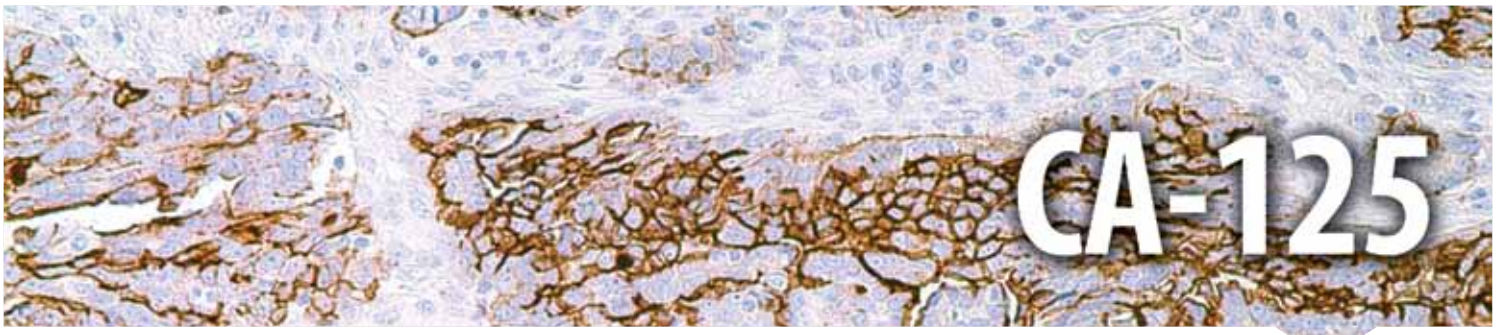

CA-125 (cancer antigen 125), also known as mucin 16 or MUC16, is a protein which, in humans, is encoded by the MUC16 gene. CA-125 is a member of the mucin family of glycoproteins. Anti-CA-125 recognizes specific carbohydrate-associated epitope(s) localized in the variable region of the cancer cell-expressed immunoglobulin heavy chains. It is best known as a marker for ovarian cancer, but it may also be detected in other malignancies, including those originating in the endometrium, fallopian tubes, lungs, breast and gastrointestinal tract.

Anti-CA-125 reacts with epithelioid malignancies of the ovary, papillary serous carcinoma of the cervix, adenocarcinoma of the endometrium, clear cell adenocarcinoma of the bladder, and a minority of epithelioid mesotheliomas. Anti-CA-125 also reacts with antigens in seminal vesicle carcinoma.

Colon vs. Ovarian Carcinoma										
	CA-125	CK 7	CK 20	CEA	CDX-2	Villin	CA19-9	Ep-CAM	WT1	CK 5&6
Ovarian Carcinoma, Serous	+	+	-	+	-	+	+	+	+	-
Ovarian Carcinoma, Mucinous	-	+	-	-	+	+	+	+	-	
Ovarian Endometrioid Ca	+	+	-	-	-		+/-	+	+	-
Colorectal Carcinoma	-	-	+	+	+	+	+	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Ovarian Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dabawat S, et al. Int J Gyn Path 1983;2:275-285
2. Davis H, et al. Cancer Res 1986;46:6143-6148
3. Nouwen E, et al. Cancer Res 1986;46:866-876

Mouse Monoclonal Clone: OC125

0.1 ml, concentrate.....325M-14
0.5 ml, concentrate.....325M-15
1 ml, concentrate 325M-16
1 ml, prediluted 325M-17
7 ml, prediluted 325M-18
Positive control slides 325S

Mouse Monoclonal Clone: OC125

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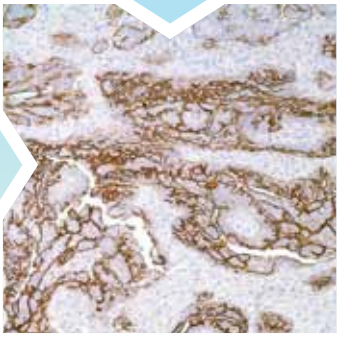

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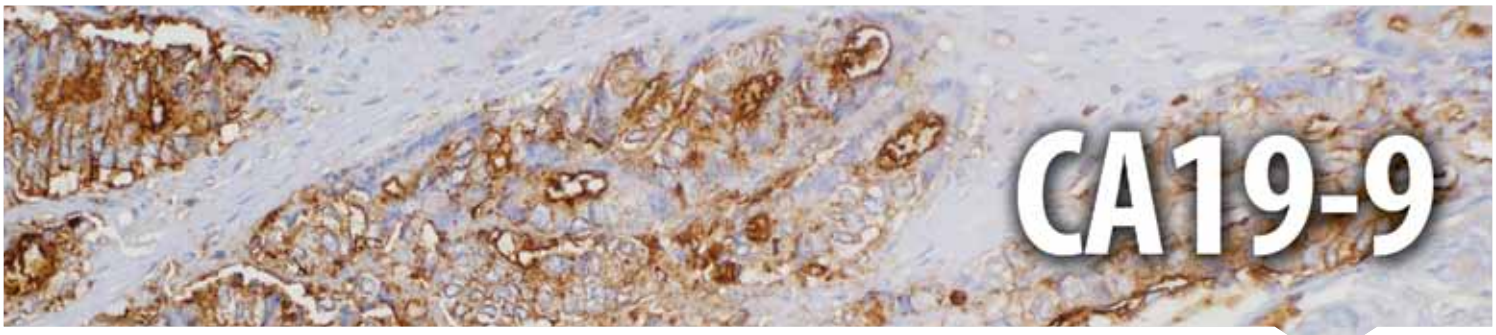

CA19-9 antigen is highly expressed in gastrointestinal (gastric, pancreatic, and colonic) adenocarcinomas and salivary gland mucoepidermoid carcinomas. Anti-CA19-9 is usually not reactive with breast, kidney, and prostate carcinomas.

Colon vs. Ovarian Carcinoma										
	CA19-9	CK 7	CK 20	CEA	CDX-2	Villin	Ep-CAM	WT1	CA-125	CK 5&6
Ovarian Carcinoma, Serous	+	+	-	+	-	+	+	+	+	-
Ovarian Carcinoma, Mucinous	+	+	-	-	+	+	+	-	-	
Ovarian Endometrioid Ca	+/-	+	-	-	-		+	+	+	-
Colon Carcinoma	+	-	+	+	+	+	+	-	-	-

Breast Carcinoma								
	CA19-9	CK 7	CK 20	ER/PR	CA15-3	p63	CD117	CK 5
Infiltrating Ductal Carcinoma	-	+	-	+	+	-	-	-
Adenoid Cystic Carcinoma	+	+	-	-	+	+	+	+

Pancreas										
	CA19-9	Synapto-physin	Chromo-granin A	Insulin	Glucagon	Gastrin	MUC4	CD56	β-Catenin	CK 19
Ductal Adenocarcinoma	+	-	-	-	-	-	+	-	+/-	+
Neuroendocrine Tumor	+/-	+	+	+/-	+/-	+/-	-	+	+	+/-
Solid Pseudopapillary Tumor	-	+	-	-	-	-		+	+	-
Acinic Cell Carcinoma	-/+	-	-	-	-	-		-	+	+
Pancreatoblastoma	-	-	+	-	-	-	-	+	+	-

Colon vs. Prostate Adenocarcinoma						
	CA19-9	CDX-2	CK 20	CEA	PSA	P504s
Colon Adenocarcinoma	+	+	+	+	-	+
Prostate Adenocarcinoma	-	-	-	-	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon, Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgM

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gatalica Z, et al. Applied IHC 2(3):205-211, 1994.
2. Encabo G, et al. Bull cancer (Paris) 1986;73:256-9.
3. Basso D, et al. Med Sci Res 1989;17:13-4.

Mouse Monoclonal Clone: 121SLE

0.1 ml, concentrate.....399M-14
0.5 ml, concentrate.....399M-15
1 ml, concentrate 399M-16
1 ml, prediluted 399M-17
7 ml, prediluted 399M-18
Positive control slides 399S

Mouse Monoclonal Clone: 121SLE

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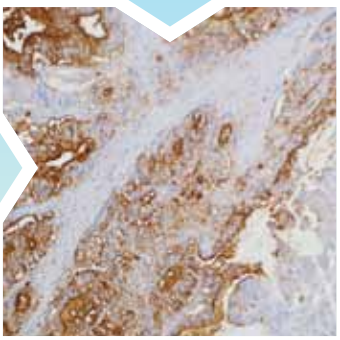

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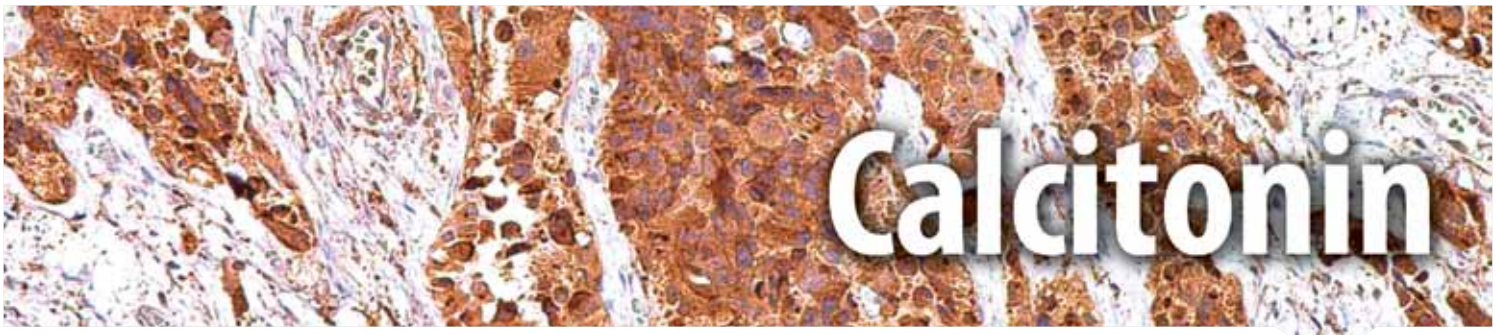

Immunohistochemical staining with anti-calcitonin antibody has proven to be an effective way of demonstrating calcitonin-producing cells in the thyroid. C-cell hyperplasia and medullary thyroid carcinomas stain positive for calcitonin. Studies of calcitonin have resulted in the identification of a wide spectrum of C-cell proliferative abnormalities.

Thyroid: Malignant vs. Benign						
	Calcitonin	Thyroglobulin	CK 19	Galectin-3	TTF-1	HBME-1
Papillary Carcinoma	-	+	+	+	+	+
Follicular Carcinoma	-	+	-/+	+	+	+/-
Medullary Carcinoma	+	-	+/-	-	+	+
Benign Thyroid	-	+	-	-	+	-

Differential Diagnosis of Parathyroid vs. Thyroid Tumors						
	Calcitonin	Chromogranin A	Synaptophysin	PTH	S-100	TTF-1
Parathyroid Tumors	-	+	+	+	-	-
Follicular Thyroid Tumors	-	-	-	-	+/-	+
Medullary Thyroid Cacinoma	+	+	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Medullary Carcinoma of Thyroid

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Copp, DH, et al. Endocrinology 1962;70:638-649
2. Kameda, Y et al. Cell Tissue Res 1980;206:403-415
3. Coombes, RC et al. Lancet 1974;1:1080-1083

Rabbit Monoclonal Clone: SP17

0.1 ml, concentrate.....229R-14
0.5 ml, concentrate.....229R-15
1 ml, concentrate 229R-16
1 ml, prediluted 229R-17
7 ml, prediluted 229R-18
Positive control slides 229S

Rabbit Monoclonal Clone: SP17

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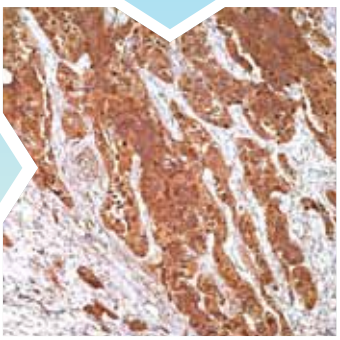

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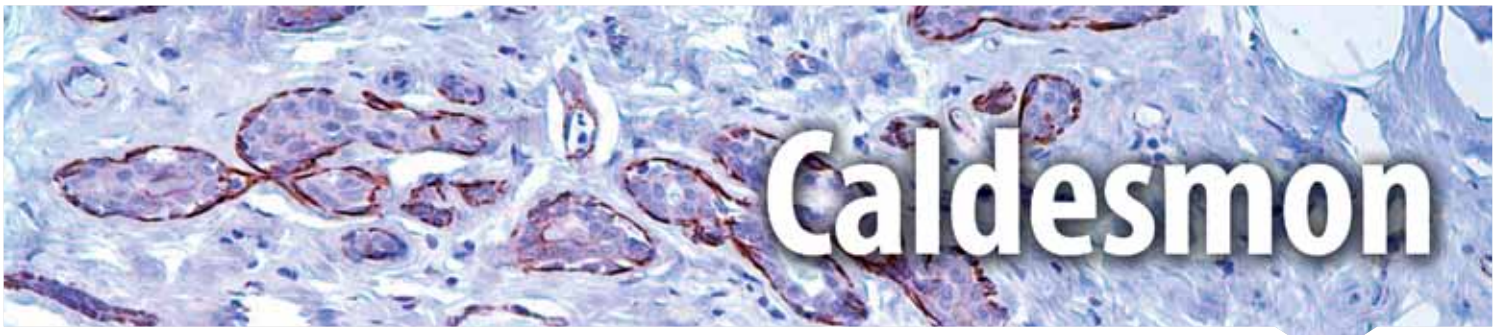

Caldesmon is a regulatory protein found in smooth muscle and other tissues which interacts with actin, myosin, tropomyosin, and calmodulin. Anti-caldesmon labels smooth muscle and tumors of smooth muscle, myofibroblastic, and myoepithelial differentiation. Anti-caldesmon has also been used to differentiate epithelioid mesothelioma from serous papillary carcinoma of the ovary.

Small, Round Blue Cell Tumors										
	Caldesmon	MS Actin	SM Actin	Myogenin	Myoglobin	Calponin	PGP 9.5	CD57	Vimentin	INI-1
Leiomyosarcoma	+	+	+	-	-	+	-	+/-	+	
Rhabdomyosarcoma	-	+	-	+	+	-	+	-	+	+

PEComa										
	Caldesmon	HMB-45	MART-1	CD63	S-100	Tyrosinase	SM Actin	Calponin	Desmin	CD68
Angiomyolipoma	+	+	+	+	-	-	+	+	-	+
Lymphangiomyomatosis	+	+	+	+	-	-	+	+	-	-
Extrapulmonary Clear Cell Tumor	-	+	+	+	+	-	+	-	-	-
Primary Cutaneous PEComa	-	+	+	+	-	-	-	-	-	+/-
Pulmonary Clear Cell Sugar Tumor	-	+	+	+	+/-	-	-	-	-	+/-

Spindle Cell Tumors										
	Caldesmon	SM Actin	MS Actin	Desmin	Calponin	Myogenin	CK Cocktail	EMA	ALK-1	S-100
Myofibroblastic Tumor	+	+	+	+	+	-	-	-	+	-
Spindle Cell Carcinoma	-	-	-	-	-	-	+	+/-	-	-
Neurofibroma	-	-	-	-	-	-	-	-	-	+
Rhabdomyosarcoma	-	-	+	+	-	+	-	+/-	-	-
Endometrial Stromal Tumor	-	+	+	-	+	-	-	-	-	-
Smooth Muscle	+	+	+	+	-	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Appendix, Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Comin CE, et al. Am J Surg Pathol. 2007 Aug;31(8): 1139-48
2. Watanabe K, et al. Hum Pathol. 1999 Apr;30(4): 392-6
3. McCluggage WC. Adv Anat Pathol. 2004 May; 11(3): 162-71

Rabbit Monoclonal Clone: E89‡

0.1 ml, concentrate.....230R-14
0.5 ml, concentrate.....230R-15
1 ml, concentrate 230R-16
1 ml, prediluted 230R-17
7 ml, prediluted 230R-18
Positive control slides 230S

Rabbit Monoclonal Clone: E89‡

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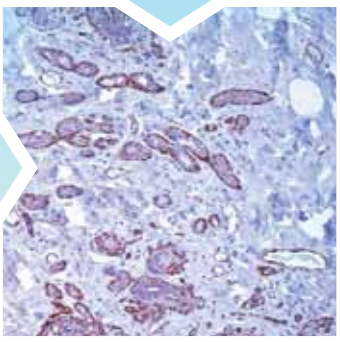

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‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*

Calponin is a 34 kD polypeptide that interacts with actin, tropomyosin, and calmodulin. It is involved in smooth muscle contraction mechanism and is restricted exclusively to smooth muscle tissue. Anti-calponin has been found to be useful in staining myoepithelium and is therefore useful for differentiating benign sclerosing adenosis of the breast from infiltrating ductal carcinoma. Calponin positivity has also been noted in malignant myoepithelioma and pleomorphic adenoma of salivary gland origin as well as angiomatoid malignant fibrous histiocytoma.

Myoepithelial Lesions: Malignant vs. Benign										
	Calponin	CK Cocktail	MS Actin	SM Myosin	S-100	GFAP	EMA	CK 14	p63	Desmin
Malignant Myoepithelioma	+	+	+	+	+	+/-	+	+	-	-
Benign Myoepithelium	+	+	+	+	+	+	+	+	+	-

Soft Tissue Tumors										
	Calponin	MS Actin	SM Actin	Myogenin	CK Cocktail	CD99	FLI-1	PGP 9.5	CD57	INI-1
Leiomyosarcoma	+	+	+	-	-/+	-	-	-	+/-	
Rhabdomyosarcoma	-	-/+	-/+	+	-	-	-	+	-	+
PNET/ES	-	-	-	-	-/+	+	+	+	+	+

Breast Carcinoma In-Situ vs. Infiltrating Breast Carcinoma			
	Calponin	SM Myosin	p63
Breast Carcinoma in-situ (Myoepithelial Cells)	+	+	+
Infiltrating Breast Carcinoma	-	-	-

Spindle Cell Tumors										
	Calponin	β-Catenin	PGP 9.5	ALK	CK Cocktail	CD56	Myogenin	SM Myosin	Caldesmon	Desmin
Myofibroblastic Tumor	+	-	-	+	-	+	-	-	+	+
Endometrial Stromal Tumor	+	+/-	+	-	-	-	-	-	-	-
Smooth Muscle	+	-	-	-	-	-	-	-	+	+
Leiomyosarcoma	+	-	-	-	-/+	+	+/-	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Appendix

Stability Up to 36 mo. at 2-8°C

Isotype EP798Y‡: IgG
CALP: IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wang NP, et al. Appl. Immunohistochem 5(3):141-151, 1997
2. Nagao T, et al. Cancer 1998 Oct 1:83(7):1292-9
3. Savara AT, et al. Mod Pathol 1997 Nov; 10(11):1093-1100

Rabbit Monoclonal Clone: EP798Y‡

0.1 ml, concentrate.....231R-14
0.5 ml, concentrate.....231R-15
1 ml, concentrate 231R-16
1 ml, prediluted 231R-17
7 ml, prediluted 231R-18
Positive control slides 231S

Rabbit Monoclonal Clone: EP798Y‡

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Mouse Monoclonal Clone: CALP

0.1 ml, concentrate.....231M-14
0.5 ml, concentrate.....231M-15
1 ml, concentrate 231M-16
1 ml, prediluted 231M-17
7 ml, prediluted 231M-18
Positive control slides 231S

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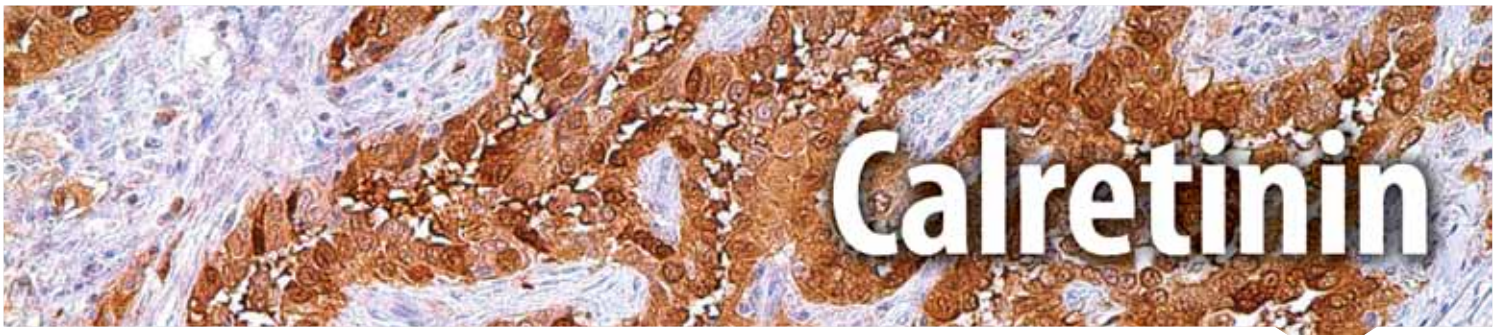

Anti-calretinin has been shown to be useful in differentiating mesothelioma from adenocarcinomas of the lung and other sources. Anti-calretinin has also demonstrated utility in differentiating adrenal cortical neoplasms from pheochromocytomas.

Adrenocortical Tumors						
	Calretinin	Inhibin	MART-1	Synaptophysin	Chromogranin A	CD56
Pheochromocytoma	-	-	-	+	+	+
Carcinoma	+	+	+	-/+	-	+
Adenoma	+	+	+	-/+	-	+

Pleura: Adenocarcinoma vs. Mesothelioma										
	Calretinin	CK 5&6	D2-40	HBME-1	Caldesmon	TAG-72	CEA	Ep-CAM	E-cadherin	TTF-1
Adenocarcinoma	-	-	-	-	-	+	+	+	+	+
Mesothelioma	+	+	+	+	+	-	-	-	-	-

Soft Tissue Tumor										
	Calretinin	CK Cocktail	EMA	SM Actin	CD34	TLE-1	A1AT	Desmin	S-100	CD56
Synovial Sarcoma	+/-	+	+	-	-	+	-	-	-	+
Myxoid Chondrosarcoma	+	-	-	-	-/+	-	-	-	+/-	-
PEComa	+	-	-	+	-	-	+	+/-	-	-

Sex Cord Stromal Tumors							
	Calretinin	Inhibin	CD99	CK 7	EMA	Vimentin	MART-1
Granulosa Cell Tumors	+	+	+	-	-	+	+
Sertoli-Leydig Cell Tumors	+	+	-/+	+	-	+	+
Gynandroblastoma	+	+					
Gonadoblastomas	+	+	+	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Mesothelioma

Stability Up to 36 mo. at 2-8°C

Isotype SP13: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Barberis MC, et al. Acta Cytol 1997 Nov-Dec; 41(6):1757-61
2. Doglioni C, et al. Am J Surg Pathol 1996 Sep;20(9):1037-46
3. Leers MP, et al. Histopathology 1998 Mar; 32(3);209-16

Rabbit Monoclonal Clone: SP13

0.1 ml, concentrate.... 232R-14
0.5 ml, concentrate.... 232R-15
1 ml, concentrate 232R-16
1 ml, prediluted 232R-17
7 ml, prediluted 232R-18
Positive control slides . 232S

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Rabbit Polyclonal

0.1 ml, concentrate.... 232A-74
0.5 ml, concentrate.... 232A-75
1 ml, concentrate 232A-76
1 ml, prediluted 232A-77
7 ml, prediluted 232A-78
Positive control slides . 232S

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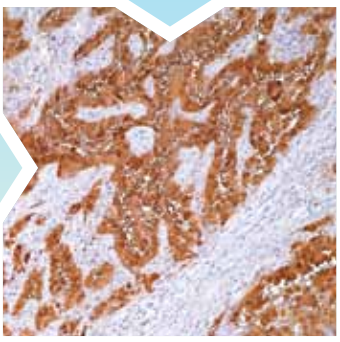

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Carbonic Anhydrase IX (CA IX)

Carbonic anhydrases (CA) are a family of zinc containing metalloproteins that catalyze the reversible hydration of CO2. Among these, CA IX is anchored to the cell membrane and is expressed in the human gastrointestinal tract, chiefly in the stomach and gall bladder. It is interesting to note that CA IX is overexpressed in epithelial malignancies of the uterus, cervix, lung, breast, and kidney; none of the associated normal tissues express this isozyme. CA IX is said to maintain the extracellular acidic pH, thus promoting cell growth in these tumors. Preliminary data suggest consistent immunoreactivity for anti-CA IX in clear cell renal cell carcinoma (RCC); it has sensitivity of 85% to 100% for clear cell RCC and this imparts diagnostic utility. Anti-CA IX may also play a role in distinguishing clear cell RCC from chromophobe RCC. Anti-CA IX, together with antibodies against Pax 2, Ksp-cadherin, and CD117, forms a robust panel that can be used to make this distinction. Strong diffuse-to-multifocal immunostaining for anti-CA IX is observed in the large majority of urothelial carcinomas as opposed to the extremely weak and focal immunoreactivity seen in collecting duct carcinoma (CDC). Anti-CA IX can thus aid in distinguishing between urothelial carcinoma and CDC.

Neoplasms						
	CA IX	PAX-2	PAX-8	RCC	CD10	Ksp-cadherin
cRCC	+	+	+	+	+	-/+
pRCC	+/-	+	+	+	+	-/+
chRCC	-	+/-	+	+/-	+/-	+
Oncocytoma	-	+	+	-	+/-	+
Sarcomatoid RCC		-	-/+	-/+		
Xp11 Translocation RCC	+	+/-	+	+/-	+	+

Reactivity Paraffin

Visualization Membranous

Control Clear Cell Renal Cell Carcinoma, Gallbladder epithelium

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kivela, AJ et al. Histochem Cell Biol 2000; 114:197–204.
2. Al-Ahmadie, HA et al. Am J Surg Pathol 2008; 32: 377–382.

Mouse Monoclonal
Clone: MRQ-54

0.1 ml, concentrate..... 379M-14
0.5 ml, concentrate..... 379M-15
1 ml, concentrate 379M-16
1 ml, prediluted 379M-17
7 ml, prediluted 379M-18
Positive control slides 379S

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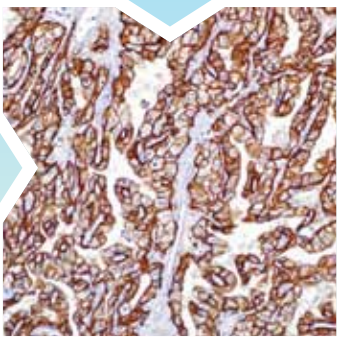

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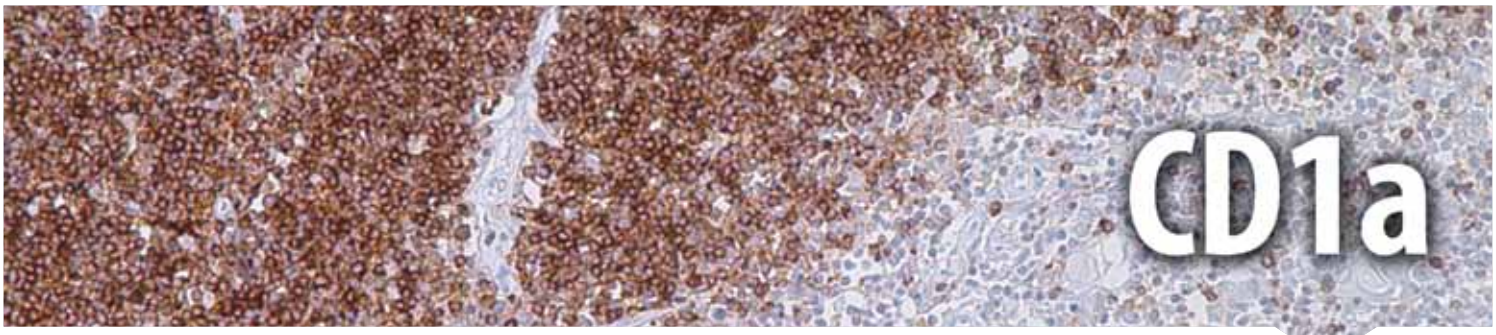

CD1a is a non-polymorphic major histocompatibitity complex class I-related cell surface glycoprotein (45 to 55 kDa) and is expressed in association with β-microglobulin. In normal tissues, anti-CD1a reacts with cortical thymocytes, Langerhans cells, interdigitating dendritic cells, and rare antigen-presenting cells of the lymph node.

Anti-CD1a labels Langerhans cell histiocytosis (Histiocytosis X), extranodal histiocytic sarcoma, a subset of T-lymphoblastic lymphoma/leukemia, and interdigitating dendritic cell sarcoma of the lymph node. When combined with antibodies against TTF-1 and CD5, anti-CD1a is useful in distinguishing between pulmonary and thymic neoplasms since CD1a is consistently expressed in thymic lymphocytes in both typical and atypical thymomas, but only focally in 1/6 of thymic carcinomas and not in lymphocytes in pulmonary neoplasms. Anti-CD1a was reported to be a new marker for perivascular epithelial cell tumor (PEComa).

Lymph Node						
	CD1a	CD68	S-100	CD163	CD21/CD35	CD14
Reactive Histiocytosis	-	+	-	-	-	+
Langerhans Cell Histiocytosis	+	+	+	+	-	+
Sinus Histiocytosis with Massive Lymphadenopathy	-	+	+	+	-	+
Follicular Dendritic Cell Sarcoma	+/-	-	-	-	+	-
Dermatopathic Lymphadenitis	+	-	+	+	-	-

Histiocytic Proliferation							
	CD1a	S-100	CD68	Vimentin	CD163	Factor XIIIa	HAM-56
Juvenile Xanthogranuloma	-	-	+	+	+	+	+
Langerhans Cell Histiocytosis	+	+	+	+	+	-	+
Dermatofibroma	-	-	+	+	-	+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil, Thymus

Stability Up to 36 mo. at 2-8°C

Isotype EP3622‡: IgG_1
MTB1: IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Krenass L, et al. J Pathol. 1993;171:99-104.
2. Marks DI, et al. Blood. 2009;114:5136-45.
3. Adachi Y, et al. Pathol Int. 2008;58:169-73.

Rabbit Monoclonal Clone: EP3622‡

0.1 ml, concentrate.....101R-14
0.5 ml, concentrate.....101R-15
1 ml, concentrate 101R-16
1 ml, prediluted 101R-17
7 ml, prediluted 101R-18
Positive control slides 101S

Rabbit Monoclonal Clone: EP3622‡

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Mouse Monoclonal Clone: MTB1

0.1 ml, concentrate.....101M-14
0.5 ml, concentrate.....101M-15
1 ml, concentrate 101M-16
1 ml, prediluted 101M-17
7 ml, prediluted 101M-18
Positive control slides 101S

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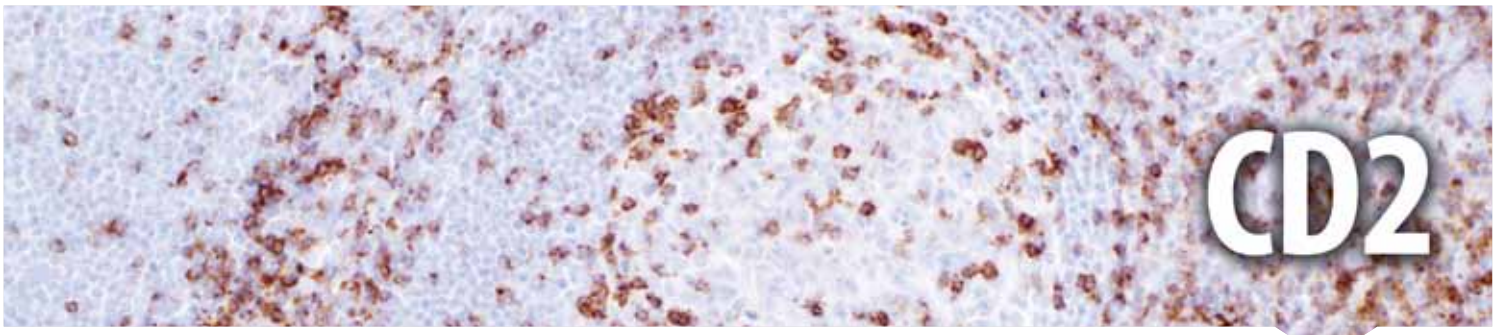
‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



CD2 is one of the earliest T-cell lineage restricted antigens to appear during T-cell differentiation and only rare CD2+ cells can be found in the bone marrow. Anti-CD2 is a pan-T-cell antigen marker.

Anti-CD2 is therefore useful for the identification of virtually all normal T-lymphocytes. It is also very useful in the assessment of lymphoid malignancies as it is expressed in the majority of precursor and mature T-cell lymphomas and leukemias. As with other pan-T-cell antigens, CD2 may be aberrantly deleted in some neoplastic T-cell populations, especially peripheral T-cell lymphomas. When combined with anti-CD25, anti-CD2 may assist in the diagnosis of systemic mastocytosis and mastocytic leukemia.

T-cell Lymphomas										
	CD2	CD45	CD3	CD4	CD5	CD7	CD8	CD25	CD45RO	PD-1
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	+
Lymphoblastic	+/-	+	+	+/-	+	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	+	+	+	-	+	+	+/-	-	+	-
NK	+	+	+	-	-	-/+	-	+	+	-
Cutaneous	+	+	+	+	-	+	-	-	-	-/+
Peripheral, NOS	+	+	+	+/-	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	+	+	+	+	+	-	-	+	+	-

Mastocytosis					
	CD2	Tryptase	CD117	CD25	CD163
Mastocytosis	+	+	+	+	-
Mastocytic Leukemia	+	+	+	+	-
Reactive Mast Cells	-	+	+	-	+

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Aguilera NS, et al. Arch Pathol Lab Med. 2006 Dec;130(12):1772-9.
2. Barrionuevo C, et al. Appl Immunohistochem Mol Morphol. 2007 Mar;15(1):38-44.

Mouse Monoclonal Clone: MRQ-11

0.1 ml, concentrate.....102M-14
0.5 ml, concentrate.....102M-15
1 ml, concentrate 102M-16
1 ml, prediluted 102M-17
7 ml, prediluted 102M-18
Positive control slides 102S

Mouse Monoclonal Clone: MRQ-11

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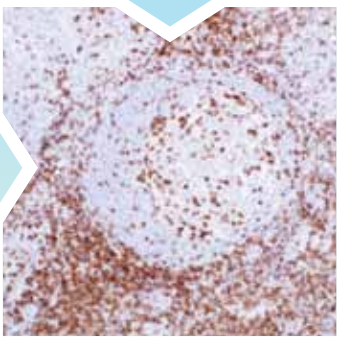

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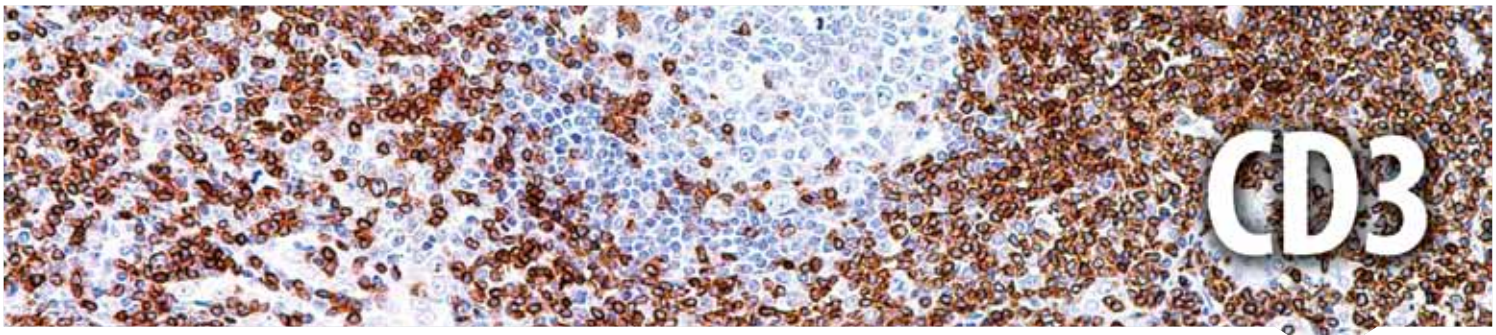

Anti-CD3 is considered to be a pan-T-cell marker. Anti-CD3 reacts with an antigen present at the surface and in the cytoplasm of the T lymphocytes. The antibody for immunohistochemical detection locates the cytoplasmic component of CD3 protein. Anti-CD3 is widely used in detection of T-cell malignancies, both immature and mature.

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	CD3	TdT	CD10	PAX-5	CD20	CD19	CD5	CD7	CD117	CD1a
B-cell	-	+	+	+	+/-	+	-	-	-	+
T-cell	+	+	+/-	-	-	-	+/-	+/-	-/+	+/-

Lymphoma				
	CD3	CD20	CD45R	CD45RO
Mature B-cell	-	+	+	-
Mature T-cell	+	-	-	+

T-cell Lymphomas									
	CD3	CD45	CD2	CD4	CD5	CD7	CD8	CD25	PD-1
Angioimmunoblastic	+	+	+	+	+	+	-	+	+
Lymphoblastic	+	+	+/-	+/-	+	+	+/-	+	-
Subcutaneous Panniculitis-Like	+	+	+	-	+	+	+/-	-	-
NK	+	+	+	-	-	-/+	-	+	-
Cutaneous	+	+	+	+	-	+	-	-	-/+
Peripheral, NOS	+	+	+	+/-	+/-	+/-	-/+	+	-
Mycosis Fungoides	+	+	+	+	+	-	-	+	-

Histiocytic Lesions								
	CD3	CD45	CD4	CD68	Lysozyme	CD163	Factor XIIIa	CD20
Histiocytic Lesions	-	+	+	+	+	+	+	-

Reactivity
Paraffin

Visualization
Membranous

Control
Tonsil

Stability
Up to 36 mo. at 2-8°C

Isotype
MRQ-39: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Denning SM, et al. Oxford Univ Press 1987;144-147
2. Beverley PCL, et al. European J of Immunolgy 11:329-334
3. Clevers H, et al. European J of Immunolgy 1988;18:705-710

Rabbit Monoclonal Clone: MRQ-39

0.1 ml, concentrate.... 103R-94
0.5 ml, concentrate.... 103R-95
1 ml, concentrate 103R-96
1 ml, prediluted 103R-97
7 ml, prediluted 103R-98
Positive control slides . 103S

IVD
IVD
IVD
RUO

Rabbit Polyclonal

0.1 ml, concentrate.... 103A-74
0.5 ml, concentrate.... 103A-75
1 ml, concentrate 103A-76
1 ml, prediluted 103A-77
7 ml, prediluted 103A-78
25 ml, prediluted..... 103A-70
Positive control slides . 103S

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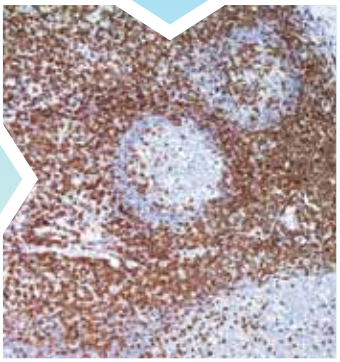

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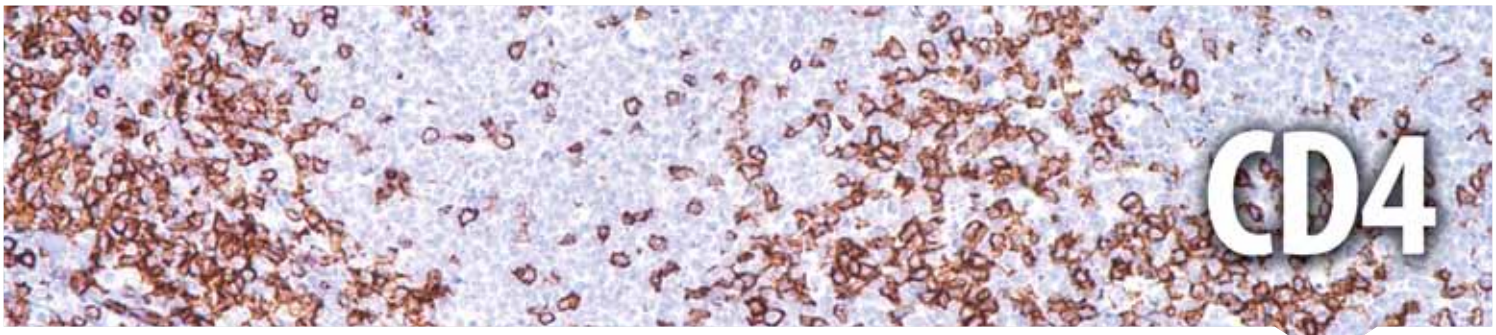

CD4 is a 55 kD glycoprotein expressed on the surface of T-helper/regulatory T-cells, monocytes, macrophages, and dendritic cells. Anti-CD4 is used in the immunophenotyping of lymphoproliferative disorders. The majority of peripheral T-cell lymphomas are derived from the T-helper/regulatory cell subset so that most mature T-cell neoplasms are CD4+ CD8-. As with other T-cell antigens, CD4 may be aberrantly expressed in neoplastic T-cells so that the evaluation of such tumors requires the application of a panel of markers in order to identify tumors with CD4 aberrant expression.

T-cell Lymphomas										
	CD4	CD45	CD2	CD3	CD5	CD7	CD8	CD25	CD45RO	PD-1
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	+
Lymphoblastic	+/-	+	+/-	+	+	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	-	+	+	+	+	+	+/-	-	+	-
NK	-	+	+	+	-	-/+	-	+	+	-
Cutaneous	+	+	+	+	-	+	-	-	-	-/+
Peripheral, NOS	+/-	+	+	+	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	+	+	+	+	+	-	-	+	+	-

Histiocytic Lesions								
	CD4	CD45	CD68	Lysozyme	CD163	Factor XIIIa	CD20	CD3
Histiocytic Lesions	+	+	+	+	+	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Leong AS-Y, et al. Manual of diagnostic antibodies for immuno-histochemistry, 2nd edition 2003; Greenwich Medical Media Ltd.
2. Akiyama T, et al. Pathol Int. 2008 Oct;58(10):626-34.

Rabbit Monoclonal
Clone: SP35

0.1 ml, concentrate..... 104R-14
0.5 ml, concentrate..... 104R-15
1 ml, concentrate 104R-16
1 ml, prediluted 104R-17
7 ml, prediluted 104R-18
Positive control slides 104S

IVD
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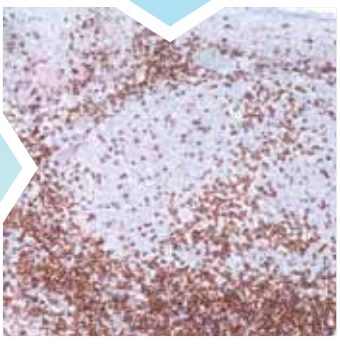

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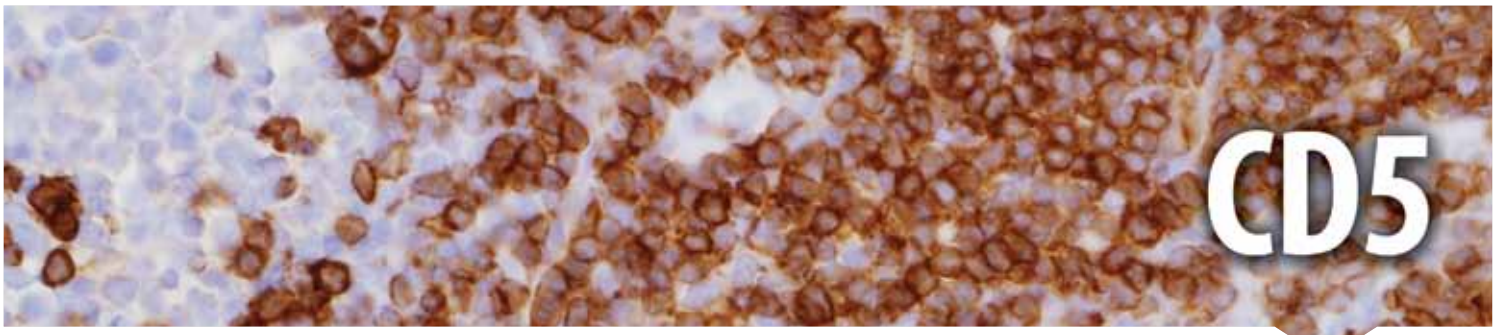

Anti-CD5 is a pan T-cell marker that also reacts with a range of neoplastic B-cells, e.g. chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL), mantle cell lymphoma, and a subset (~10%) of diffuse large B-cell lymphoma. CD5 aberrant expression is useful in making a diagnosis of mature T-cell neoplasms. Anti-CD5 detection is diagnostic in CLL/SLL within a panel of other B-cell markers, especially one that includes anti-CD23. Anti-CD5 is also very useful in differentiating among mature small lymphoid cell malignancies. In addition, anti-CD5 can be used in distinguishing thymic carcinoma (+) from thymoma (-). Anti-CD5 does not react with granulocytes or monocytes.

Thymus							
	CD5	CK 5	p63	BG8	BCL2	CD117	CD57
Thymic Carcinoma	+	+	+	+	+	+	-
Type B_3 Thymoma	-	+	+	-	-	-/+	+

B-cell Lymphomas									
	CD5	CD45	CD20	CD79a	BCL2	ZAP-70	CD23	Cyclin D1	MUM1
CLL/SLL	+	+	+	+	+	+	+	-	+
Mantle Cell	+	+	+	+	+	-	-	+	-

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	CD5	TdT	CD10	PAX-5	CD20	CD19	CD3	CD7	CD117	CD1a
B-cell	-	+	+	+	+/-	+	-	-	-	+
T-cell	+/-	+	+/-	-	-	-	+	+/-	-/+	+/-

T-cell Lymphomas										
	CD5	CD45	CD2	CD3	CD4	CD7	CD8	CD25	CD45RO	PD-1
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	+
Lymphoblastic	+	+	+/-	+	+/-	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	+	+	+	+	-	+	+/-	-	+	-
NK	-	+	+	+	-	-/+	-	+	+	-
Cutaneous	-	+	+	+	+	+	-	-	-	-/+
Peripheral, NOS	+/-	+	+	+	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	+	+	+	+	+	-	-	+	+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP19: IgG
4C7: IgG/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chan, JKC, et al. Histopathology 1994;25: 517-536.
2. Kasaian, MT, et al. Proc of the Soc for Exp Bio and Med 1991;197: 226-241
3. Jones NH, et al. Nature 1986;323: 346-349

Rabbit Monoclonal Clone: SP19

0.1 ml, concentrate.... 205R-14
0.5 ml, concentrate.... 205R-15
1 ml, concentrate 205R-16
1 ml, prediluted 205R-17
7 ml, prediluted 205R-18
Positive control slides . 205S

IVD
IVD
IVD
RUO

Mouse Monoclonal Clone: 4C7

0.1 ml, concentrate.... 205M-14
0.5 ml, concentrate.... 205M-15
1 ml, concentrate 205M-16
1 ml, prediluted 205M-17
7 ml, prediluted 205M-18
Positive control slides . 205S

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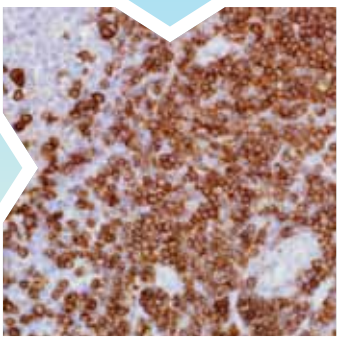

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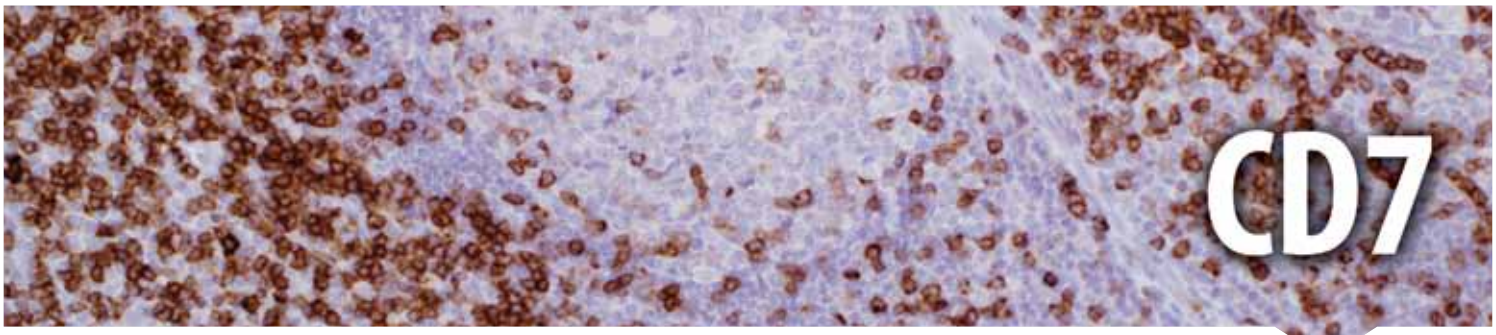

CD7 antigen is a cell surface glycoprotein of 40 kD expressed on the surface of immature and mature T-cells as well as natural killer (NK) cells. It is a member of the immunoglobulin gene superfamily and is the first T-cell lineage associated antigen to appear in T-cell ontogeny, being expressed in T-cell precursors (preceding CD2 expression), and in myeloid precursors, in fetal liver and bone marrow, and persisting in circulating mature T-cells. While its precise function is not known, it is suggested that the molecule functions as an Fc receptor for IgM.

CD7 is the most consistently expressed T-cell antigen in lymphoblastic lymphomas and leukemias, and is therefore anti-CD7 is a useful marker in the identification of such neoplastic proliferations. In mature post-thymic T-cell neoplasms, CD7 is the most common pan-T-antigen to be aberrantly expressed, which is a useful pointer to a neoplastic T-cell process.

CD7 is immunoexpressed in 85% of mature peripheral T-cells, the majority of post-thymic T-cells, NK cells, T-cell lymphoblastic leukemia/lymphoma, acute myeloid leukemia, and chronic myelogenous leukemia. CD7 is conspicuously absent in adult T-cell leukemia/lymphoma and is not expressed in mycosis fungoides.

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	CD7	TdT	CD10	PAX-5	CD20	CD19	CD3	CD5	CD117	CD1a
B-cell	-	+	+	+	+/-	+	-	-	-	+
T-cell	+/-	+	+/-	-	-	-	+	+/-	-/+	+/-

T-cell Lymphomas										
	CD7	CD45	CD2	CD3	CD4	CD5	CD8	CD25	CD45RO	PD-1
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	+
Lymphoblastic	+	+	+/-	+	+/-	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	+	+	+	+	-	+	+/-	-	+	-
NK	-/+	+	+	+	-	-	-	+	+	-
Cutaneous	+	+	+	+	+	-	-	-	-	-/+
Peripheral, NOS	+/-	+	+	+	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	-	+	+	+	+	+	-	+	+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype MRQ-56: IgG_1
MRQ-12: IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hodak E, et al. J Am Acad Dermatol. 2006 Aug;55(2):276-84.
2. Went P, et al. J Clin Oncol. 2006 Jun 1;24(16):2472-9. Epub 2006 Apr 24.
3. Vonderheid EC. J Cutan Pathol. 2006 Feb;33 Suppl 1:27-42. Review.

Mouse Monoclonal Clone: MRQ-56

0.1 ml, concentrate.... 107M-24
0.5 ml, concentrate.... 107M-25
1 ml, concentrate 107M-26
1 ml, prediluted 107M-27
7 ml, prediluted 107M-28
Positive control slides . 107S

IVD
IVD
IVD
RUO

Mouse Monoclonal Clone: MRQ-12

0.1 ml, concentrate.... 107M-14
0.5 ml, concentrate.... 107M-15
1 ml, concentrate 107M-16
1 ml, prediluted 107M-17
7 ml, prediluted 107M-18
Positive control slides . 107S

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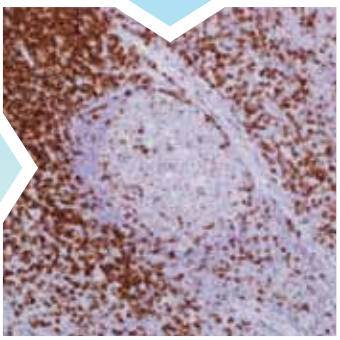

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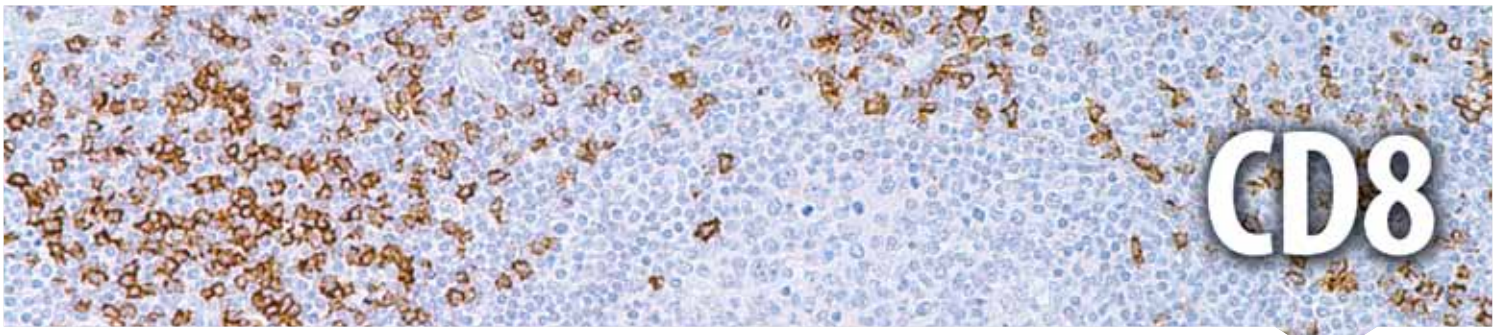

The CD8 (cluster of differentiation 8) antigen is a cell surface glycoprotein found on most cytotoxic T-lymphocytes that mediates efficient cell-cell interactions within the immune system. CD8 is a transmembrane glycoprotein that serves as a co-receptor for the T-cell receptor (TCR). TCR is a heterodimer composed of either α and β or γ and δ chains. CD3 chains and the CD4 or CD8 co-receptors are also required for efficient signal transduction through the TCR. The TCR is expressed on T-helper and cytotoxic T-cells that can be distinguished by their expression of CD4 and CD8 respectively. CD8 binds to a major histocompatibility complex (MHC) molecule, but is specific for the class I MHC protein. A primary function of CD8 is to facilitate antigen recognition by the TCR and to strengthen the avidity of the TCR-antigen interactions. The CD8 co-receptor is predominantly expressed on the surface of suppressor and cytotoxic T-cells at a low level by NK cells, large granular lymphocyte leukemia, and some T-ALL/T-LBL.

For mature T-cells, CD4 and CD8 are mutually exclusive, so anti-CD8, generally used in conjunction with anti-CD4, is a useful marker for distinguishing helper/inducer T-lymphocytes, and most peripheral T-cell lymphomas (CD4+/CD8-). Anaplastic large cell lymphoma is usually CD4+ and CD8-, and in T-lymphoblastic lymphoma/leukemia, CD4 and CD8 are often co-expressed. CD8 is also found in littoral cell angioma of the spleen.

T-cell Lymphomas										
	CD8	CD45	CD2	CD3	CD4	CD5	CD7	CD25	CD45R0	PD-1
Angioimmunoblastic	-	+	+	+	+	+	+	+	+	+
Lymphoblastic	+/-	+	+/-	+	+/-	+	+	+	+	-
Subcutaneous Panniculitis-Like	+/-	+	+	+	-	+	+	-	+	-
NK	-	+	+	+	-	-	-/+	+	+	-
Cutaneous	-	+	+	+	+	-	+	-	-	-/+
Peripheral, NOS	-/+	+	+	+	+/-	+/-	+/-	+	+	-
Mycosis Fungoides	-	+	+	+	+	+	-	+	+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP16: IgG_1
C8/144B: IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Rossi ML, Sanchez FC, et al. J Clin Path 1988;41:314-319
2. Stein H, Lennart K, et al. Adv Cancer Res 1984;42:67-147
3. Phan-Dinh-Tuy F, Niaudet P, et al. Mol Immun 1982;19:1649-1654

Rabbit Monoclonal Clone: SP16

0.1 ml, concentrate.... 108R-14
0.5 ml, concentrate.... 108R-15
1 ml, concentrate 108R-16
1 ml, prediluted 108R-17
7 ml, prediluted 108R-18
Positive control slides . 108S

IVD
IVD
IVD
RUO

Mouse Monoclonal Clone: C8/144B

0.1 ml, concentrate.... 108M-94
0.5 ml, concentrate.... 108M-95
1 ml, concentrate 108M-96
1 ml, prediluted 108M-97
7 ml, prediluted 108M-98
Positive control slides . 108S

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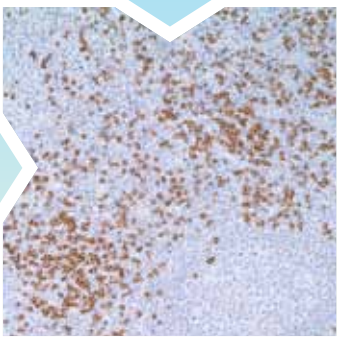

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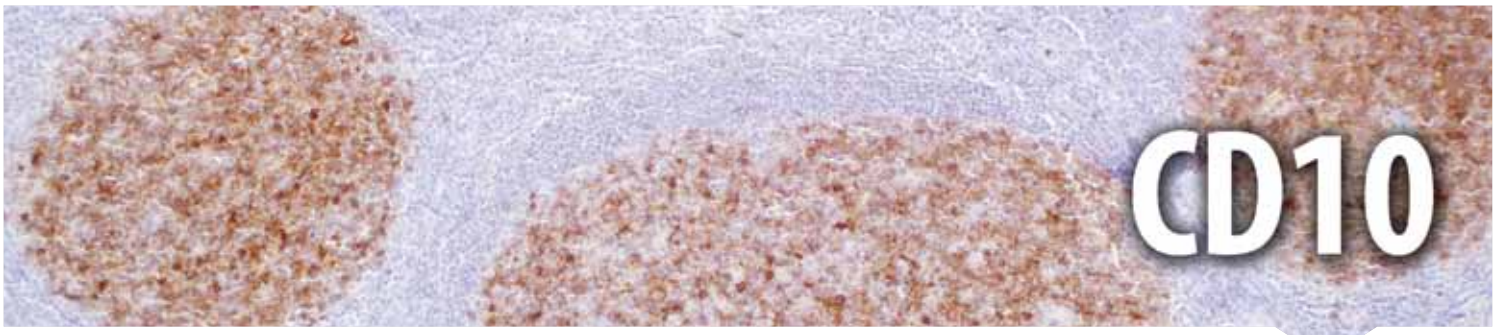

The antibody against CD10, common acute lymphoblastic leukemia antigen (CALLA), is a useful marker for the characterization of leukemias and lymphomas. This antibody labels lymphoblastic, Burkitt, and follicular lymphomas. Also, anti-CD10 detects the antigen of glomerular epithelial cells and the brush 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 anti-CD10 are breast myoepithelial cells, bile canaliculi, neutrophils, stromal cells of bone marrow, and fibroblasts. Therefore, anti-CD10 has been used in classification of carcinomas, lymphomas, and leukemias.

Carcinomas										
	CD10	CK 7	CK 20	β-Catenin	CK 5	p63	pCEA	CDX-2	Villin	Hep-Par1
Hepatocellular Carcinoma	+	-	-	-	-	-	+	-	-	+
Colorectal Adenocarcinoma	+	-	+	+	-	-	+	+	+	-
Transitional Cell Carcinoma	+	+	+	-	+	+	-	-	-	-

B-cell Lymphomas									
	CD10	CD20	CD5	BCL2	BCL6	TCL1	CD23	Cyclin D1	MUM1
Follicular	+	+	-	+	+	+	-	-	-
CLL/SLL	-	+	+	+	-	+	+	-	+
Mantle Cell	-	+	+	+	-	+	-	+	-/+
Marginal Zone	-	+	-	+	-	-	-	-	+
Burkitt	+	+	-	-	+	+	-	-	-
Diffuse Large Cell	-/+	+	-/+	+	+/-	+	-	-	+

Kidney: Renal Epithelial Tumors								
	CD10	RCC	PAX-2	Vimentin	Ksp-cadherin	Parvalbumin	CD117	Ep-CAM
Clear Cell RCC	+	+	+	+	-	-	-	-
Chromophobe RCC	-/+	-/+	+	-	+	+	+	+
Oncocytoma	+/-	-	+	-	+/-	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Kidney, Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 30-60 min. RT or *ultra*View™ 32 min. + AMP at 37° C

Please refer to product insert for complete protocol.

References

1. Haralambidou S, et al. J Clin Pathol. 1987; 40: 490-493
2. Mechterscheimer, et al. Am J of Pathol 1989; 134(5): 961-965
3. Hoefnagel JJ, et al. Br J Dermatol. 2003 Dec;149(6): 1183-91

Mouse Monoclonal
Clone: 56C6

0.1 ml, concentrate..... 110M-14
0.5 ml, concentrate..... 110M-15
1 ml, concentrate 110M-16
1 ml, prediluted 110M-17
7 ml, prediluted 110M-18
Positive control slides 110S

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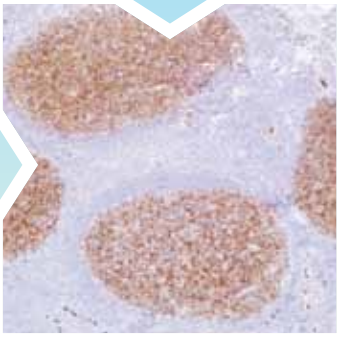

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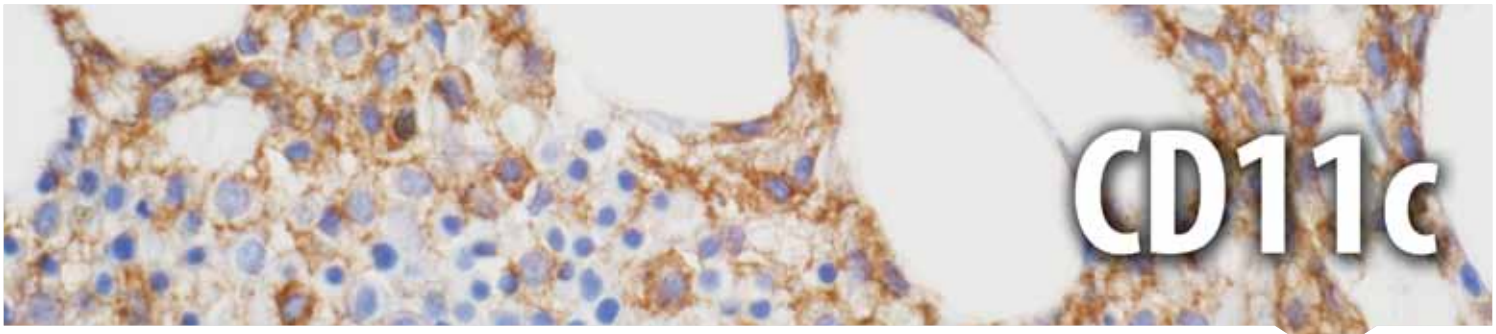

Hairy cell leukemia (HCL) is a distinctive yet uncommon chronic B-cell lymphoproliferative disorder predominantly involving the bone marrow and spleen. Bone marrow aspiration and trephine biopsy are necessary for making a definitive diagnosis and treatment of hairy cell leukemia (HCL). However, aspiration is successful in only 10% of patients due to diffusely increased reticulin fibers in the background marrow stroma in association with HCL infiltrates. In such situations, examination of bone marrow trephine histology together with immunohistochemical analysis is the only available method to make a definitive diagnosis of HCL.

Korinna et al. investigated 31 bone marrow trephines with low-level HCL infiltrates and showed that the anti-CD11c (clone 5D11) was able to detect HCL to a level of 2% tumor cells in BM biopsies. This indicates that immunohistochemical staining of formalin-fixed, decalcified bone marrow trephine biopsies with anti-CD11c can be used both for early diagnosis of HCL and for detection of residual disease following therapy. It is important to note that the anti-CD11c-positive interstitial macrophages, which were generally more weakly stained than the hairy cells, did not interfere with the identification of the more strongly stained tumor cells. Among malignant lymphomas, CD11c is consistently expressed in HCL, although it is also rarely detected in B-CLL/small lymphocytic lymphoma and splenic MZL.

Mature B-cell Neoplasms										
	CD11c	CD25	CD103	CD123	CD10	T-bet	DBA44	TRAcP	Annexin A1	Cyclin D1
Hairy Cell Leukemia	+	+	+	+	+ 20%	+	+/-	+/-	+	+(weak)/-
Hairy Cell Leukemia Variant	+	-	+/-	-	-	-	+/-	+/-	-	-
Splenic Marginal Zone Lymphoma	-/+	-	-	-	-	-	+/-	+/-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Hairy Cell Leukemia, Bone Marrow

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Korinna, J et al. Pathobiology 2008; 75:252–256.
2. Jones, G et al. Br J Hemaetol 2011; 156:186-195.
3. Went, PT et al. Am J Surg Pathol 2005; 29:474–478.

Mouse Monoclonal
Clone: 5D11

0.1 ml, concentrate..... 111M-14
0.5 ml, concentrate..... 111M-15
1 ml, concentrate 111M-16
1 ml, prediluted 111M-17
7 ml, prediluted 111M-18

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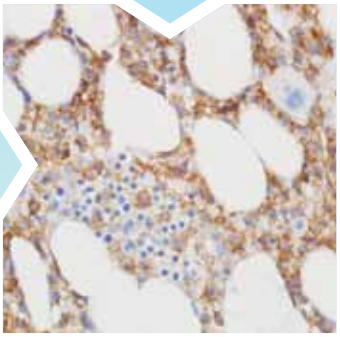

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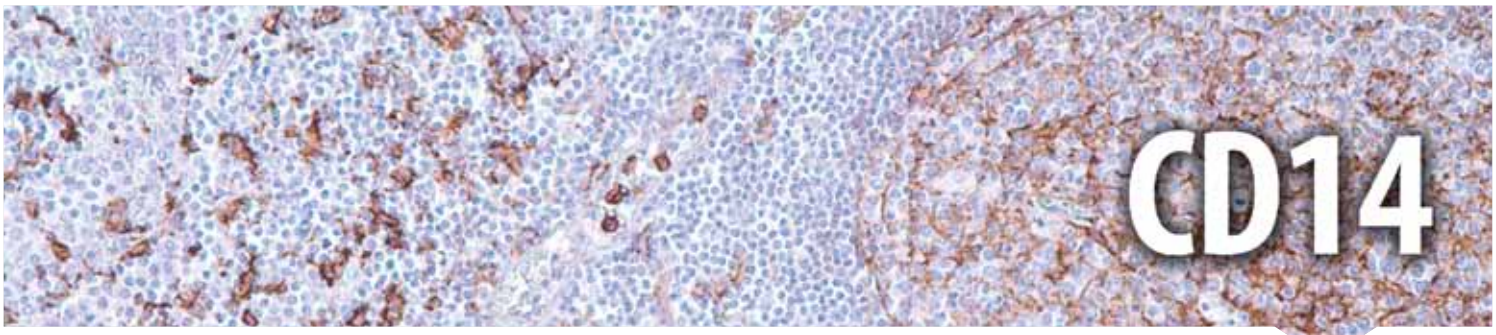

Anti-CD14 labels a 55 kDa, glycosyl-phosphatidylinositol-linked membrane protein, involved in endotoxin binding and recognition of apoptotic cells. CD14 is expressed by monocytes and dermal dendritic cells; anti-CD14 is considered to be a macrophage-derived monocyte marker. CD14 is also present in granulocytes, endothelial, epithelial cells, and placental trophoblasts. In the spleen, CD14 can be expressed in the red pulp and marginal zone cells, and histiocytes around sheathed capillaries. In the lymph node, true sinusoidal histiocytes, and follicular dendritic cells stain with anti-CD14. However, other monocyte-derived cells in the lymph node, such as in sinusoidal histiocytosis with erythrophagocytosis, macrophages associated with anthracosis, germinal center tingible body macrophages in reactive germinal centers, and diffuse large B-cell lymphoma do not express CD14 antigen. CD14 is not expressed in plasmacytoid dendritic cells. Anti-CD14 positive histiocytes are reported as markedly increased in DLBCL, but not in CLL/SLL, MCL, or FL.

Anti-CD14 is useful in confirming a diagnosis of massive lymphadenopathy with sinus histiocytosis (Rosai-Dorfman disease) when used in a panel including anti-S100 and anti-CD68. Anti-CD14 can also be used for decalcified bone marrow biopsy specimens to show increased myelomonocytic and monocytic neoplastic cells in chronic myelomonocytic leukemia and monocytic leukemia, and is very helpful in the distinction of myeloproliferative neoplasms, myelodysplastic syndrome, and acute monocytic leukemia. This antibody is more sensitive for leukemic monocytic cells than antibodies directed against CD163 and CD68/PG-M1.

Lymph Node				
	CD14	CD169	CD68	CD1a
Sinusoidal Histiocytes	+	-	-	-
Tingible Body Macrophages	-	-	+	-
Plasmacytoid Monocytes	-	-	-	-
Langerhans Cell Histiocytosis	+	+/-	+	+
Interdigitating DC	+/-	-	-	+

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Marmey B, Boix C, et al. Human Pathol. 2006 Jan; 37(1):68-77
2. Colovic N, Rajic Z, et al. Acta Chir Iugosl. 2004; 51(2):127-31
3. Raife TJ, Laser DJ, et al. Am J Clin Pathol. 1994 Mar;101 (3):296-9

Rabbit Monoclonal Clone: EPR3653‡

0.1 ml, concentrate.....114R-14
0.5 ml, concentrate.....114R-15
1 ml, concentrate 114R-16
1 ml, prediluted 114R-17
7 ml, prediluted 114R-18
Positive control slides 114S

Rabbit Monoclonal Clone: EPR3653‡

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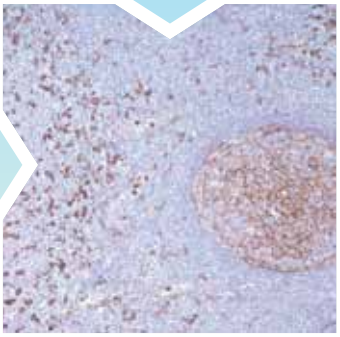

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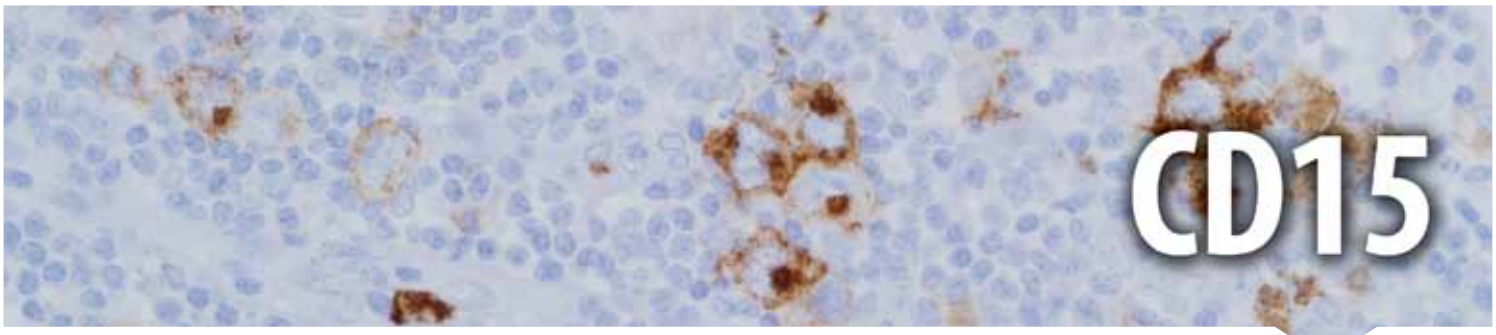
‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



A positive reaction for anti-CD15 with a membranous and perinuclear golgi zone accentuation staining pattern provides immunohistochemical support for Reed-Sternberg cells in Hodgkin lymphoma. Also, this antibody is useful in distinguishing epithelioid mesothelioma from adenocarcinoma when combined with other antibodies.

Hodgkin vs. Non-Hodgkin Lymphomas										
	CD15	CD79a	CD30	Fascin	Granzyme B	BCL6	PU.1	MUM1	ALK-1	EMA
Hodgkin Lymphoma, Classic	+	-	+	+	-	-	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-	+	-	-	-	+	+	-/+	-	+
T-cell Rich B-cell Lymphoma	-	+	-	-	-	+	-	+	-	-
Anaplastic Large Cell Lymphoma	-	-	+	-	+	+/-	-	-	+	+

Skin: Adnexal Tumors						
	CD15	CK 7	CK 20	S-100	EMA	GCDFP-15
Merkel Cell Carcinoma	-	-	+	-	+	-
Sebaceous Tumor	+	+	-	-	-	-
Apocrine Tumor	+/-	+	-	-	+/-	+
Eccrine Tumor	-	+	-	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Hodgkin Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgM

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Skubitz K, et al. Oxford Univ Press 1989:800-805
2. Hsu SM, et al. Am J Clin Path 1984;82:29-32
3. Pinkus GS, et al. Am J Path 1985;119:244-252

Mouse Monoclonal
Clone: MMA

0.1 ml, concentrate..... 115M-14
0.5 ml, concentrate..... 115M-15
1 ml, concentrate 115M-16
1 ml, prediluted 115M-17
7 ml, prediluted 115M-18
Positive control slides 115S

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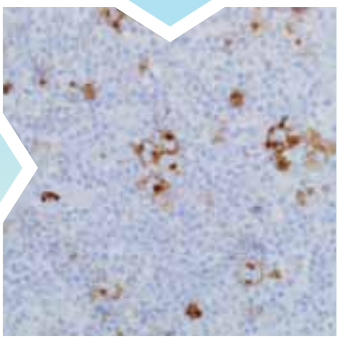

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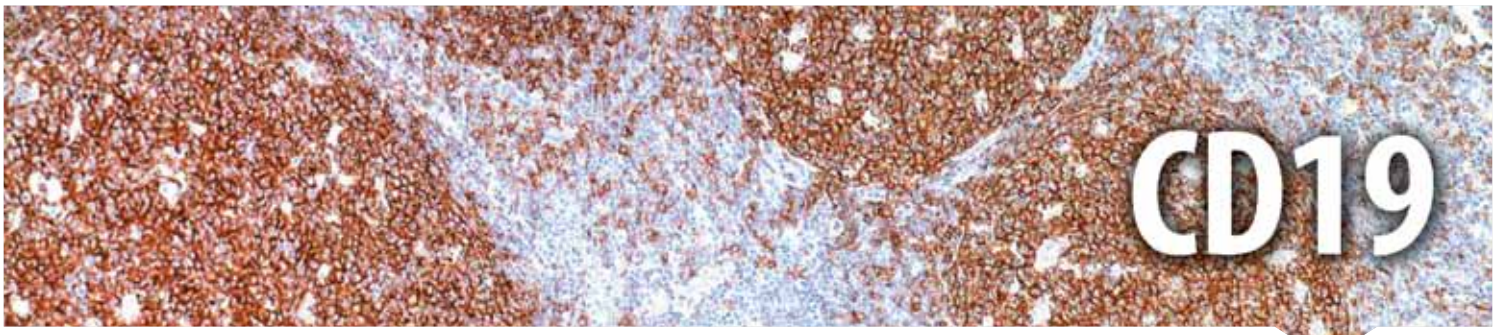

CD19 is present in both benign and malignant B-cells and has long been considered to be the most reliable surface marker of this lineage over a wide range of maturational stages. In normal lymphoid tissue, CD19 is observed in germinal centers, in mantle zone cells, and in scattered cells of the interfollicular areas. Anti-CD19 exhibits an overall immunoreactivity pattern similar to those of the antibodies against CD20 and CD22. However, in contrast to CD20, CD19 is also expressed in immature B-cells. Recently, Masir et al. have described the expression of CD19 in normal lymphoid tissue and its loss in B-cell neoplasms.

Anti-CD19 positivity is seen in the vast majority of B-cell neoplasms commonly at a lower intensity than normal B-cell counterparts. Plasma cell neoplasms are nearly always negative, as are T-cell neoplasms.

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	CD19	TdT	CD10	PAX-5	CD20	CD3	CD5	CD7	CD117	CD1a
B-cell	+	+	+	+	+/-	-	-	-	-	+
T-cell	-	+	+/-	-	-	+	+/-	+/-	-/+	+/-

Plasma Cells									
	CD19	CD138	CD79a	EMA	MUM1	CD56	Cyclin D1	CD43	CD20
Plasma Cell Neoplasm	-	+	+	+	+	+	-/+	-	-/+

Reactivity
Paraffin

Visualization
Membranous

Control
Tonsil

Stability
Up to 36 mo. at 2-8°C

Isotype
IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Steinmetz OM, et al. Transplantation. 2007 Oct 15;84(7):842-50.
2. Teng YK, et al. Arthritis Rheum. 2007 Dec;56(12):3909-18.
3. Kimura M, et al. Int J Hematol. 2007 Jan;85(1):41-8.

Mouse Monoclonal
Clone: MRQ-36

0.1 ml, concentrate..... 119M-14
0.5 ml, concentrate..... 119M-15
1 ml, concentrate 119M-16
1 ml, prediluted 119M-17
7 ml, prediluted 119M-18
Positive control slides 119S

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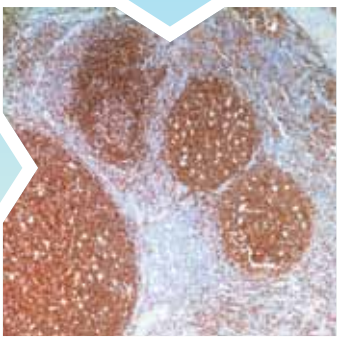

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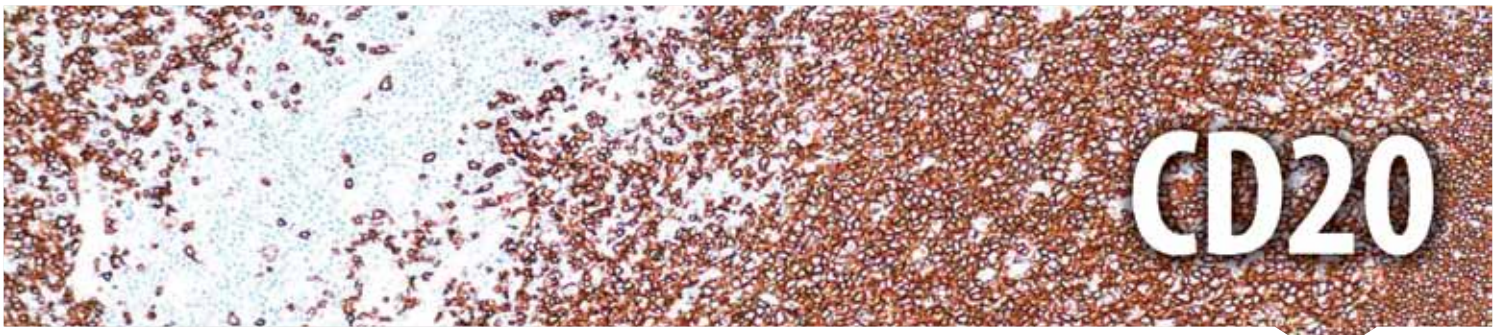

Anti-CD20 (Pan-B-cell) reacts with a membrane antigen of B-cells. This antibody also recognizes Reed-Sternberg cells, in classic Hodgkin lymphoma, in about 20% to 40% of cases. CD20 has occasionally been detected in T-cell malignancies. However, it is a very strong marker of mature B-cell lymphomas. Anti-CD20 does not usually immunoreact with non-hematopoietic neoplasms.

B-cell Lymphomas										
	CD20	BCL2	CD79a	IgD	BCL6	Annexin A1	CD10	CD23	Cyclin D1	MUM1
Follicular	+	+	+	+	+	-	+	-	-	-
CLL/SLL	+	+	+	+	-	-	-	+	-	+
Mantle Cell	+	+	+	+	-	-	-	-	+	-/+
Marginal Zone	+	+	+	-/+	-	-	-	-	-	+
Lymphoplasmacytic	+	+	+	-	-	-	-	-	-	+
Diffuse Large Cell	+	+	+	-	+	-	-/+	-	-	+
Burkitt	+	-	+	-	+	-	+	-	-	-
Hairy Cell Leukemia	+	+	+	-	-	+	-	-	+(weak)/-	

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	CD20	TdT	CD10	PAX-5	CD19	CD3	CD5	CD7	CD117	CD1a
B-cell	+/-	+	+	+	+	-	-	-	-	+
T-cell	-	+	+/-	-	-	+	+/-	+/-	-/+	+/-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP32: IgG_1
L26: IgG_{2a}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ishii Y, et al. Clin Exp Immuno 1984;58:183-192
2. Davey FR, et al. Am J Pathol 1987;129:54-63

Rabbit Monoclonal Clone: SP32

0.1 ml, concentrate.... 120R-14
0.5 ml, concentrate.... 120R-15
1 ml, concentrate 120R-16
1 ml, prediluted 120R-17
7 ml, prediluted 120R-18
Positive control slides . 120S

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Mouse Monoclonal Clone: L26

0.1 ml, concentrate.... 120M-84
0.5 ml, concentrate.... 120M-85
1 ml, concentrate 120M-86
1 ml, prediluted 120M-87
7 ml, prediluted 120M-88
25 ml, prediluted..... 120M-80
Positive control slides . 120S

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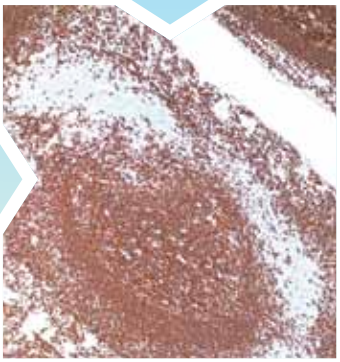

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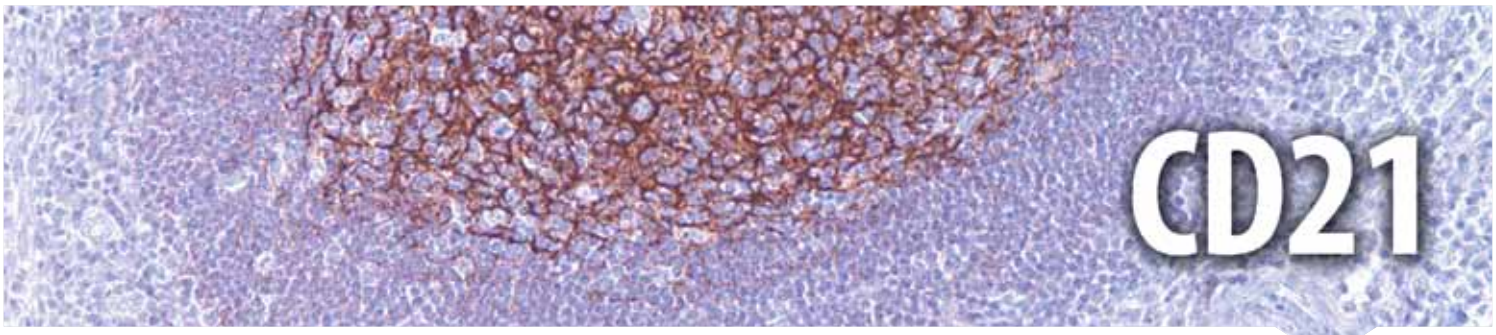

CD21 (also known as complement receptor 2 (CR2), C3d receptor, or EBV receptor) is a 140 kDa membrane protein on B-lymphocytes to which the Epstein-Barr virus (EBV) binds during infection of these cells. The antigen is absent on T-lymphocytes, monocytes, and granulocytes.

Anti-CD21 is useful in the identification of follicular dendritic cell matrix found in normal lymph node and tonsillar tissue. This antibody also labels follicular dendritic cell sarcomas. Anti-CD21 is valuable in differentiating follicular lymphoma with marginal zone differentiation from marginal zone lymphoma with follicular involvement. It also plays a role in separating among nodular lymphocyte predominant Hodgkin lymphoma, lymphocyte-rich classic Hodgkin lymphoma, and T-cell/histiocyte-rich B-cell lymphoma in combination with other B-cell and T-cell markers.

Lymph Node					
	CD21/CD35	CD68	S-100	CD1a	Lysozyme
Reactive Histiocytosis	-	+	-	-	+
Langerhans Histiocytosis	-	+	+	+	+
Sinus Histiocytosis with Massive Lymphadenopathy	-	+	+	-	+
Follicular Dendritic Cell Sarcoma	+	-	-	+/-	-
Dermatopathic Lymphadenitis	-	-	+	+	+

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dillon KM, et al. J Clin Pathol. 2002 Oct;55(10):791-4
2. Pileri SA, et al. Histopathology. 2002, 41;1-29
3. Kunihiko Maeda, et al. J Histochem Cytochem 50:1475-1485, 2002

Rabbit Monoclonal Clone: EP3093‡

0.1 ml, concentrate.....121R-14
0.5 ml, concentrate.....121R-15
1 ml, concentrate 121R-16
1 ml, prediluted 121R-17
7 ml, prediluted 121R-18
Positive control slides 121S

Rabbit Monoclonal Clone: EP3093‡

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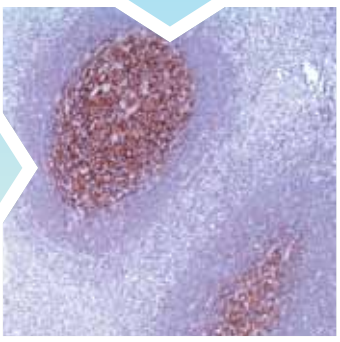

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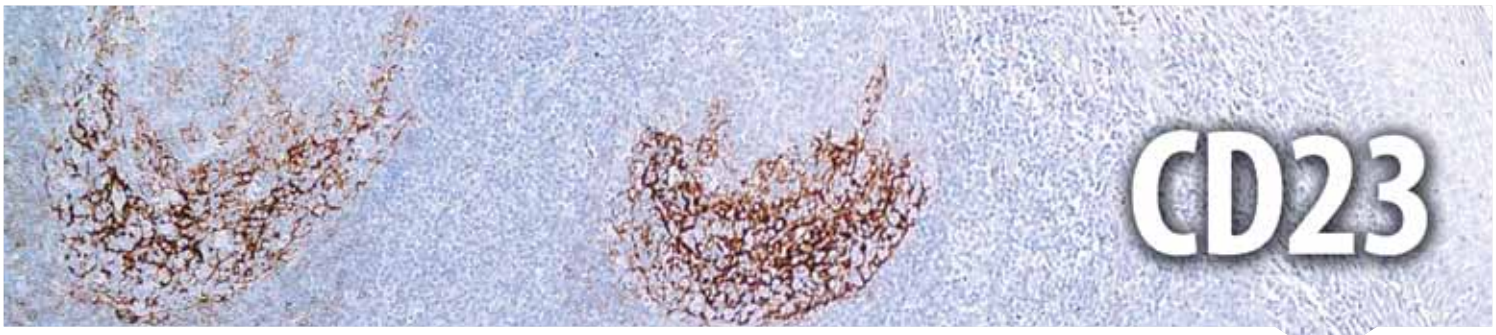
‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



Anti-CD23 is a B-cell antibody that is useful in differentiating between small lymphocytic lymphoma/chronic lymphocytic leukemia (anti-CD23 immunoreactive) from mantle cell lymphoma and follicular lymphoma (immunonegative). 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. Anti-CD23 recognizes follicular dendritic cell meshwork and follicular dendritic sarcoma.

B-cell Lymphomas										
	CD23	TCL1	CD20	BCL2	BCL6	CD10	MUM1	Cyclin D1	CD5	TRAcP
Follicular	-	+	+	+	+	+	-	-	-	-
CLL/SLL	+	+	+	+	-	-	+	-	+	-
Mantle Cell	-	+	+	+	-	-	-/+	+	+	-
Marginal Zone	-	-	+	+	-	-	+	-	-	+/-
Lymphoplasmacytic	-	+	+	+	-	-	+	-	-	-
Diffuse Large Cell	-	+	+	+	+	-/+	+	-	-/+	-
Burkitt	-	+	+	-	+	+	-	-	-	-
Hairy Cell Leukemia	-	+	+	+	-	-		+(weak)/-	-	+

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP23: IgG_1
1B12: IgG_1/k
MRQ-57: IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kaiserlian D, et al. Immunology 1993;80:90-95
2. Aubry JP, et al. Oxford Univ Press-Oxford, NY, Tokyo 1987:417-419

Rabbit Monoclonal Clone: SP23

0.1 ml, concentrate.... 123R-14
0.5 ml, concentrate.... 123R-15
1 ml, concentrate 123R-16
1 ml, prediluted 123R-17
7 ml, prediluted 123R-18
Positive control slides . 123S

Mouse Monoclonal Clone: 1B12

0.1 ml, concentrate.... 123M-14
0.5 ml, concentrate.... 123M-15
1 ml, concentrate 123M-16
1 ml, prediluted 123M-17
7 ml, prediluted 123M-18
Positive control slides . 123S

Mouse Monoclonal Clone: MRQ-57

0.1 ml, concentrate.... 123M-24
0.5 ml, concentrate.... 123M-25
1 ml, concentrate 123M-26
1 ml, prediluted 123M-27
7 ml, prediluted 123M-28
Positive control slides . 123S

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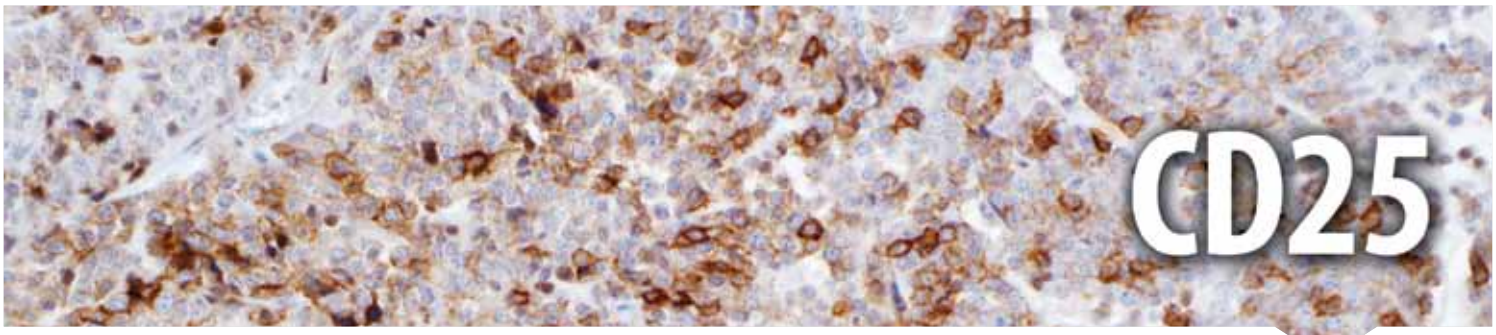

According to the World Health Organization classification system, the major diagnostic criterion for bone marrow involvement by systemic mastocytosis (SM) is the presence of dense aggregates (>15 cells) of mast cells. Expression of CD25, a low-affinity receptor for interleukin-2 (IL-2), affords a reliable diagnostic means for distinguishing neoplastic mast cell aggregates from reactive proliferations, and has therefore recently become a criterion for the diagnosis of SM combined with CD2 positivity. Anti-CD25 is therefore suggested as the "marker of choice" for cases of suspected systematic mastocytosis. Therefore, aberrant staining of mast cell clusters by anti-CD25 in tissue is essentially diagnostic of SM. Anti-CD25 has also been useful in identifying mast cells in skin biopsies in the setting of urticaria pigmentosa, which is associated with SM.

B-cell Lymphomas									
	CD25	CD45	CD20	CD79a	BCL2	T-bet	TRAcP	Annexin A1	CD43
Hairy Cell Leukemia	+	+	+	+	+	+	+	+	-

T-cell Lymphomas										
	CD25	CD2	CD3	CD4	CD5	CD7	CD8	CD45RO	PD-1	Granzyme B
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	-
Lymphoblastic	+	+/-	+	+/-	+	+	+/-	+	-	+/-
Subcutaneous Panniculitis-Like	-	+	+	-	+	+	+/-	+	-	+
NK	+	+	+	-	-	-/+	-	+	-	+
Cutaneous	-	+	+	+	-	+	-	-	-/+	+
Peripheral, NOS	+	+	+	+/-	+/-	+/-	-/+	+	-	-/+
Mycosis Fungoides	+	+	+	+	+	-	-	+	-	+/-

Mastocytosis					
	CD25	Tryptase	CD117	CD163	CD2
Systemic Mastocytosis	+	+	+	-	+
Mastocytic Leukemia	+	+	+	-	+
Reactive Mast Cells	-	+	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Lesions of Mastocytosis

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hahn HP, Hornick JL. Am J Surg Pathol. 2007 Nov;31(11):1669-76.
2. Hollmann TJ, et al. Am J Surg Pathol. 2008 Jan;32(1):139-45.
3. Miracco C, et al. Oncol Rep. 2007 Nov;18(5):1115-22.

Mouse Monoclonal Clone: 4C9

0.1 ml, concentrate.....125M-14
0.5 ml, concentrate.....125M-15
1 ml, concentrate 125M-16
1 ml, prediluted 125M-17
7 ml, prediluted 125M-18
Positive control slides 125S

Mouse Monoclonal Clone: 4C9

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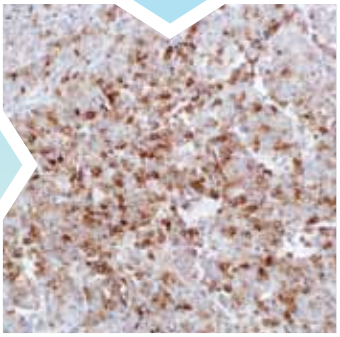

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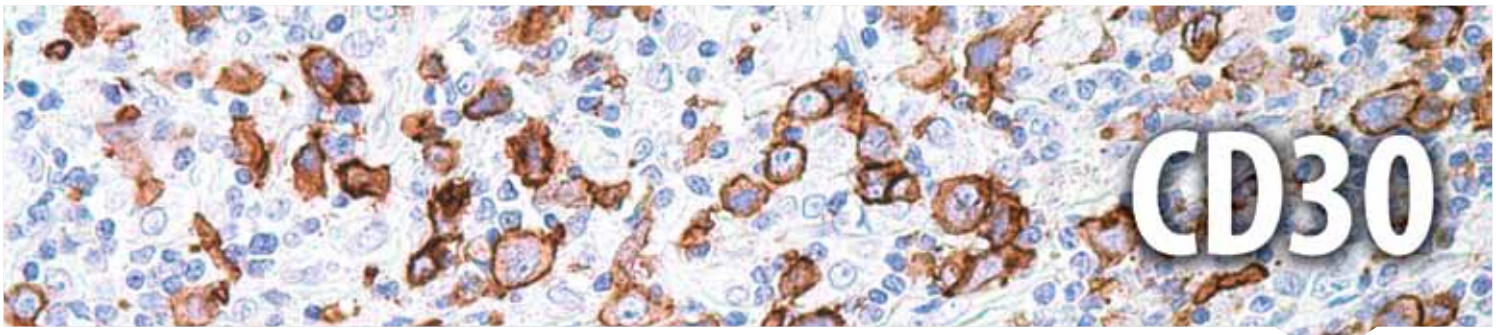

Anti-CD30 detects a formalin-resistant epitope that is expressed by Reed-Sternberg cells in classic Hodgkin lymphoma, the majority of anaplastic large cell lymphomas, primary cutaneous CD30 positive T-cell lymphoproliferative disorders, and in embryonal carcinomas. Occasionally diffuse large B-cell lymphoma stains with this antibody. This antibody also stains plasma cells in paraffin-embedded tissue. However, reactive immunoblasts are immunoreactive with this antibody. The staining pattern of anti-CD30 in lymphoma or embryonal carcinoma is different, with the former being membranous and exhibiting Golgi zone accentuation in location, and the latter being membranous only.

Hodgkin vs. Non-Hodgkin Lymphomas										
	CD30	CD79a	CD15	Fascin	Granzyme B	BCL6	PU.1	MUM1	ALK-1	EMA
Hodgkin Lymphoma, Classic	+	-	+	+	-	-	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-	+	-	-	-	+	+	-/+	-	+
T-cell Rich LBCL	-	+	-	-	-	+	-	+	-	-
Anaplastic Large Cell Lymphoma	+	-	-	-	+	+/-	-	-	+	+

Germ Cell Tumors										
	CD30	Oct-4	AFP	Vimentin	EMA	Inhibin	hPL	Glypican-3	CD117	PLAP
Seminoma	-	+	-	+	-	-	-	-	+	+
Embryonal Carcinoma	+	+	-	-	-	-	-	-	-	+
Choriocarcinoma	-	-	-	-/+	+	-	+	+	-	+
Yolk Sac Tumor	-	-	+	-	-	-	-	+	-	+
Granulosa Cell Tumor	-	-	-	+	-	+	-	-	-	-
Hypercalcaemic Small Cell Carcinoma	-	-	-	-	+	-	-	-	-	-

Reactivity Paraffin

Visualization Membranous

Control Classic Hodgkin Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Schwarting R, et al. Blood 1989;74:1678-1689
2. Fonatsch C, et al. Genomics 1992;14:825-826
3. Piris J, et al. Histopathology 1990;17:211-218

Mouse Monoclonal Clone: Ber-H2

0.1 ml, concentrate..... 130M-94
0.5 ml, concentrate..... 130M-95
1 ml, concentrate 130M-96
1 ml, prediluted 130M-97
7 ml, prediluted 130M-98
Positive control slides 130S

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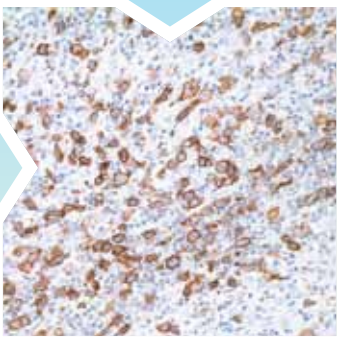

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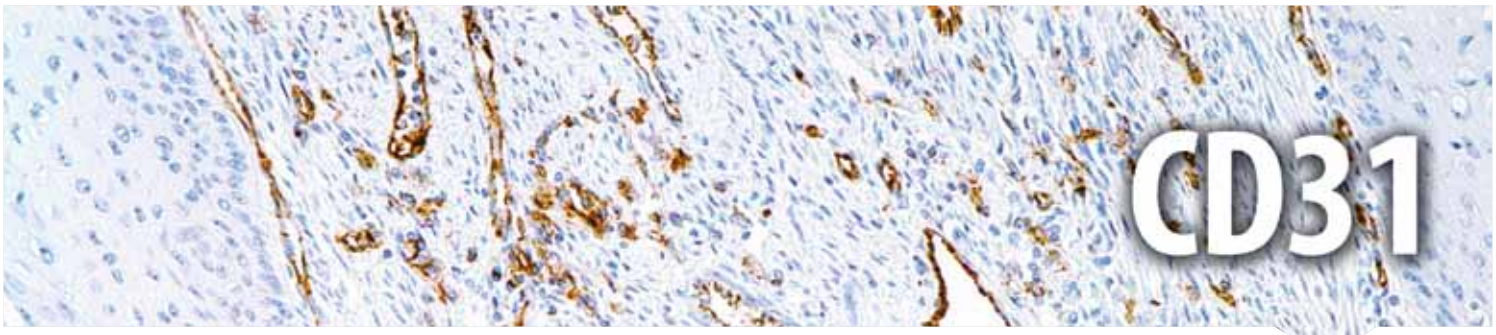

CD31 is expressed by stem cells of the hematopoietic system and is primarily used to identify and concentrate these cells for experimental studies as well as for bone marrow transplantation. Endothelial cells also express this marker, therefore, antibodies to CD31 have been used as a tool to identify the vascular origin of neoplasms. Anti-CD31 has shown to be highly specific and sensitive for vascular endothelial cells. Staining of nonvascular tumors (excluding hematopoietic neoplasms) has not been observed with this antibody.

Skin: Spindle Cell Tumors										
	CD31	FLI-1	Factor VIII	HHV-8	SM Actin	MS Actin	Collagen IV	D2-40	NGFR	CD10
Squamous Cell Carcinoma	-	-	-	-	-	-	-	+	-	-
Spindle Cell Melanoma	-	+	-	-	-	-	-	+	+	-
Atypical Fibroxanthomas	-	-	-	-	+	+	-	-	-	+
DF-SP	-	-	-	-	-	-	-	-	+	+/-
DF-FH	-	-	-	-	-	-	-	-	-	+
Peripheral Nerve Sheath	-	-	-	-	-	+	-	+	-	-
Smooth Muscle	-	-	-	-	+	+	-	-	-	-
Angiosarcoma	+	+	+	-	-	-	+/-	+/-	-	-
Glomus Tumor	-	-	-	-	+	+	+	-	-	-
Hemangiopericytoma	-	+	-	-	-	-	-	-	-	-
Hemangioma	+	+	+	-	+	-	+	-	-	-
Kaposiform Hemangioendothelioma	+	+	-	-	-	-	-	-	-	-
Kaposi's Sarcoma	+/-	+	+	+	+	-	+/-	+	-	-

Renal Cell Carcinoma vs. Hemangioblastoma					
	CD31	D2-40	FLI-1	CK Cocktail	CD10
Metastatic RCC	-	-	-	+	+
Hemangioblastoma	+	+	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Parums DV, et al. J Clin Path 1990;43:752-757
2. De Young BR, et al. Ap Immuno 1993;1:97-100
3. Alles JU, et al. J Histo Cyto 1986;34:209-214

Mouse Monoclonal Clone: JC70

0.1 ml, concentrate.....131M-94
0.5 ml, concentrate.....131M-95
1 ml, concentrate 131M-96
1 ml, prediluted 131M-97
7 ml, prediluted 131M-98
Positive control slides 131S

Mouse Monoclonal Clone: JC70

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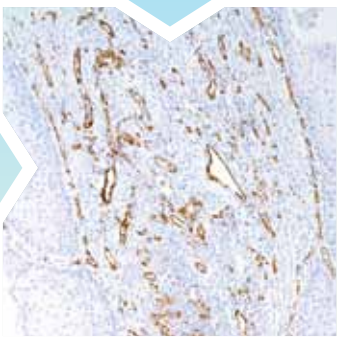

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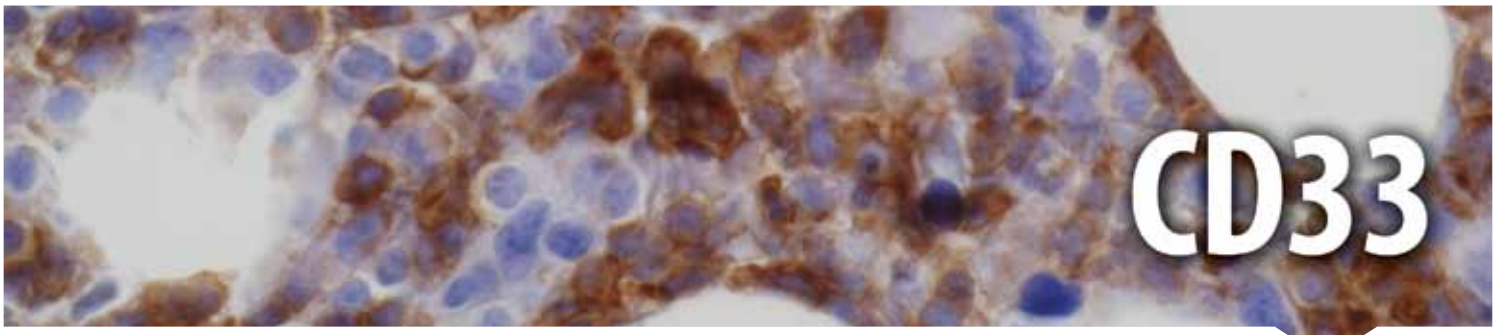

CD33 (gp67, or siglec-3) is a 67 kDa glycosylated transmembrane protein that is a member of the sialic acid–binding immunoglobulin-like lectin (siglec) family. The genomic locus of this protein has been mapped to chromosome 19q13.1-3.5. In maturing granulocytic cells, there is progressive down-regulation of CD33 from the blast stage to mature neutrophils. However, in monocytes and macrophages/histiocytes, strong expression of CD33 is maintained throughout maturation. Therefore, the positive control tissue should be bone marrow myeloid cells (especially myeloid precursors), liver Kupffer cells, lung alveolar macrophages, or placental syncytiotrophoblasts. Detection of CD33 using monoclonal antibodies has been a critical component in immunophenotyping acute leukemias, particularly acute myeloid leukemias. This anti-CD33 may be particularly advantageous for cases of acute myeloid leukemia, minimally differentiated (AML-M0) and acute monocytic leukemia (AML-M5), in which other paraffin section markers of myeloid differentiation (such as anti-myeloperoxidase) may be negative. However, anti-CD33 staining cannot be used in isolation and must be correlated with other myeloid and lymphoid markers because cases of myeloid antigen–positive acute lymphoblastic leukemia may show bona fide CD33 expression.

Neoplasms						
	CD33	CD34	CD117	CD71	CD163	MPO
AML with Minimal Differentiation	+	+	+	-	-	-/+
AML without Differentiation	+	+	+	-	-	-/+
AML with Maturation	+	+	+	-	-	+
APL	+	-	+	-	-	+
Acute Myelomonocytic Leukemia	+	+/-	+/-	-	+	+/-
Acute Monoblastic and Monocytic Leukemia	+	+/-	+/-	-	+	-/+
Acute Erythroid Leukemia	+	-	+/-	+	-	-
Acute Megakaryoblastic Leukemia	+/-	-	-	-	-	-
B-lymphoblastic Leukemia/ Lymphoma	-/+	+/-	-	-	-	-
T-lymphoblastic Leukemia/ Lymphoma	+/-	+/-	-	-	-	-

Reactivity Paraffin

Visualization Membranous

Control Acute Myeloid Leukemia with Monocytic Differentiation, Placenta

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Crocker, PR et al. Biochem Soc Symp 2002; 69:83-96.
2. Braylan, RC et al. Cytometry 2001; 46:23-27.

Mouse Monoclonal Clone: PWS44

0.1 ml, concentrate..... 133M-14
0.5 ml, concentrate..... 133M-15
1 ml, concentrate 133M-16
1 ml, prediluted 133M-17
7 ml, prediluted 133M-18

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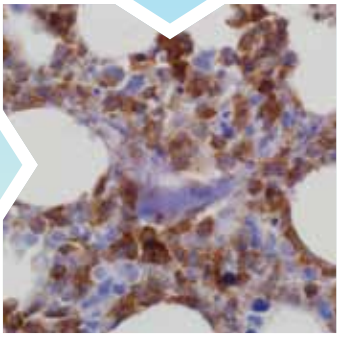

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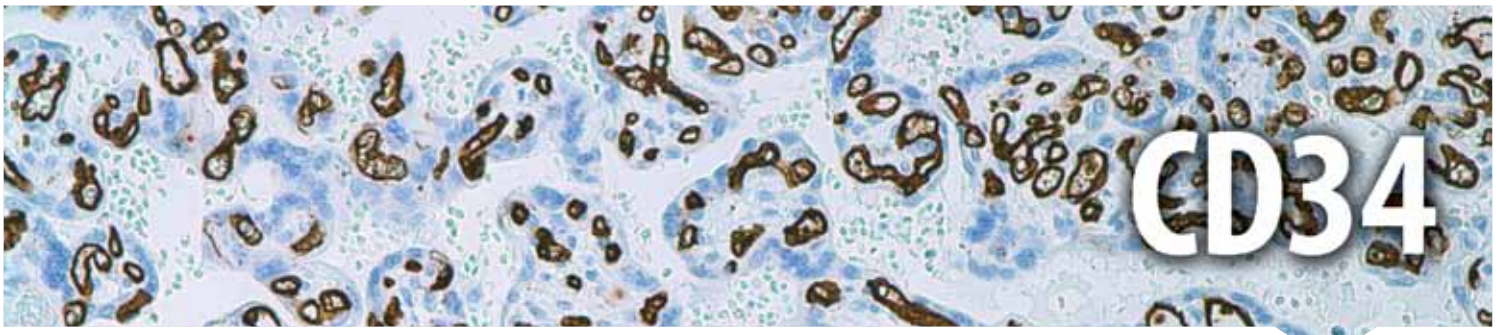

Anti-CD34 recognizes a cell surface antigen of approximately 110 kD that is expressed selectively on human hematopoietic progenitor cells, including myeloid and lymphoid lineage progenitors. It is a marker of choice for identifying and counting the blasts in acute myeloid leukemia. In addition, this marker is expressed by soft tissue tumors, such as solitary fibrous tumor and gastrointestinal stromal tumor. CD34 expression is also found in vascular endothelium. Additionally, it appears that proliferating endothelial cells express this molecule in greater amounts than non-proliferating endothelial cells. Anti-CD34 labels > 85% of angiosarcoma and Kaposi's sarcoma, but shows low specificity.

Soft Tissue Sarcoma									
	CD34	CK Cocktail	EMA	MS Actin	TLE-1	S-100	CD99	CD56	Calretinin
Epithelioid Sarcoma	+	+	+	-/+	-	-	-	-	-
Myxoid Chondrosarcoma	-/+	-	-	-	-	+/-		-	+
Synovial Sarcoma	-	+	+	-	+	-	+/-	+	+/-

Skin: Spindle Cell Tumors										
	CD34	FLI-1	GLUT1	BG8	Factor VIII	HHV-8	CK 8 & 18	NGFR	Collagen IV	CD99
DFSP	+	-	-	-	-	-	-	+	-	-
Angiosarcoma	+	+	-	-	+	-	-	-	+/-	-
Hemangiopericytoma	+	+	-	-	-	-	-	-	-	+/-
Hemangioma	+	+	+	+	+	-	-	-	+	-
Kaposiform Hemangioendothelioma	+	+	-	-	-	-	+	-	-	-
Kaposi's Sarcoma	+	+	-	-	+	+	-	-	+/-	-

Epithelioid Cell Neoplasms										
	CD34	INI-1	EMA	FLI-1	Desmin	GLUT1	Claudin 1	MS Actin	SM Actin	CD56
Epithelioid Sarcoma	+	+	+	-	+	+	+	+	-	-
Epithelioid Angiosarcoma	+	+	-	+	-					
GIST	+	-	-	-	-	-		-	-	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil, Placenta

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Civin CL, et al. London Academic Press 1989:818-825
2. Fina L, et al. Blood 1990;75:2417-2426
3. Sankey EA et al. J Pathol 1990;43:752-757

Mouse Monoclonal Clone: QBEnd/10

0.1 ml, concentrate.....134M-14
0.5 ml, concentrate.....134M-15
1 ml, concentrate 134M-16
1 ml, prediluted 134M-17
7 ml, prediluted 134M-18
Positive control slides 134S

Mouse Monoclonal Clone: QBEnd/10

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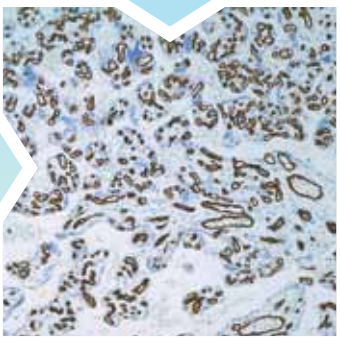

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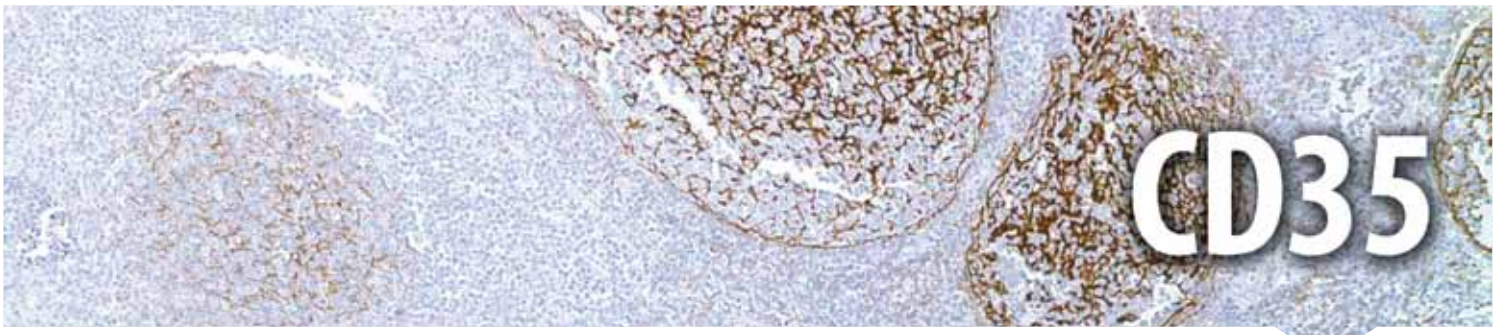

CD35, complement receptor 1, is a cell membrane-bound, monomeric glycoprotein on numerous cell types including erythrocytes, leukocytes, glomerular podocytes, and follicular dendritic cells. The primary function of CD35 is to serve as the cellular receptor for C3b and C4b, the most important components of the complement system leading to clearance of foreign macromolecules. The Knops blood group system is a system of antigens located on this protein. The protein mediates cellular binding to particles and immune complexes that have activated complement.

Follicular dendritic cells (FDC) are restricted to the B-cell regions of secondary lymphoid follicles. They are CD21+/CD35+/CD1a-. Anti-CD35 labels follicular dendritic cells and follicular dendritic cell sarcoma.

Lymph Node					
	CD21/CD35	CD68	S-100	CD1a	Lysozyme
Reactive Histiocytosis	-	+	-	-	+
Langerhans Histiocytosis	-	+	+	+	+
Sinus Histiocytosis with Massive Lymphadenopathy	-	+	+	-	+
Follicular Dendritic Cell Sarcoma	+	-	-	+/-	-
Dermatopathic Lymphadenitis	-	-	+	+	+

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dillon KM, et al. J Clin Pathol. 2002 Oct;55(10):791-4
2. Pileri SA, et al. Histopathology. 2002, 41;1-29
3. Kunihiko Maeda, et al. J Histochem Cytochem 50:1475-1485, 2002

Mouse Monoclonal
Clone: RLB25

0.1 ml, concentrate..... 135M-14
0.5 ml, concentrate..... 135M-15
1 ml, concentrate 135M-16
1 ml, prediluted 135M-17
7 ml, prediluted 135M-18
Positive control slides 135S

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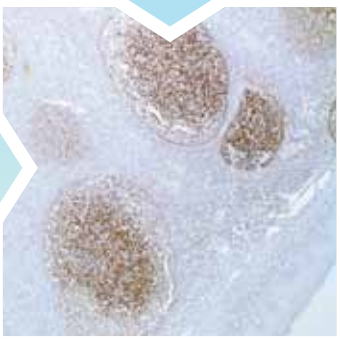

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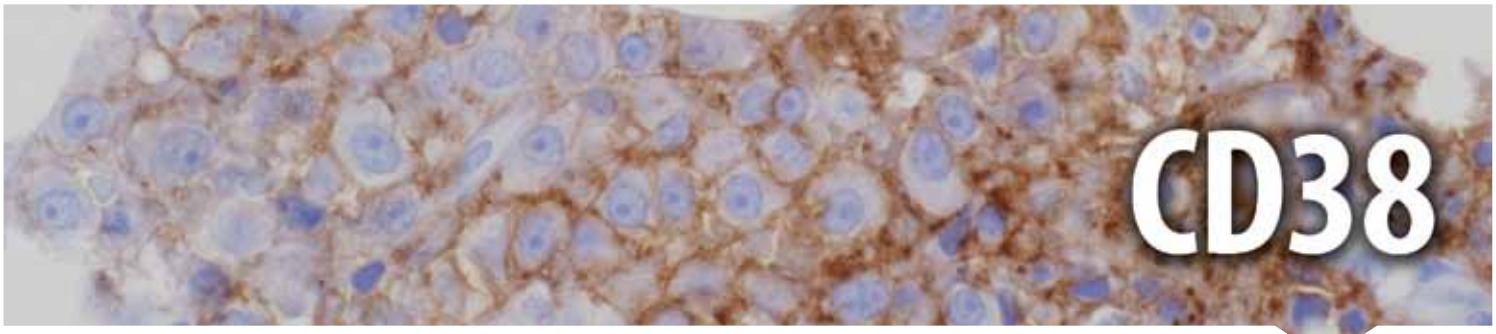

Anti-CD38 is a very useful immunostaining marker, when combined with antibodies against CD138, MUM1, and EMA in a panel, for the diagnosis of immunodeficiency-related lymphomas, which usually include plasmablastic lymphoma, primary effusion lymphoma, and large B-cell lymphoma arising in HHV8-associated multicentric Castleman disease. Such immunodeficiency-related lymphomas are either pan-B-cell-marker negative or only weakly positive. Furthermore, IHC detection of plasma cells by anti-CD38 immunohistochemical staining on a bone marrow trephine biopsy is necessary to obtain the accurate counts of malignant plasma cells needed to make a definitive diagnosis given that malignant plasma cell counts are difficult to obtain due to sub-optimal bone marrow aspiration, frequent focal distribution of myeloma cells in bone marrow, and loss of neoplastic plasma cells when manual processing is being performed. Recent studies have demonstrated that anti-CD38, combined with anti-CD44 (negative) and/or anti-TCL1 (positive), is useful in identifying the cases of large B-cell lymphoma with cMYC gene rearrangement (respective sensitivity of 82% and 77%; respective specificity of 100% and 100%). Therefore, anti-CD38 is very important in differential diagnosis of anti-CD20-positive, anti-TdT/anti-cyclin D1-negative diffuse large-to-medium-sized B-cell neoplasms, including diffuse large B-cell lymphoma, Burkitt lymphoma, and B-cell lymphoma, unclassifiable, with features intermediate between DLBCL and Burkitt lymphoma.

Lymphoma										
	CD38	CD138	MUM1	CD20	PAX-5	CD45	CD79a	CD30	EMA	HHV-8
Plasmablastic Lymphoma	+	+	+	-	-	-	+	+	+	-
Primary Effusion Lymphoma	+	+	+	-	-	+	-	+	+	+
Large B-cell Lymphoma arising in HHV8-associated Multicentric Castleman Disease	-/+	-		+/-		+	-			+
Extranodal Marginal Zone Lymphoma with Plasmacytoid Differentiation	+	+	+	-	-	+	+			

Lymphoma					
	CD38	CD44	TCL1	CD10	BCL2
Large B-cell Lymphoma with c-MYC Rearrangement	+	-	+	+	-/+
Large B-cell Lymphoma with no c-MYC Rearrangement	-	+	-/+	+/-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Plasma Cell Myeloma, Lymph Node, Bone Marrow

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Martin, F & Kearney, JF. Nat Rev Immunol 2002; 2:323-335.
2. Dono, M et al. J Immunol 2000; 164:5596-5604.

Rabbit Monoclonal Clone: SP149

0.1 ml, concentrate.....118R-14
0.5 ml, concentrate.....118R-15
1 ml, concentrate 118R-16
1 ml, prediluted 118R-17
7 ml, prediluted 118R-18
Positive control slides 118S

Rabbit Monoclonal Clone: SP149

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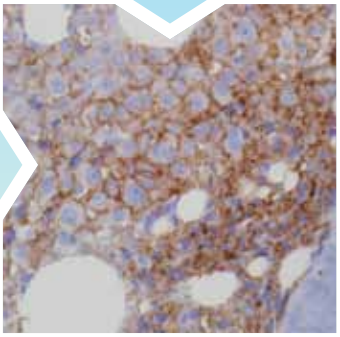

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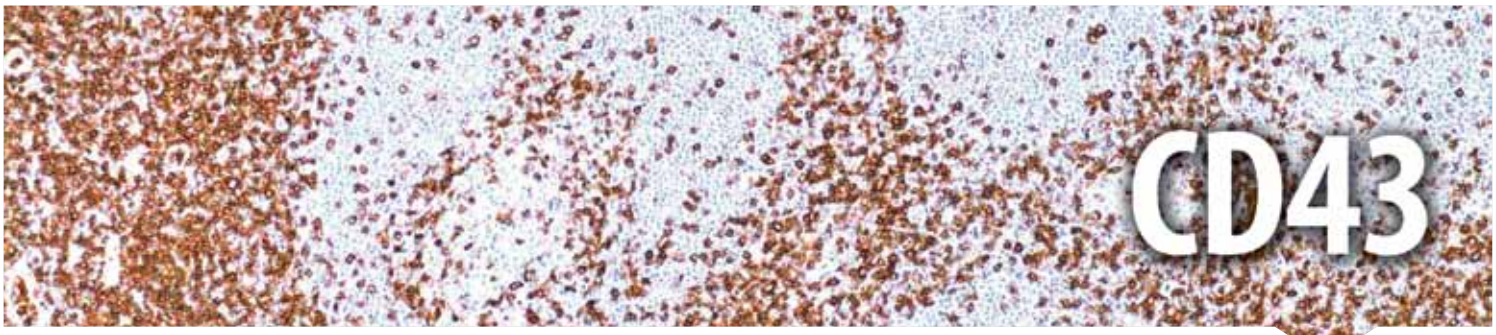

The literature indicates that from 70% to 90% of T-cell lymphomas and from 22% to 37% of B-cell lymphomas express CD43. No reactivity has been observed with reactive B-cells. So a B-lineage population that co-expresses CD43 is highly likely to be a malignant lymphoma, especially a low grade lymphoma, rather than a reactive B-cell population. When anti-CD43 is used in combination with anti-CD20, effective immunophenotyping of the lymphomas in paraffin-embedded tissue sections can be obtained. Co-staining of a lymphoid infiltrate with anti-CD20 and anti-CD43 argues against a reactive process and favors a diagnosis of lymphoma.

Lymphoma					
	CD43	CD20	CD45R	CD45RO	CD3
Mature B-cell	-	+	+	-	-
Mature T-cell	+	-	-	+	+

Acute Myeloid Leukemia										
	CD43	MPO	CD68	Factor VIII	CD61	BOB.1	Oct-2	Glycophorin A	CD71	CD34
Acute Myeloid, M0	+	-	-	-	-	-	-	-	-	+
Acute Myeloid, M1&2	+	+	+	-	-			-	-	+
Promyelocytic, M3	+	+	-	-	-	+	+	-	-	-
Myelomonocytic, M4	+	+	+	-	-	-	+	-	-	+
Monoblastic, M5	+	+	+	-	-	-	+	-	-	-/+
Acute Erythroid, M6		+	-	-	-	-	-	+	+	-/+
Megakaryoblastic, M7		-	-	+	+	+/-	-	-	-	-

Plasma Cells									
	CD43	CD138	CD79a	EMA	MUM1	CD56	Cyclin D1	CD20	CD19
Plasma Cell Neoplasm	-	+	+	+	+	+	-/+	-/+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP55: IgG_1
MT1: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Cabecades JM., et al.,Histopathology 1991;19:419-424.
2. Strickler JG, et al. Hum Pathol 1987; 18:808-814
3. Sheibani K, et al. Hum Pathol 1987; 18:1051-1062

Rabbit Monoclonal Clone: SP55

0.1 ml, concentrate.... 143R-14
0.5 ml, concentrate.... 143R-15
1 ml, concentrate 143R-16
1 ml, prediluted 143R-17
7 ml, prediluted 143R-18
Positive control slides . 143S

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Mouse Monoclonal Clone: MT1

0.1 ml, concentrate.... 143M-14
0.5 ml, concentrate.... 143M-15
1 ml, concentrate 143M-16
1 ml, prediluted 143M-17
7 ml, prediluted 143M-18
Positive control slides . 143S

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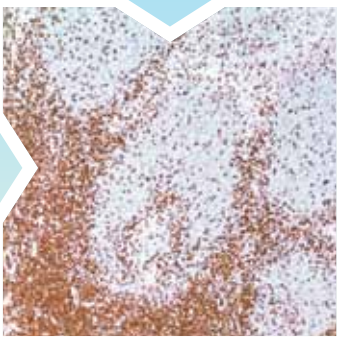

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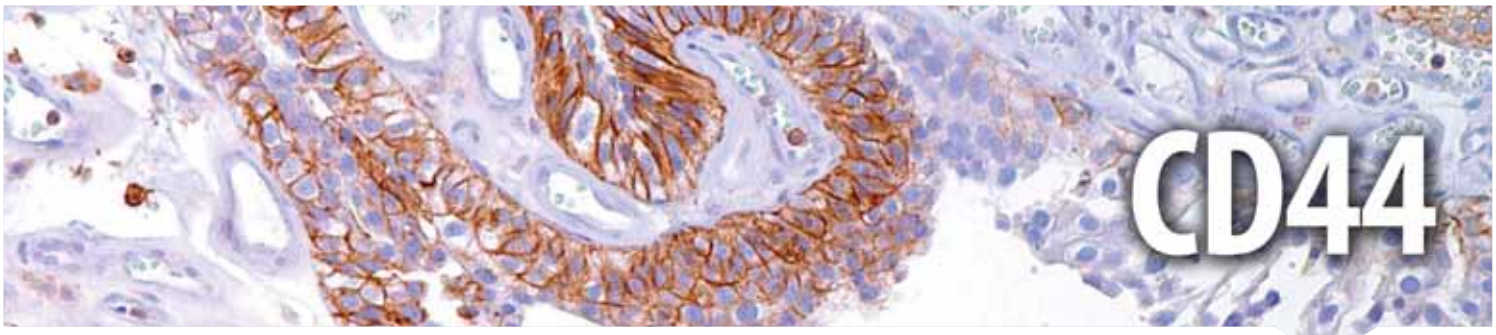

The CD44 family of glycoproteins exists in a number of variant isoforms, the most common being the standard 85-95 kD or hematopoietic variant (CD44s) that is found in mesodermal cells such as hematopoietic, fibroblastic, and glial cells, as well as in some carcinoma cell lines. Higher molecular weight isoforms have been described in epithelial cells (CD44v) and are thought to function in intercellular adhesion and stromal binding. While many human tumors express CD44, a positive correlation between increased CD44v expression and tumor progression and/or dedifferentiation has been demonstrated in only some. Probably the most practical application of anti-CD44 immunostaining at present is the discrimination of urothelial transitional cell carcinoma in-situ from non-neoplastic changes in the urothelium.

Bladder: Dysplasia vs. Reactive				
	CD44	CK 20	p53	Ki-67
Carcinoma in-situ	-	+	+	+
Reactive Atypia	+(all cell layers)	-	-	+
Normal Urothelium	+(umbrella cells)	+(umbrella cells)	-	-

Reactivity Paraffin

Visualization Membranous

Control Benign Urothelium

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Abbasi AM, et al. Anticancer Res. 2003 Nov-Dec;23(6C):4635-9.
3. East JE, Hart IR. European Journal of Cancer 1993;29A:1921-22.
4. Ekici S, et al. Journal of Urology 2002; 167:2037-41.

Mouse Monoclonal
Clone: MRQ-13

0.1 ml, concentrate	144M-94
0.5 ml, concentrate	144M-95
1 ml, concentrate	144M-96
1 ml, prediluted	144M-97
7 ml, prediluted	144M-98
Positive control slides	144S

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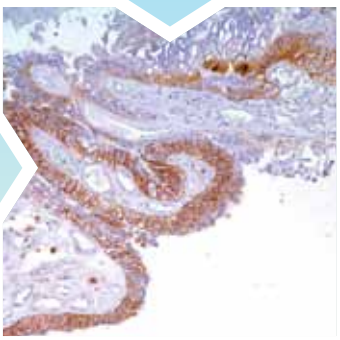

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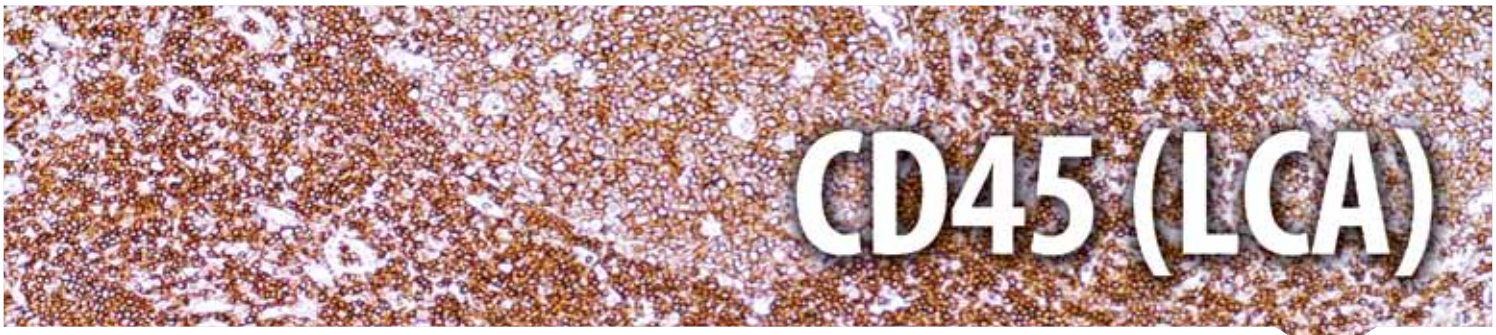

Anti-CD45 (Anti-Leukocyte Common Antigen) is routinely used to aid the differential diagnosis of undifferentiated neoplasms, whenever malignant lymphoma is suspected by the morphological or clinical data. It is a highly specific antibody, therefore a positive result is highly indicative of lymphoid or myeloid origin. Certain types of lymphoid neoplasms may lack CD45 (Hodgkin lymphoma, some T-cell lymphomas, and some leukemias) so its absence does not rule out a hematolymphoid tumor. This antibody is expressed almost exclusively by cells of hematopoietic lineage and is present in most benign and malignant lymphocytes as well as plasma cell precursors.

B-cell Lymphomas										
	CD45	CD20	MUM1	BCL2	BCL6	CD5	CD10	CD23	Cyclin D1	TRAcP
Follicular	+	+	-	+	+	-	+	-	-	-
CLL/SLL	+	+	+	+	-	+	-	+	-	-
Mantle Cell	+	+	- /+	+	-	+	-	-	+	-
Marginal Zone	+	+	+	+	-	-	-	-	-	+/-
Lymphoplasmacytic	+	+	+	+	-	-	-	-	-	-
Diffuse Large Cell	+	+	+	+	+	-/+	- /+	-	-	-
Burkitt	+	+	-	-	+	-	+	-	-	-
Hairy Cell Leukemia	+	+		+	-	-	-	-	+(weak)/-	+

T-cell Lymphomas										
	CD45	CD2	CD3	CD4	CD5	CD7	CD8	CD25	CD45R0	PD-1
Angioimmunoblastic	+	+	+	+	+	+	-	+	+	+
Lymphoblastic	+	+/-	+	+/-	+	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	+	+	+	-	+	+	+/-	-	+	-
NK	+	+	+	-	-	-/+	-	+	+	-
Cutaneous	+	+	+	+	-	+	-	-	-	-/+
Peripheral, NOS	+	+	+	+/-	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	+	+	+	+	+	-	-	+	+	-

Reactivity
Paraffin

Visualization
Membranous

Control
Tonsil

Stability
Up to 36 mo. at 2-8°C

Isotype
IgG_1/k & IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mason DY, Am Pathol 1987;128:1-4
2. Hall PA, Histopathology 1988;13:149-160
3. Kurtin PJ, Hum Path 1985;16:353-365

Mouse Monoclonal
Clone: 2B11 & PD7/26

0.1 ml, concentrate.....145M-94
0.5 ml, concentrate.....145M-95
1 ml, concentrate 145M-96
1 ml, prediluted 145M-97
7 ml, prediluted 145M-98
25 ml, prediluted.....145M-90
Positive control slides 145S

Mouse Monoclonal
Clone: 2B11 & PD7/26

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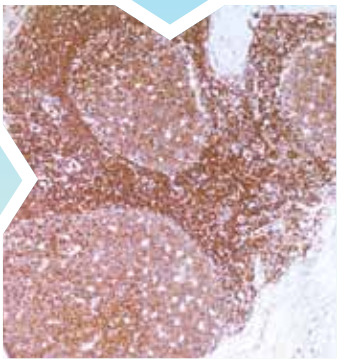

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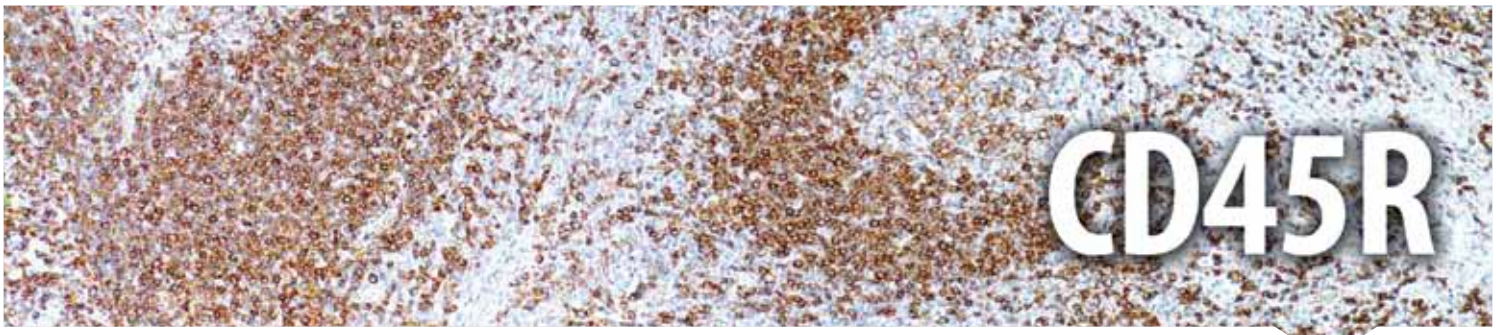

CD45R, also named MB1, is the isoform of CD45, the protein encoded by this gene is a member of the protein tyrosine phosphatase (PTP) family. PTPs are known to be signaling molecules that regulate a variety of cellular processes including cell growth, differentiation, mitotic cycle, and oncogenic transformation. This PTP contains an extracellular domain, a single transmembrane segment, and two tandem intracytoplasmic catalytic domains and thus belongs to receptor type PTP. This gene is specifically expressed in hematopoietic cells and has been shown to be an essential regulator of T- and B-cell antigen receptor signaling. CD45 functions as a phospho-tyrosine phosphatase, a vital component for efficient tyrosine phosphorylation induction by the TCR/CD3 complex. The tyrosine phosphatase activity of CD45 is contained within the conserved intracellular domain. Src and Syk family protein tyrosine kinases are utilized by the TCR/CD3 complex to initiate signaling cascades. Several members of these two families, including Lck, Fyn and Zap70, have been implicated as physiological substrates of CD45.

This antibody exhibits strong and specific reactivity with most B-lymphocytes such as follicle center cells, mantle cells, some medullary thymocytes, post-thymic naïve T-lymphocytes, and 80% of B-cell lymphomas. It is a useful marker for distinguishing B-cell lymphomas from T-cell lymphomas.

Lymphoma					
	CD45R	CD20	CD43	CD45RO	CD3
Mature B-cell	+	+	-	-	-
Mature T-cell	-	-	+	+	+

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hall PA, et al. J. of Clinical Pathology. 40:870-873, (1987)
2. Myskow MW, et al. American J. of Pathology. 90:564-574 (1988)
3. West KP, et al. J. of Pathology. 150:89-101 (1986)

Mouse Monoclonal
Clone: MB1

0.1 ml, concentrate.....146M-14
0.5 ml, concentrate.....146M-15
1 ml, concentrate 146M-16
1 ml, prediluted 146M-17
7 ml, prediluted 146M-18
Positive control slides 146S

Mouse Monoclonal
Clone: MB1

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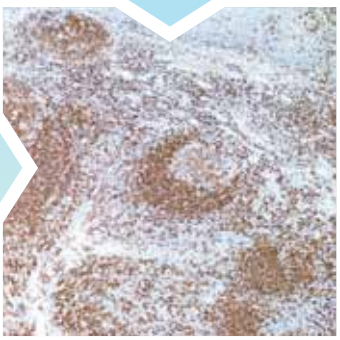

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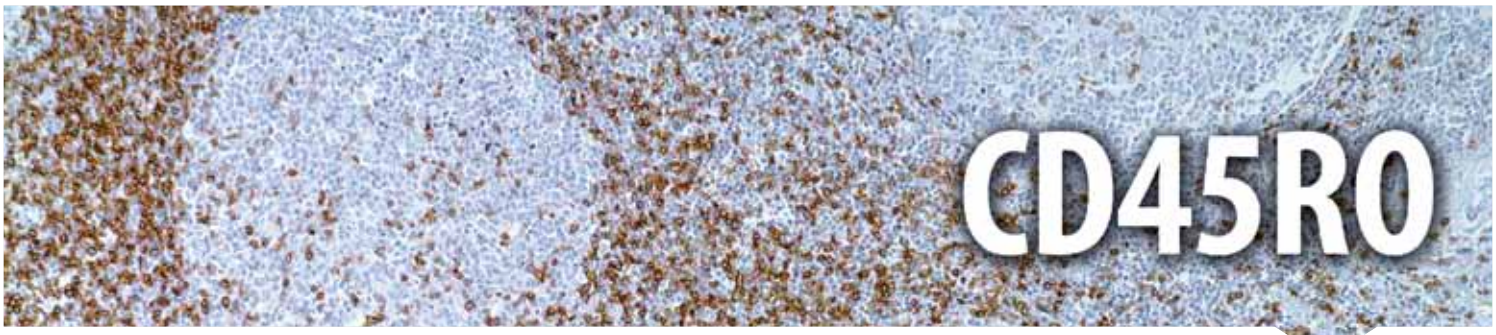

Anti-CD45RO (Pan T-cell) reacts with thymocytes and activated T-cells, but only on a subpopulation of resting T-cells. This antibody shows no reactivity with B-cells making it a good marker for T-cell tumors. In addition, granulocytes and monocytes are also labeled with this antibody. T-cell, Pan has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

Lymphoma					
	CD45RO	CD20	CD45R	CD43	CD3
Mature B-cell	-	+	+	-	-
Mature T-cell	+	-	-	+	+

T-cell Lymphomas										
	CD45RO	CD45	CD2	CD3	CD4	CD5	CD7	CD8	CD25	PD-1
Angioimmunoblastic	+	+	+	+	+	+	+	-	+	+
Lymphoblastic	+	+	+/-	+	+/-	+	+	+/-	+	-
Subcutaneous Panniculitis-Like	+	+	+	+	-	+	+	+/-	-	-
NK	+	+	+	+	-	-	-/+	-	+	-
Cutaneous	-	+	+	+	+	-	+	-	-	-/+
Peripheral, NOS	+	+	+	+	+/-	+/-	+/-	-/+	+	-
Mycosis Fungoides	+	+	+	+	+	+	-	-	+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hall PA, et al. J Clin Path 1987;40:151-156
2. Smith SH, et al. Immunology 1986;58:63-70
3. Cabecadas JM, et al. Histopathology 1991

Mouse Monoclonal
Clone: UCHL-1

0.1 ml, concentrate..... 147M-94
0.5 ml, concentrate..... 147M-95
1 ml, concentrate 147M-96
1 ml, prediluted 147M-97
7 ml, prediluted 147M-98
Positive control slides 147S

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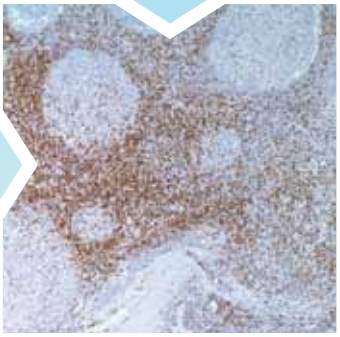

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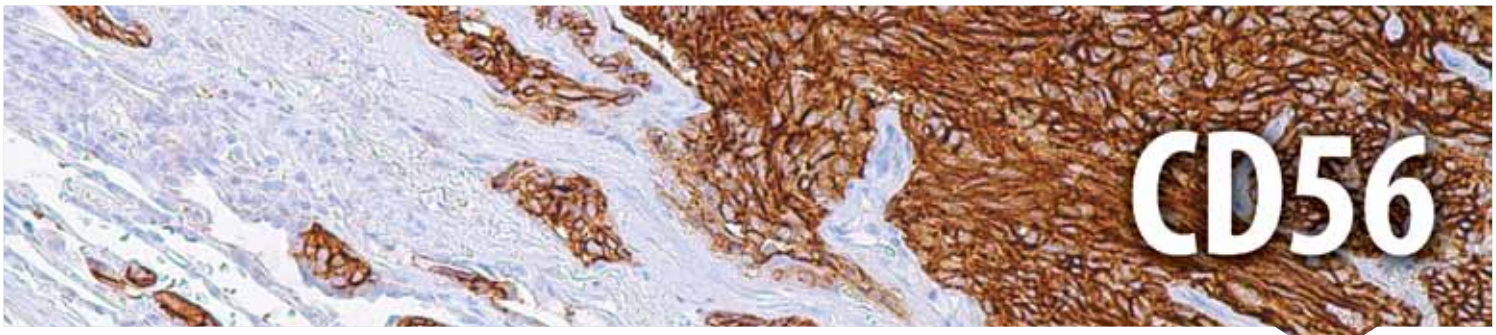

Anti-CD56 recognizes two proteins of the neural cell adhesion molecule, the basic molecule expressed on most neuroectodermally-derived tissues and neoplasms (e.g. retinoblastoma, medulloblastomas, astrocytomas, neuroblastomas, and small cell carcinomas). It is also expressed on some mesodermally-derived tumors (rhabdomyosarcoma). Anti-CD56 plays an important role in the diagnosis of nodal and nasal NK/T-cell lymphomas.

Plasma Cells									
	CD56	CD138	CD79a	EMA	MUM1	Cyclin D1	CD43	CD20	CD19
Plasma Cell Neoplasm	+	+	+	+	+	-/+	-	-/+	-

Pancreatic Tumors										
	CD56	Synapto-physin	Chromo-granin A	Insulin	Glucagon	Gastrin	CD10	CK 19	β-Catenin	PGP 9.5
Neuroendocrine	+	+	+	+/-	+/-	+/-	-	+/-	+	+
Solid Pseudopapillary	+	+	-	-	-	-	+	-	+	-
Pancreatoblastoma	+	-	+	-	-	-	-	-	+	-

Spindle Cell Tumors										
	CD56	ALK-1	PGP 9.5	MS Actin	SM Actin	SM Myosin	CK Cocktail	Calponin	BCL2	Myogenin
Myofibroblastic Tumor	+	+	-	+	+	-	-	+	-	-
Neurofibroma	+	-	+	-	-	-	-	-	+	-
Schwannoma	+	-	-	-	-	-	-	-	+	-
Leiomyosarcoma	+	-	-	+	+	+	-/+	+	-	-

T-cell Lymphomas								
	CD56	CD2	CD4	CD5	CD8	PD-1	Perforin	Granzyme B
Subcutaneous Panniculitis-Like	-	+	-	+	+/-	-	+	+
NK	+	+	-	-	-	-	+	+
Peripheral, NOS	-	+	+/-	+/-	-/+	-	-/+	-/+
Mycosis Fungoides	-	+	+	+	-	-	-	+/-

Reactivity Paraffin

Visualization Membranous

Control Neuroblastoma

Stability Up to 36 mo. at 2-8°C

Isotype MRQ-42: IgG_1
123C3.D5: IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gerardy-Schahn R, et al. International J of Cancer Sup 1994;8:38-42
2. Michalides R, et al. International J of Cancer Sup 1994;8:34-37

Rabbit Monoclonal Clone: MRQ-42

0.1 ml, concentrate.....156R-94
0.5 ml, concentrate.....156R-95
1 ml, concentrate 156R-96
1 ml, prediluted 156R-97
7 ml, prediluted 156R-98
Positive control slides 156S

Rabbit Monoclonal Clone: MRQ-42

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Mouse Monoclonal Clone: 123C3.D5

0.1 ml, concentrate.....156M-84
0.5 ml, concentrate.....156M-85
1 ml, concentrate 156M-86
1 ml, prediluted 156M-87
7 ml, prediluted 156M-88
Positive control slides 156S

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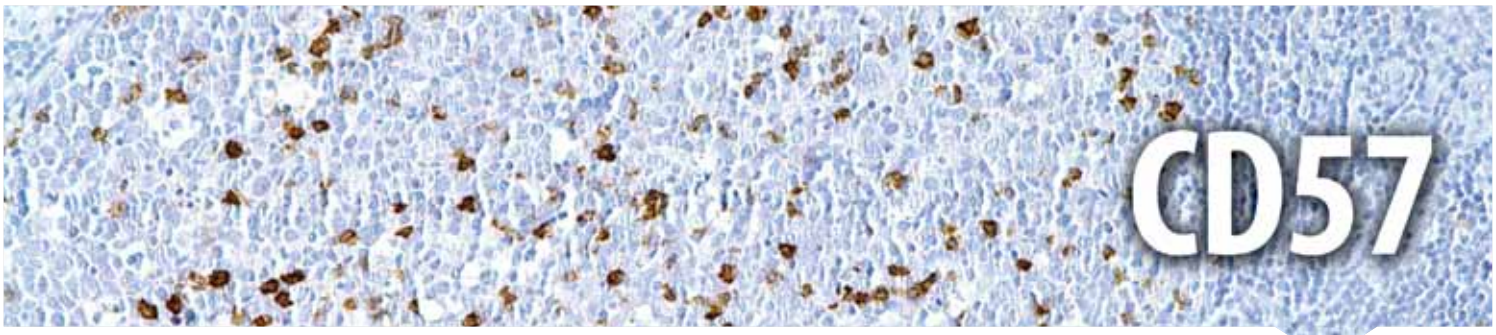

Anti-CD57 (anti-NK-1) marks a subset of lymphocytes known as natural killer (NK) cells. Follicular center cell lymphomas often contain many NK cells within the neoplastic follicles. Anti-CD57 also stains neuroendocrine cells and their derived tumors, including carcinoid tumor and medulloblastoma. Anti-CD57 can also be useful in separating type B3 thymoma from thymic carcinoma when combined with a panel that includes antibodies against GLUT1, CD5, and CEA.

Thymus								
	CD57	CK 5&6	Mesothelin	MOC-31	CEA	CD117	CD5	GLUT1
Thymic Carcinoma	-	+	-	-/+	+	+	+	+
Type B_3 Thymoma	+	-/+	+	+	-	-/+	-	-

Neuroid Skin Lesions				
	CD57	S-100	Myelin BP	GFAP
Neuroma	+	+	+	-
Neurotised Nevi	-	+	-	-
Neurofibroma	+	+	+	-

T-cell Lymphomas										
	CD57	CD2	CD3	CD4	CD5	CD7	CD25	CD45RO	Perforin	Granzyme B
NK-Type	+/-	+	+	-	-	+	+	+	-	+
Peripheral	-	+	+	+	+	-	+	+	-	-

Small, Round Blue Cell Tumors									
	CD57	PGP 9.5	SM Actin	CK Cocktail	CD99	FLI-1	WT1	Vimentin	INI-1
Neuroblastoma	+	+	-	-	-	-	-	+	+
Embryonal Carcinoma	+	+	-	+	-	-	-	-	+
PNET/ES	+	+	-	-/+	+	+	-	+	+
DSRCT	+/-	-	-	+	-	+	+	+	+
Medulloblastoma	+		-	-	-	-		-	+

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgM/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Lanier LL, et al. Journ of Immun 1983;131(4):1789-1796
2. Khowry T, et al. Int J Exp Path 2011;92:87-96.
3. Kojika M. et al. Mod Pathol 2009;22:1341-50.

Mouse Monoclonal Clone: NK-1

0.1 ml, concentrate.....157M-94
0.5 ml, concentrate.....157M-95
1 ml, concentrate 157M-96
1 ml, prediluted 157M-97
7 ml, prediluted 157M-98
Positive control slides 157S

Mouse Monoclonal Clone: NK-1

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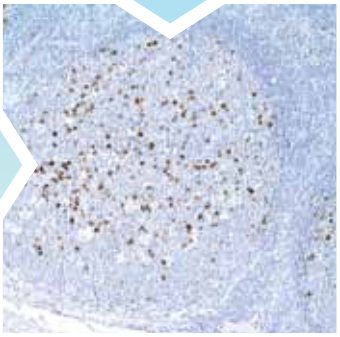

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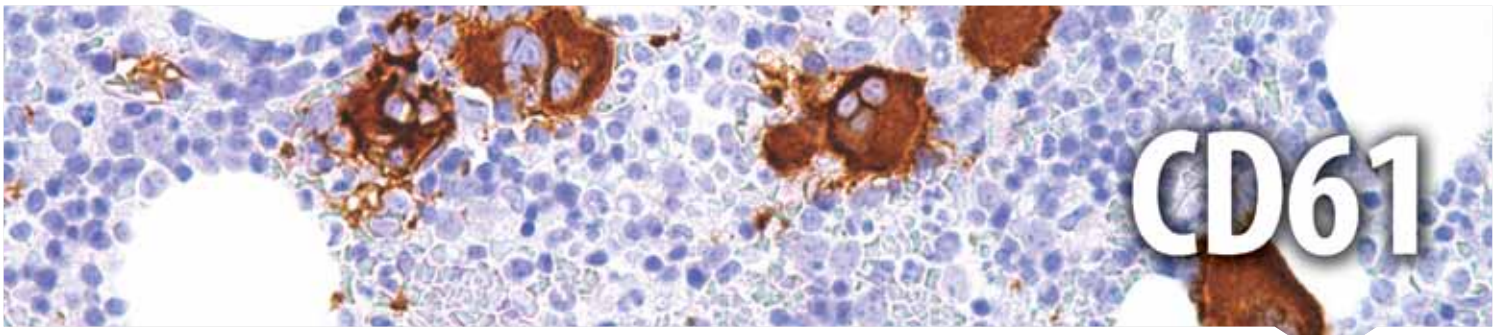

CD61 is the human integrin beta chain beta 3 protein (ITGB3). Integrins are integral cell-surface proteins composed of an alpha chain and a beta chain. A given chain may combine with multiple partners resulting in different integrins. Integrin beta 3 is found along with the alpha IIb chain in platelets. Integrins are known to participate in cell adhesion as well as cell-surface mediated signaling. The integrin beta 3 chain of the vitronectin receptor and GPIIb/IIIa complex is a 90-110 kDa glycoprotein polypeptide which is expressed on platelets, megakaryocytes, macrophages, osteoclasts, and synovial lining cells. Integrin alpha-IIb/beta-3 recognizes the sequence H-H-L-G-G-G-A-K-Q-A-G-D-V in fibrinogen gamma chain. Following activation, integrin alpha-IIb/beta-3 brings about platelet/platelet interaction through binding of soluble fibrinogen. This step leads to rapid platelet aggregation which physically plugs ruptured endothelial surface. In case of HIV-1 infection, the interaction with extracellular viral Tat protein seems to enhance angiogenesis in Kaposi's sarcoma lesions.

This antibody is useful in evaluating the number of megakaryocytes, size, nuclear lobation, and the presence of obviously abnormal forms and micromegakaryocytes in myelodysplastic syndrome, acute myeloid leukemia with multilineage dysplasia, acute megakaryoblastic leukemia, and myeloproliferative neoplasms.

Acute Myeloid Leukemia										
	CD61	MPO	CD68	Factor VIII	Lysozyme	BOB.1	Oct-2	Glycophorin A	CD34	CD138
Acute Myeloid, M0	-	-	-	-	+	-	-	-	+	+
Acute Myeloid, M1&2	-	+	+	-	+			-	+	+
Promyelocytic, M3	-	+	-	-	-	+	+	-	-	
Myelomonocytic, M4	-	+	+	-	+	-	+	-	+	
Monoblastic, M5	-	+	+	-	+	-	+	-	-/+	
Acute Erythroid, M6	-	+	-	-		-	-	+	-/+	+
Megakaryoblastic, M7	+	-	-	+		+/-	-	-	-	-

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Bone Marrow

Stability
Up to 36 mo. at 2-8°C

Isotype
IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Thiele J, et al. Eur J Haematol 1990: 44:63-70
2. Thiele J, et al. Virchows Archiv B Cell Pathol (1990) 58:295-302
3. Goldman BI, et al. Modern Pathology 14:589-594 (2001)

Mouse Monoclonal Clone: 2f2

0.1 ml, concentrate.....161M-14
0.5 ml, concentrate.....161M-15
1 ml, concentrate 161M-16
1 ml, prediluted 161M-17
7 ml, prediluted 161M-18
Positive control slides 161S

Mouse Monoclonal Clone: 2f2

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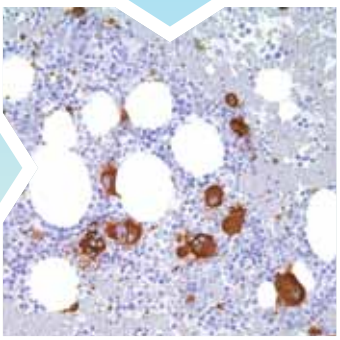

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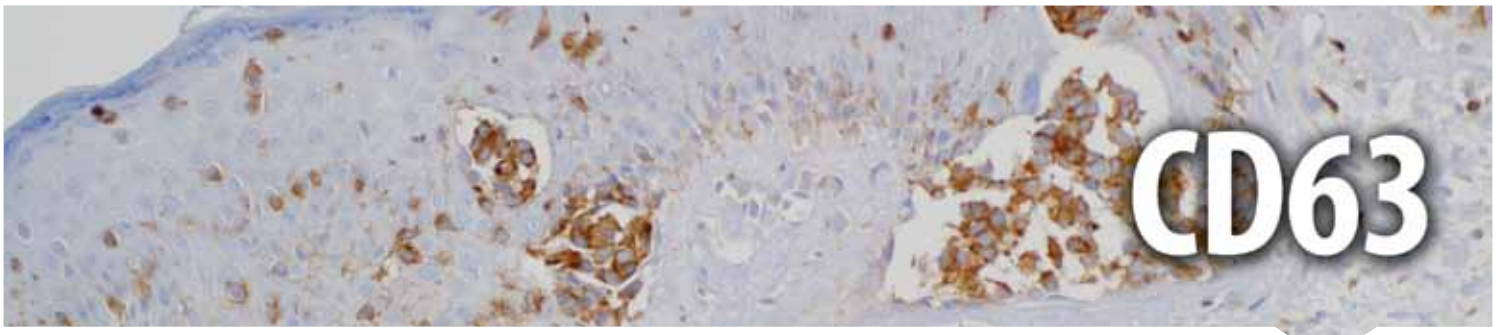

This antibody reacts with a 53 kDa protein which forms a part of the family of tetraspan moieties. The antigen was originally designated as a lysosomal membrane protein characterized as an activation dependent platelet surface antigen. In fact the CD63 antigen has a diverse distribution on the surface and in the cytoplasm of many cell types including lymphoid, myeloid, endothelial cells, and melanoma. It has been quite useful in identifying malignant melanoma. It has also been reported as useful in differentiating renal oncocytoma (apical and/or polar staining pattern) from eosinophilic renal cell carcinoma (diffuse cytoplasmic staining pattern). CD63 is well expressed in tissue mast cells in the lung, skin, and bone marrow. It can be overexpressed on the surface of neoplastic mast cells in aggressive systemic mastocytosis although it is less expressed in indolent systemic mastocytosis.

Normal melanocytes, benign and malignant melanotic lesions

	CD63	S-100	SOX10	HMB-45	MART-1	Tyrosinase	MiTF	Factor XIIIa
Adult Melanocytes	+	+	+	-	+	+	+	-
Junctional Nevus	-	+	+	+	+	+	+	-
Interdermal Nevus	-	+	+	-	+	+	+	-
Primary Melanoma	+	+	+	+	+	+	+	-
Metastatic Melanoma	+	+	+	+	+	+	+	-
Spindle Cell Melanoma	+	+	+	+	+	+	+	-
Angiomyolipoma	+	+	+	+	+	-	+	-
Adrenal Cortical	-	+		-	+	-	-	-
Intranodal Nevus Cells	-	+	+	-	+	+	+	-
Dermatofibroma	-	-	-	-	-	-	-	+

PEComa

	CD63	HMB-45	MART-1	S-100	Tyrosinase	SM Actin	Calponin	Caldesmon	Desmin	CD68
Angiomyolipoma	+	+	+	-	-	+	+	+	-	+
Lymphangiomyomatosis	+	+	+	-	-	+	+	+	-	-
Extrapulmonary Clear Cell Tumor	+	+	+	+	-	+	-	-	-	-
Primary Cutaneous PEComa	+	+	+	-	-	-	-	-	-	+/-
Pulmonary Clear Cell Sugar Tumor	+	+	+	+/-	-	-	-	-	-	+/-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Barrio MM, et al. Hybridoma. 1998 Aug;17(4):355-64.
2. Mete O, et al. Virchows Arch. 2005 Dec;447(6):938-46. Epub 2005 Aug 17.
3. Valent P et al. Best Pract Res Clin Haematol. 2010;23:369-78.

Mouse Monoclonal Clone: NKI/C3

0.1 ml, concentrate.....263M-14
0.5 ml, concentrate.....263M-15
1 ml, concentrate 263M-16
1 ml, prediluted 263M-17
7 ml, prediluted 263M-18
Positive control slides 263S

Mouse Monoclonal Clone: NKI/C3

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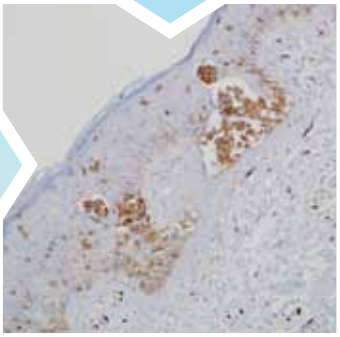

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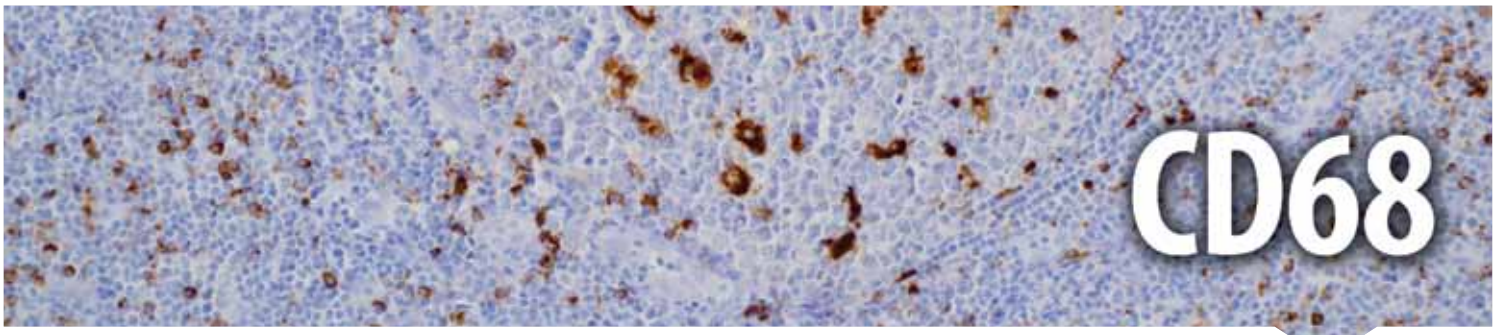

Anti-CD68 marks cells of monocyte/macrophage lineage. This antibody is capable of staining monocytes, Kupffer cells, osteoclasts, granulocytes and their precursors; lymphomas are negative or show few granules. This antibody may be useful for the identification of myelomonocytic and histiocytic tumors. Since this detects a formalin-resistant epitope that may be associated with lysosomal granules, other lysosome-rich cells may also stain.

Acute Myeloid Leukemia										
	CD68	MPO	Factor VIII	CD61	Lysozyme	BOB.1	Oct-2	Glycophorin A	CD34	CD138
Acute Myeloid, M0	-	-	-	-	+	-	-	-	+	+
Acute Myeloid, M1&2	+	+	-	-	+			-	+	+
Promyelocytic, M3	-	+	-	-	-	+	+	-	-	
Myelomonocytic, M4	+	+	-	-	+	-	+	-	+	
Monoblastic, M5	+	+	-	-	+	-	+	-	-/+	
Acute Erythroid, M6	-	+	-	-		-	-	+	-/+	+
Megakaryoblastic, M7	-	-	+	+		+/-	-	-	-	-

Lymph Node						
	CD68	S-100	CD1a	Lysozyme	CD21/CD35	PD-1
Reactive Histiocytosis	+	-	-	+	-	-
Langerhans Histiocytosis	+	+	+	+	-	-
Sinus Histiocytosis with Massive Lymphadenopathy	+	+	-	+	-	-
Follicular Dendritic Cell Sarcoma	-	-	+/-	-	+	-
Dermatopathic Lymphadenitis	-	+	+	+	-	-

Histiocytic Lesions								
	CD68	CD45	CD4	Lysozyme	CD163	Factor XIIIa	CD20	CD3
Histiocytic Lesions	+	+	+	+	+	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Facchetti F, et al. Histopathology 1991:19:141-5
2. Ruco LP, et al. Am J Clin Pathol 1989;92:273-9
3. Cordell JL, et al. Oxford-New York-Tokyo: Oxford Univ. press, 1995:925-927

Mouse Monoclonal Clone: Kp-1

0.1 ml, concentrate..... 168M-94
0.5 ml, concentrate..... 168M-95
1 ml, concentrate 168M-96
1 ml, prediluted 168M-97
7 ml, prediluted 168M-98
Positive control slides 168S

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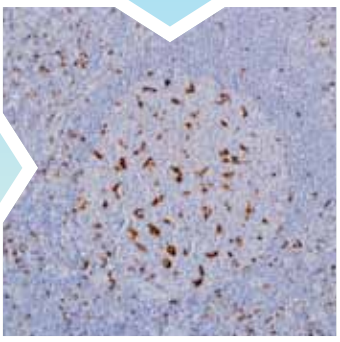

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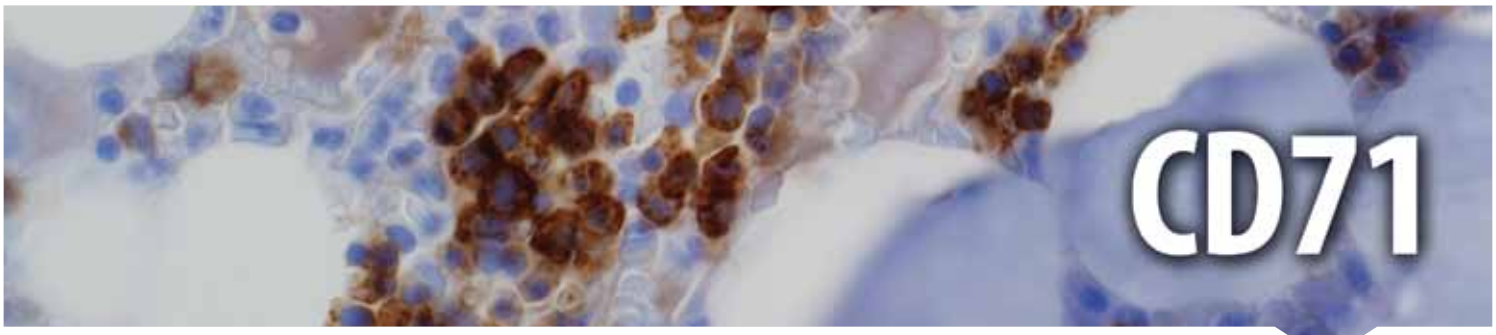

The transferrin receptor (CD71) is most highly expressed on placental syncytiotrophoblasts, myocytes, basal keratinocytes, hepatocytes, endocrine pancreas, spermatocytes, and erythroid precursors. The level of transferrin receptor expression is highest in early erythroid precursors through the intermediate normoblast phase, after which expression decreases through the reticulocyte phase. The maturation of erythrocytes results in loss of transferrin receptor expression, in concert with down-regulation of the machinery for hemoglobin synthesis. The high level of transferrin receptor within erythroid precursors makes anti-CD71 an excellent marker for evaluation of erythroid precursors within bone marrow biopsy specimens and shows the following features: 1) distinct membranous and cytoplasmic staining pattern, which is easily recognized in bone marrow biopsy; 2) restriction to erythroid lineage within bone marrow biopsy specimens; 3) CD71 expression decreases with the maturation of erythrocytes, with the highest level seen in early forms and the lowest level in late normoblast stage, and most importantly; 4) mature erythrocytes do not express CD71, which facilitates bone marrow analyses. Anti-CD71 is useful in identifying erythroid precursors with very little interference from mature erythrocytes and also in the determination of erythroid leukemia, benign erythroid proliferative disorders, and myelodysplastic syndrome, although further studies are needed for making a definitive diagnosis of myelodysplastic syndrome.

Erythroid				
	CD71	Glycophorin A	Hemoglobin A	Spectrin
Erythroid Hyperplasia	+	+	+	+
Erythroid Hypoplasia	+	+	+	+
Acute Erythroid Leukemia	+	+	+	+
Extramedullary Hematopoiesis	+	+	+	+
Mature Erythrocytes	-	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Bone Marrow

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dong, HY. Am J Surg Pathol. 2011;35:723-732.
2. Sieff, C et al. Blood. 1982; 60:703-713.
3. Lesley, J et al. Cell Immunol.1984; 83:14-25.

Mouse Monoclonal Clone: MRQ-48

0.1 ml, concentrate.....171M-94
0.5 ml, concentrate.....171M-95
1 ml, concentrate 171M-96
1 ml, prediluted 171M-97
7 ml, prediluted 171M-98
Positive control slides 171S

Mouse Monoclonal Clone: MRQ-48

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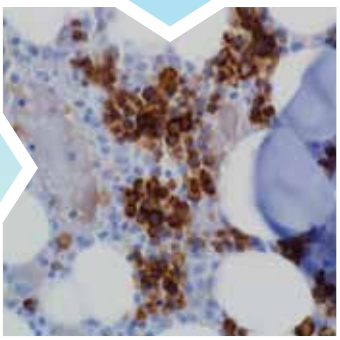

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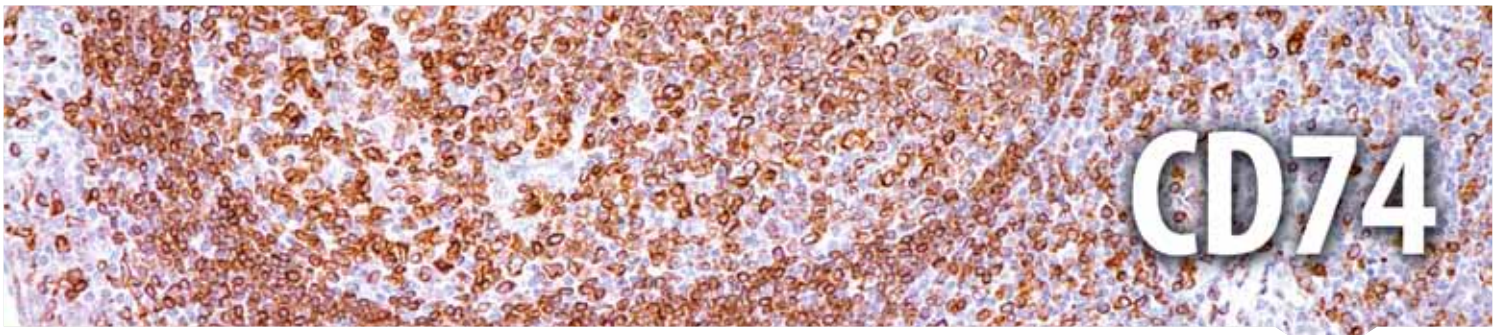

CD74, also known as the MHC class II associated invariant chain (II), is a type II transmembrane protein which binds to the peptide binding groove of newly synthesized MHC class II alpha/beta heterodimers and prevents their premature association with endogenous polypeptides. CD74 is produced in molar excess over MHC class II and some of this is expressed by an unknown pathway on the cell surface independent of or in association with MHC class II molecules. The half life of CD74 on the cell surface is only 3 to 4 minutes after which it is internalized. 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, and many epithelial cells. CD74 may exist in different isoforms ranging in size from 33 to 41 kDa, depending on genetic splicing.

Anti-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. It is a useful addition to the lymphoma phenotyping panel when B5 or alcohol fixed tissue is used. Anti-CD74 has been shown to be useful in differentiating atypical fibroxanthoma (-) from malignant fibrous histiocytoma (+).

Acute Myeloid Leukemia										
	CD74	MPO	CD68	Factor VIII	CD61	BOB.1	Oct-2	Glycophorin A	Spectrin	CD34
Acute Myeloid, M0	+	-	-	-	-	-	-	-	-	+
Acute Myeloid, M1&2	+	+	+	-	-			-	-	+
Promyelocytic, M3		+	-	-	-	+	+	-	-	-
Myelomonocytic, M4	+	+	+	-	-	-	+	-	-	+
Monoblastic, M5	+	+	+	-	-	-	+	-	-	-/+
Acute Erythroid, M6		+	-	-	-	-	-	+	+	-/+
Megakaryoblastic, M7		-	-	+	+	+/-	-	-	-	-

Lymphoblastic Lymphomas, BCL vs. TCL										
	CD74	TdT	CD10	PAX-5	CD20	CD19	CD3	CD5	CD7	CD117
Lymphoblastic BCL	+	+	+/-	+	+/-	+	-	-	-	-
Lymphoblastic TCL	-	+	+	-	-	-	+	+/-	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chan JKC, et al. Histopathology 1994;25:517-536.
2. Kasaian MT, et al. Proc of the Soc for Exp Bio and Med 1991;197:226-241
3. Jones NH, et al. Nature 1986;323:346-349

Mouse Monoclonal
Clone: LN2

0.1 ml, concentrate..... 174M-14
0.5 ml, concentrate..... 174M-15
1 ml, concentrate 174M-16
1 ml, prediluted 174M-17
7 ml, prediluted 174M-18
Positive control slides 174S

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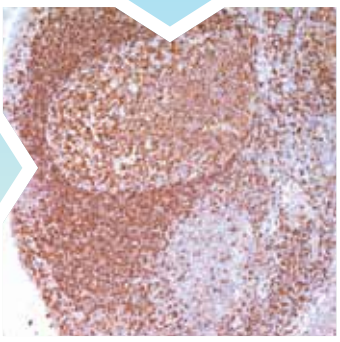

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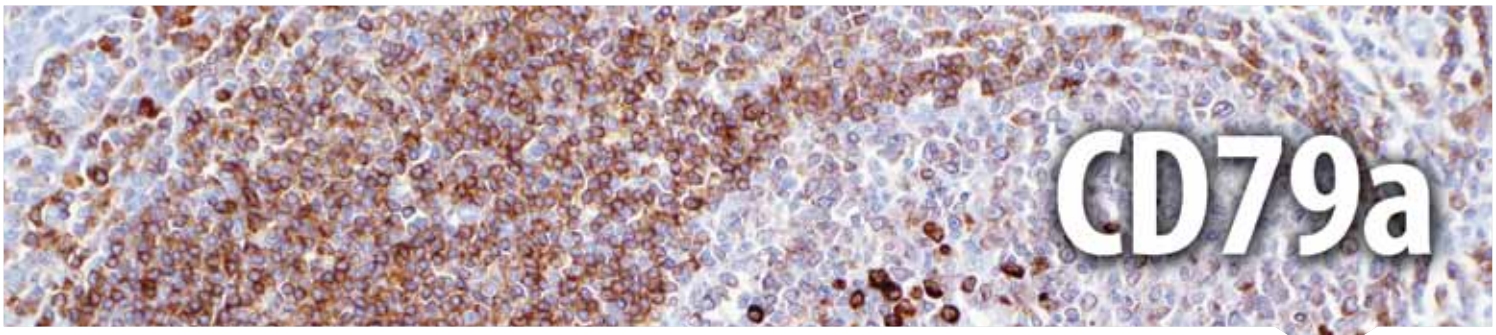

Anti-CD79a is a B-cell marker that is generally used to complement anti-CD20 especially for mature B-cell lymphomas after treatment with Rituximab (anti-CD20). This antibody will stain many of the same lymphomas as anti-CD20, but also is more likely to stain B-lymphoblastic lymphoma/leukemia than is anti-CD20. Anti-CD79a also stains more cases of plasma cell myeloma and occasionally some types of endothelial cells as well.

B-cell Lymphomas										
	CD79a	PAX-5	MUM1	BCL2	BCL6	p27	CD10	CD23	Cyclin D1	TRAcP
Follicular	+	+	-	+	+	+	+	-	-	-
CLL/SLL	+	+	+	+	-	+	-	+	-	-
Mantle Cell	+	+	-	+	-	+	-	-	+	-
Marginal Zone BCL	+	+	+	+	-	+	-	-	-	+/-
Lymphoplasmacytic	+	+	+	+	-	+	-	-	-	-
Diffuse Large Cell Lymphoma	+	+	+	+	+	-	-	-	-	-
Burkitt Lymphoma	+	+	-	-	+	-	+	-	-	-
Hairy Cell Leukemia	+	+		+	-	-	-	-	+(weak)/-	+

Plasma Cells									
	CD79a	CD138	EMA	MUM1	CD56	Cyclin D1	CD43	CD20	CD19
Plasma Cell Neoplasm	+	+	+	+	+	-/+	-	-/+	-

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP18: IgG_1
JCB117: IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Van Nosel CJM, et al. J Immunol 1991;146:3881-3888
2. Van Nosel CJM, et al. J Exp Med 1992;175:1511-1519
3. Mason DY, et al. Eur J Immun 1992;22:2753-2756

Rabbit Monoclonal Clone: SP18

0.1 ml, concentrate.... 179R-14
0.5 ml, concentrate.... 179R-15
1 ml, concentrate 179R-16
1 ml, prediluted 179R-17
7 ml, prediluted 179R-18
Positive control slides . 179S

IVD
IVD
IVD
RUO

Mouse Monoclonal Clone: JCB117

0.1 ml, concentrate.... 179M-94
0.5 ml, concentrate.... 179M-95
1 ml, concentrate 179M-96
1 ml, prediluted 179M-97
7 ml, prediluted 179M-98
Positive control slides . 179S

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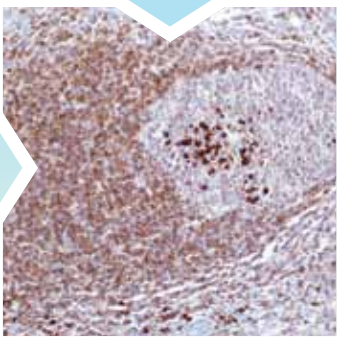

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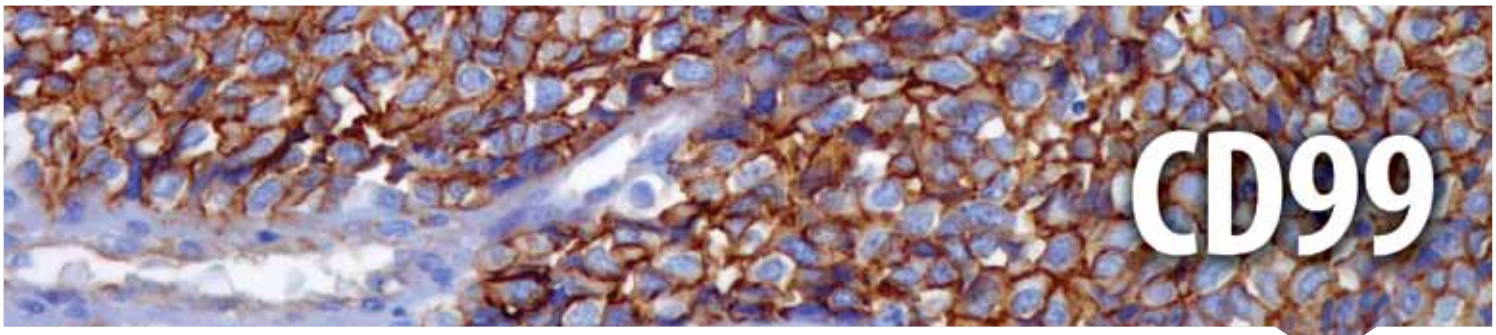

CD99/MIC-2 antigen is present on the cell membrane of Ewing's sarcoma and primitive peripheral neuroectodermal tumors (PNET). It is also present on some cells in bone marrow, lymph nodes, spleen, cortical thymocytes, granulosa cells of the ovary, CNS ependymal cells, Sertoli cells of the testis, and endothelial cells. MIC-2 has also been identified in lymphoblastic lymphoma, rhabdomyosarcoma, mesenchymal chondrosarcoma, and thymoma.

Soft Tissue Sarcoma

	CD99	CK Cocktail	S-100	MS Actin	SM Actin	CD34	TLE-1	CD56	TFE-3	Calretinin
Synovial Sarcoma	+	+	-	-	-	-	+	+	-	+/-
Clear Cell Sarcoma	-	-	+	-	-	-	-	-	-	-
PNET/ES	+	-/+	+	-	-	-	-	-	-	-
Desmoplastic Small Round Cell	-	+	-	-	-	-	-	-	-	-
Mesenchymal Chondrosarcoma	+	-	+/-	-	-	-/+	-	-	-	+
Alveolar Soft Part Sarcoma	-	-	-	+	+	-	-	-	+	-
PEComa	-	-	-	-	+	-	-	-	-	+

Skin: Spindle Cell Tumors

	CD99	FLI-1	GLUT1	Factor VIII	HHV-8	CD10	CD34	D2-40	SM Actin	MS Actin
Atypical Fibroxanthomas	+	-	-	-	-	+	-	-	+	+
Angiosarcoma	-	+	-	+	-	-	+	+/-	-	-
Glomus Tumor	-	-	-	-	-	-	+/-	-	+	+
Hemangiopericytoma	+/-	+	-	-	-	-	+	-	-	-
Hemangioma	-	+	+	+	-	-	+	-	+	-
Kaposi's Sarcoma	-	+	-	+	+	-	+	+	+	-

Sex Cord Stromal Tumors

	CD99	Calretinin	Inhibin	CK 7	EMA	Vimentin	MART-1
Granulosa Cell Tumors	+	+	+	-	-	+	+
Sertoli-Leydig Cell Tumors	-/+	+	+	+	-	+	+
Gonadoblastomas	+	+	+	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Ewing's Sarcoma

Stability Up to 36 mo. at 2-8°C

Isotype SP119: IgG
EPR3097Y‡: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Rettig WJ, et al. Lab Invest 1992;66:133
2. Fellinger EJ, et al. Amer J Surg Pathol 1992;16(8):746

Rabbit Monoclonal Clone: SP119

0.1 ml, concentrate.... 199R-24
0.5 ml, concentrate.... 199R-25
1 ml, concentrate 199R-26
1 ml, prediluted 199R-27
7 ml, prediluted 199R-28
Positive control slides . 199S

IVD
IVD
IVD
RUO

Rabbit Monoclonal Clone: EPR3097Y‡

0.1 ml, concentrate.... 199R-14
0.5 ml, concentrate.... 199R-15
1 ml, concentrate 199R-16
1 ml, prediluted 199R-17
7 ml, prediluted 199R-18
Positive control slides . 199S

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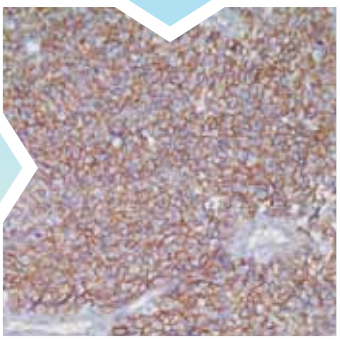
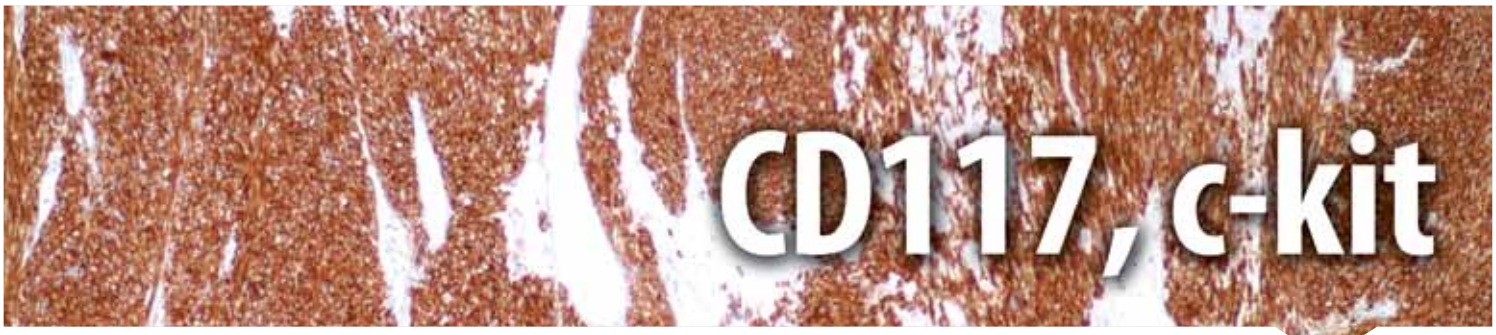


* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



CD117, c-kit, is a tyrosine kinase receptor 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 including follicular and papillary carcinoma of thyroid, adenocarcinomas from endometrium, lung, ovary, pancreas, and breast as well as malignant melanoma, endodermal sinus tumor, and small cell carcinoma; however, anti-CD117 has been particularly useful in differentiating gastrointestinal stromal tumors from Kaposi's sarcoma, tumors of smooth muscle origin, fibromatosis, and neural tumors of the GI tract. Anti-CD117 is also useful in recognizing myeloblasts in bone marrow biopsy and clot section.

GIST Mutation vs. Wild Type			
	CD117	DOG1	CD34
GIST, Kit Mutation	+	+	+
GIST, PDGFRA Mutation	-	+	-
GIST, Wild Type	+	+	+/-

Mastocytosis					
	CD117	Tryptase	CD25	CD163	CD2
Systemic Mastocytosis	+	+	+	-	+
Reactive Mast Cells	+	+	-	+	-

Germ Cell Tumors										
	CD117	Oct-4	AFP	CK Cocktail	EMA	Inhibin	D2-40	CD30	Vimentin	PLAP
Seminoma	+	+	-	-	-	-	+	-	+	+
Embryonal Carcinoma	-	+	-	+	-	-	-	+	-	+

Kidney: Renal Epithelial Tumors								
	CD117	RCC	CD10	PAX-2	Vimentin	Ksp-cadherin	Parvalbumin	Ep-CAM
Clear Cell RCC	-	+	+	+	+	-	-	-
Chromophobe RCC	+	-/+	-/+	+	-	+	+	+
Oncocytoma	+	-	+/-	+	-	+/-	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control GIST, Tissue Mast Cells

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Sircar K, et al. AM J Surg Pathol 23(4):377-389,1999
2. Miettinen M, et al. Am J Surg Pathol 24(2):211-222, 2000
3. Miettinen M, et al. Am J Surg Pathol 23(9): 1109-1118

Rabbit Monoclonal Clone: YR145‡

0.1 ml, concentrate	117R-14
0.5 ml, concentrate	117R-15
1 ml, concentrate	117R-16
1 ml, prediluted	117R-17
7 ml, prediluted	117R-18
Positive control slides	117S

IVD

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IVD

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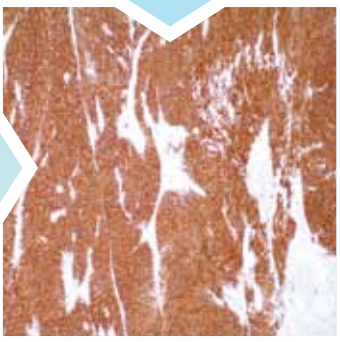
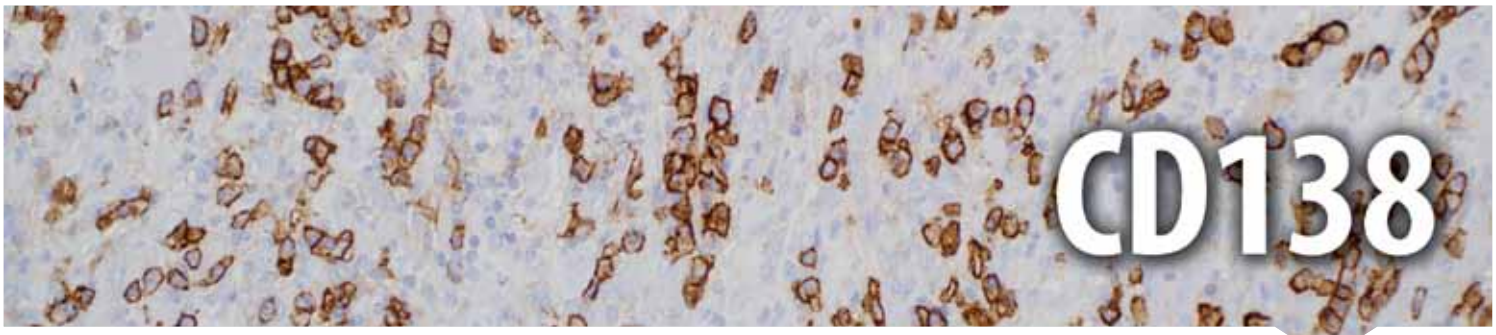


* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



CD138 is a protein encoded by a transmembrane (type I) heparan sulfate proteoglycan gene and is a member of the syndecan proteoglycan family.

CD138, Syndecan 1, is expressed in the late stages of B-cell differentiation with progression towards plasma cells. Syndecan 1 is up-regulated by WT-1 and in turn acts as a receptor for collagen, fibronectin and thrombospondin. It binds basic fibroblast growth factor, an angiogenic agent, and thereby modulates neovascularisation. The free ectodomain of syndecan I suppresses proliferation of tumor cells.

Anti-CD138 is expressed in distinct stages of differentiation of normal lymphoid cells. It can be used to differentiate lymphoplasmacytic lymphoma from marginal zone lymphoma. ALK+ large B-cell lyphoma (LBLC) usually strongly expresses CD138 whereas lineage-associated markers such as anti-CD20 and anti-CD79a do not stain ALK+ LBLC. Anti-CD138 is immunoreactive with HHV8-associated primary effusion lymphoma even though the lymphoma cells lack the expression of B-cell markers. Anti-CD138 is a good marker to identify and enumerate plasma cells, benign, reactive, or malignant, in bone marrow biopsy specimens.

Plasma Cell Neoplasm and Lymphoproliferative Neoplasms									
	CD138	CD79a	EMA	MUM1	CD56	Cyclin D1	CD43	CD20	CD19
Plasma Cell Neoplasm	+	+	+	+	+	-/+	-	-/+	-
ALK + LBCL	+	-	+	+	-	-	-/+	-	-
Plasmablastic Lymphoma	+	+	+	+	-	-	-	-	-
HHV Associated LBCL	-	-	-	-	-	-	-	+/-	+/-
Primary Effusion Lymphoma	+	-	+	+	-	-	-	-	-
Lymphoblastic Lymphoma	+	+	-	+/-	-	-	-	+	+
Splenic Marginal Zone Lymphoma	-/+	+	-	+/-	-	-	-	+	+

Reactivity Paraffin

Visualization Membranous

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype B-A38: IgG_1
SP152: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chilosi M, et al. Mod Pathol 1999 Dec;12(12):1101-6
2. Sebestzen A, et al. Br J Haematol 1999 Feb:104(2):412-9
3. Carbone A, et al. Blood 1998 Feb 1;91(3):747-55

Mouse Monoclonal Clone: B-A38

0.1 ml, concentrate.....138M-14
0.5 ml, concentrate.....138M-15
1 ml, concentrate 138M-16
1 ml, prediluted 138M-17
7 ml, prediluted 138M-18
Positive control slides 138S

Mouse Monoclonal Clone: B-A38

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Rabbit Monoclonal Clone: SP152

0.1 ml, concentrate.....138R-14
0.5 ml, concentrate.....138R-15
1 ml, concentrate 138R-16
1 ml, prediluted 138R-17
7 ml, prediluted 138R-18
Positive control slides 138S

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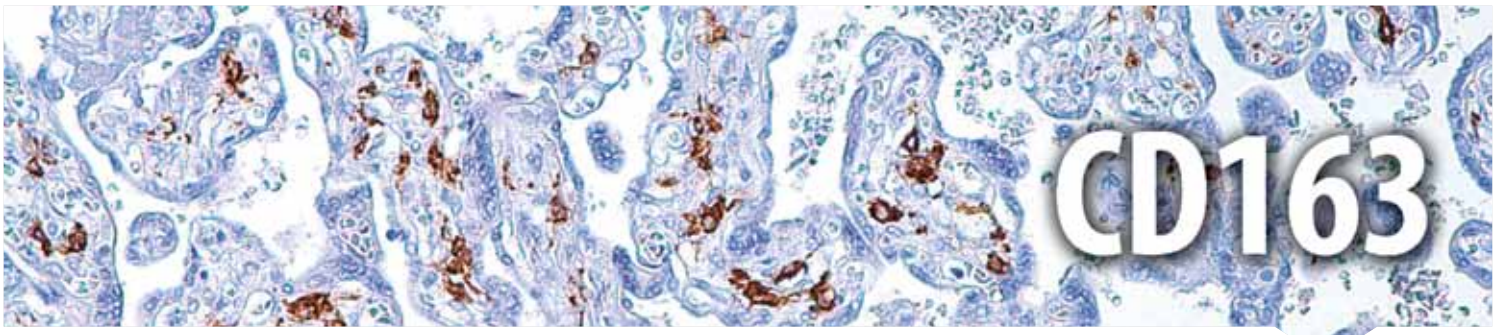

CD163 has been identified as an acute phase-regulated transmembrane protein whose function is to mediate the endocytosis of haptoglobin-hemoglobin complexes. This receptor is expressed on the surface of monocytes with low expression and on tissue macrophages, histiocytes with high expression.

Staining with anti-CD163 has been helpful to distinguish 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 anti-CD68. Increased levels of CD163 were also detected in patients with microbial infections and myelomonocytic leukemias by an enzyme-linked immunosorbent assay. Flow cytometry studies have confirmed that CD163 expression is limited to leukemias with monocytic differentiation. Anti-CD163 can be used to identify and enumerate myelomonocytic blasts and monocytic blasts in bone marrow biopsy for diagnosis of acute myeloid leukemia.

Mastocytosis					
	CD163	Tryptase	CD117	CD25	CD2
Systemic Mastocytosis	-	+	+	+	+
Reactive Mast Cells	+	+	+	-	-

Histiocytic Lesions								
	CD163	CD45	CD4	CD68	Lysozyme	Factor XIIIa	CD20	CD3
Histiocytic Lesions	+	+	+	+	+	+	-	-

Skin: Dermatofibrosarcoma Protuberans (DF-SP) vs. Dermatofibroma Fibrous Histiocytoma (DF-FH)									
	CD163	CD34	NGFR	CD10	Factor XIIIa	p63	Desmin	CK Cocktail	S-100
DF-SP	-	+	+	+/-	-	-	-	-	-
DF-FH	-	-	-	+	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Inflamed Tissue

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Backe E, et al. J Clin Pathol. 1991;44:936-945.
2. Buechler C, et al. J Leukoc Biol. 2000;67:97-103.
3. Hiraoka A, et al. Pathol Res Pract. 2005;201(5):379-84.

Mouse Monoclonal Clone: MRQ-26

0.1 ml, concentrate.....163M-14
0.5 ml, concentrate.....163M-15
1 ml, concentrate 163M-16
1 ml, prediluted 163M-17
7 ml, prediluted 163M-18
Positive control slides 163S

Mouse Monoclonal Clone: MRQ-26

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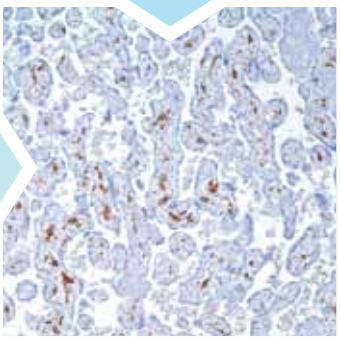

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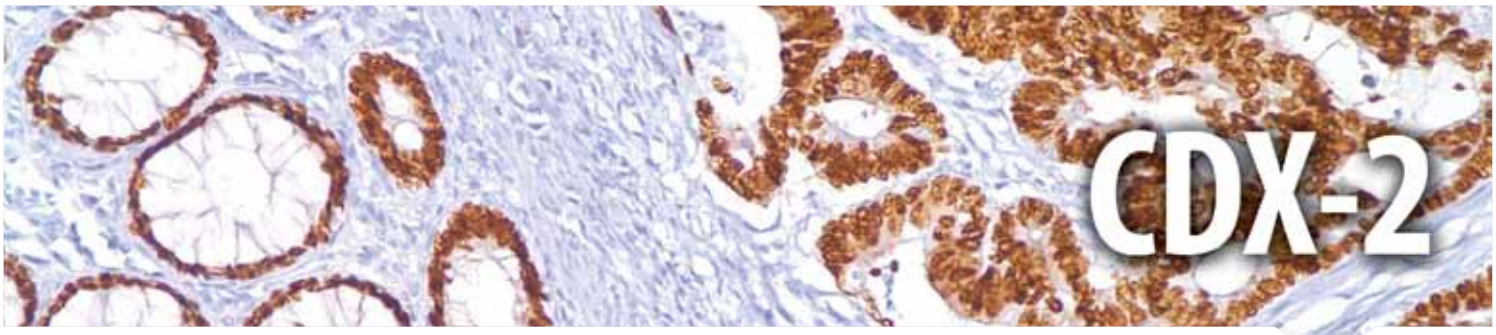

CDX-2 is a caudal-related homeobox transcription factor whose expression in the adult is normally restricted to the intestinal epithelium. It is implicated in the development and maintenance of the intestinal mucosa. This protein is expressed immunohistochemically in the nuclei of normal intestinal epithelium. CDX-2 protein expression has been seen in gastrointestinal (GI) carcinomas, more so in lower GI than in upper GI. Anti-CDX-2 has been useful to establish gastrointestinal origin of metastatic adenocarcinomas and carcinoids and is especially useful to distinguish metastatic colorectal adenocarcinoma from lung adenocarcinoma. However, mucinous carcinomas of the ovary also stain positively with this antibody, which limits the usefulness of this marker in the distinction of metastatic colorectal adenocarcinoma versus mucinous carcinoma of the ovary.

Carcinomas										
	CDX-2	CK Cocktail	CK 7	CK 20	pCEA	CK 5	p63	β-Catenin	TTF-1	Hep-Par1
Hepatocellular Carcinoma	-	-	-	-	+	-	-	-	+ (cytoplasmic)	+
Bladder Carcinoma	+	+	+	+	+	-	-	-	-	-
Salivary Gland Carcinoma	-	+	+	-	+	+	+	-		-
Lung Adenocarcinoma	-	+	+	-	+	-	-	-	+	-
Colorectal Adenocarcinoma	+	+	-	+	+	-	-	+	-	-
Cervical Carcinoma	-	+	+	-	+	-	-	-	-	-
Sweat Gland Carcinoma	-	+	+	-	+	+	+	-		-
Pancreatic Carcinoma	-	+	+	-	+	-	-	-	-	-
Gastric Carcinoma	+	+	+	-	+	-	-	-	-	-

Colon vs. Prostate Adenocarcinoma						
	CDX-2	CK 20	CEA	CA19-9	PSA	P504s
Colon Adenocarcinoma	+	+	+	+	-	+
Prostate Adenocarcinoma	-	-	-	-	+	+

Reactivity Paraffin

Visualization Nuclear

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Levine PH, et al. Diagn Cytopathol. 2006 Mar;34(3):191-5
2. Mazziotta RM, et al. Appl Immunohistochem Mol Morphol. 2005 Mar;13(1):55-60
3. Saqi A, et al. Am J Clin Pathol. 2005 Mar;123(3):394-404

Rabbit Monoclonal
Clone: EPR2764Y‡

0.1 ml, concentrate.....235R-14
0.5 ml, concentrate.....235R-15
1 ml, concentrate 235R-16
1 ml, prediluted 235R-17
7 ml, prediluted 235R-18
Positive control slides 235S

Rabbit Monoclonal
Clone: EPR2764Y‡

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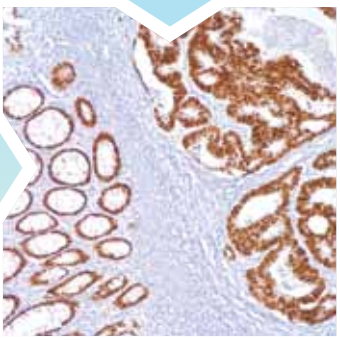

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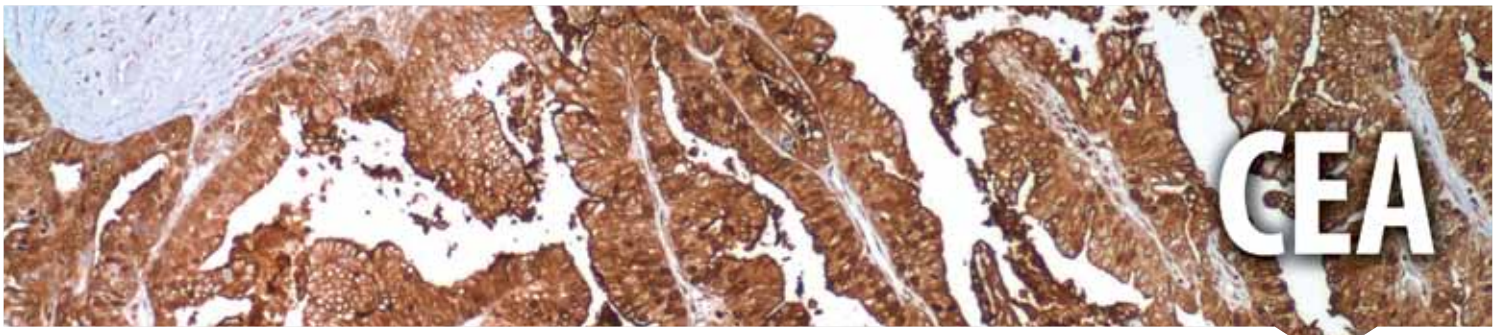
‡ Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.



Anti-CEA is employed essentially as a tool to assist in the distinction between adenocarcinoma and epithelioid malignant mesotheliomas, along with other markers such as those against calretinin, CK 5&6, CD15, HBME-1, MOC-31, and Ber-EP4. Another suggested use of anti-CEA is to immunophenotype various metastatic adenocarcinomas as a means of identifying their origin within a panel of different markers. Anti-CEA positivity is seen in adenocarcinomas from the lung, colon, stomach, esophagus, pancreas, gallbadder, urachus, salivary gland, ovary, and endocervix. Polyclonal anti-CEA is useful in staining hepatocellular carcinoma in a canalicular pattern.

Liver: Malignant vs. Benign	pCEA	mCEA	Hep-Par1	Glypican-3	CD34	p53	AFP	A1AT	TTF-1
Hepatocellular Carcinoma	+	-	+	+	+	+	-/+	-/+	+ (cytoplasmic)
Hepatoblastoma	+	-	+	+	-	+	+	+	-
Benign Liver Nodules	-	-	+	-	-	-	-	+/-	+ (cytoplasmic)

Pleura: Adenocarcinoma vs. Mesothelioma	CEA	Calretinin	CK 5&6	D2-40	WT1	Caldesmon	TAG-72	Ep-CAM	E-cadherin	TTF-1
Adenocarcinoma	+	-	-	-	-	-	+	+	+	+
Mesothelioma	-	+	+	+	+	+	-	-	-	-

Carcinomas	pCEA	CK Cocktail	CK 7	CK 20	CDX-2	CK 5	p63	β-Catenin	TTF-1	Hep-Par1
Hepatocellular Carcinoma	+	-	-	-	-	-	-	-	+	+
Bladder Carcinoma	+	+	+	+	+	-	-	-	-	-
Salivary Gland Carcinoma	+	+	+	-	-	+	+	-		-
Lung Adenocarcinoma	+	+	+	-	-	-	-	-	+	-
Colorectal Adenocarcinoma	+	+	-	+	+	-	-	+	-	-
Cervical Carcinoma	+	+	+	-	-	-	-	-	-	-
Sweat Gland Carcinoma	+	+	+	-	-	+	+	-		-
Pancreatic Carcinoma	+	+	+	-	-	-	-	-	-	-
Gastric Carcinoma	+	+	+	-	+	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype CEA31: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Go VLW, et al. Cancer 1976;37:562-566
2. Delellis RA, et al. Am J Clin Pathol 1978;50:587-594
3. Kamino H, et al. Cancer 1988;61:1142-1148

Mouse Monoclonal Clone: CEA31

0.1 ml, concentrate.....236M-94
0.5 ml, concentrate.....236M-95
1 ml, concentrate 236M-96
1 ml, prediluted 236M-97
7 ml, prediluted 236M-98
Positive control slides 236S

Mouse Monoclonal Clone: CEA31

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Rabbit Polyclonal

0.1 ml, concentrate.....236A-14
0.5 ml, concentrate.....236A-15
1 ml, concentrate 236A-16
1 ml, prediluted 236A-17
7 ml, prediluted 236A-18
Positive control slides 236S

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Immunohistochemical methods have localized chromogranin in a wide variety of endocrine tissues such as the pituitary, pancreas, hypothalamus, and parathyroid. Neuroendocrine cells exhibit a fine granular immunoreactivity to anti-chromogranin. It is generally accepted that the co-expression of certain keratins and chromogranin mean neuroendocrine lineage. The presence of strong anti-chromogranin staining and absence of anti-keratin staining should raise the possibility of paraganglioma. The co-expression of chromogranin and NSE is typical of neuroendocrine neoplasms. Most pituitary adenomas and prolactinomas readily express chromogranin.

Retroperitoneal Lesions								
	Chromogranin A	NSE	Synaptophysin	Neurofilament	PGP 9.5	S-100	GFAP	CD99
Neuroblastoma	+	+	+	+	+	-	+/-	-
Ganglioneuroblastoma	+	+	+	+	+	+	+	-
Ganglioneuroma	+	+	+	+	+	+	+	-

Adrenal Tumors						
	Chromogranin A	Inhibin	Calretinin	MART-1	Synaptophysin	CD56
Pheochromocytoma	+	-	-	-	+	+
Adrenal Carcinoma	-	+	+	+	-/+	+
Adrenal Adenoma	-	+	+	+	-/+	+

Pancreas										
	Chromo-granin A	Synapto-physin	CK 19	CA19-9	Gastrin	E-cadherin	CD10	CD56	β-Catenin	S100P
Ductal Adenocarcinoma	-	-	+	+	-	+/-	+/-	-	+/-	+
Neuroendocrine Tumor	+	+	+/-	+/-	+/-	-	-	+	+	-
Solid Pseudopapillary Tumor	-	+	-	-	-	+(nuclear)	+	+	+	-
Acinic Cell Carcinoma	-	-	+	-/+	-	+	+/-	-	+	-
Pancreatoblastoma	+	-	-	-	-	-	-	+	+	-
Benign Islet Cells	+	+	-	-	-	-	-	+	+	-
Benign Duct	-	-	-	-	-	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Pancreas

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Fischer-Colbrie R, et al. Neuroscience 1985;16:547
2. Hearn SA. J Histochem Cytochem 1987;35:795-801
3. O'Connor DT, et al. Live Sciences 1986;33:1657-1663

Mouse Monoclonal
Clone: LK2H10

0.1 ml, concentrate.....238M-94
0.5 ml, concentrate.....238M-95
1 ml, concentrate 238M-96
1 ml, prediluted 238M-97
7 ml, prediluted 238M-98
25 ml, prediluted.....238M-90
Positive control slides 238S

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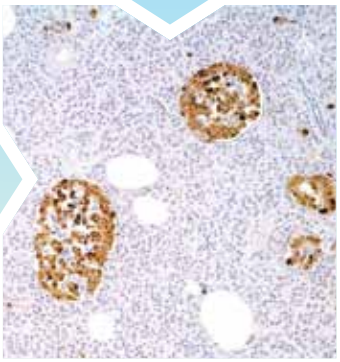

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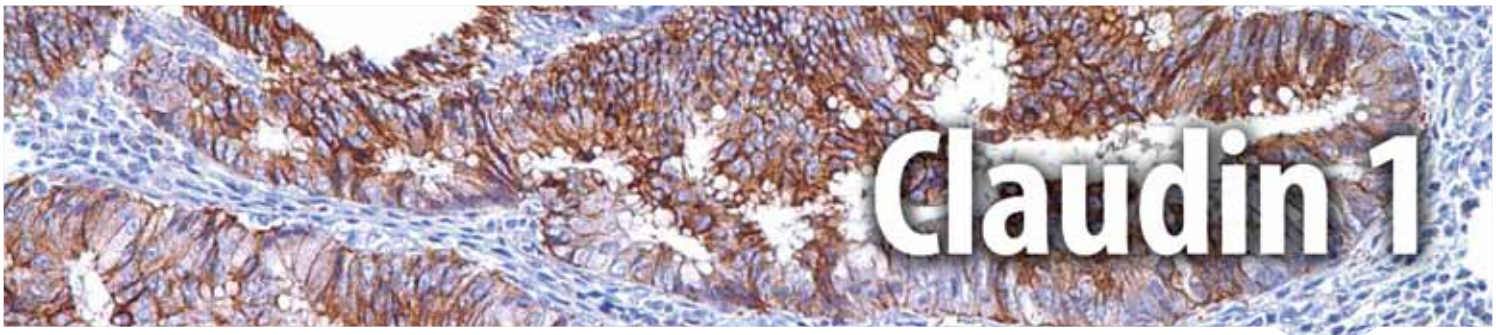

The claudins are a family of over twenty proteins which are components of tight junctions. Tight junctions are specialized regions of cell-to-cell contact made up of a network of strands to act as a molecular 'gasket' for preventing the leakage of ions, water, etc. between cells. They are abundant in luminal epithelial sheets where they maintain epithelial cell polarity. The claudins constitute a variable component, with specific claudins being associated with specific tissues.

The immunoreactivity for anti-claudin 1 is membranous and is found in nearly all carcinomas. The staining is much stronger in the carcinoma cells than in normal tissues. Anti-claudin 1 in a panel of immunostains that includes antibodies against EMA (positive), S-100 (negative), and GLUT1 can be utilized as a robust marker in the diagnosis of perineurioma and neurofibroma. Some studies have shown anti-claudin 1 to be a specific marker for meningiomas. Therefore, anti-claudin 1 with anti-EMA, anti-S-100 protein, anti-CD34, and anti-glial fibrillary acidic protein (GFAP) may be helpful in the differentiation of meningiomas from histologic mimics.

Perineurioma vs. Neurofibroma				
	Claudin 1	EMA	S-100	GLUT1
Perineurioma	+	+	-	+
Neurofibroma	+	+	+	-

Meningiomas from Histologic Mimics					
	Claudin 1	EMA	S-100	CD34	GFAP
Meningothelial Meningioma	+	+	-	-	-
Atypical Meningioma	+	+	-	+	-
Fibrous Meningioma	-	+	+	-	-
Solitary Fibrous Tumor	-	-	-	+	-
Meningeal Hemangiopericytoma	-	-	-	+	-
Schwannoma	+/-	-	+	-	+

Reactivity Paraffin

Visualization Membranous

Control Neurofibroma, Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Folpe A L, Billings S D, et al. Am J Surg Pathol. 2002:26:1620-6.
2. Hornick J L, Fletcher C D. Am J Surg Pathol 2005; 29:845-58.
3. Soini Y. Histopathology 2005; 47:551-560.
4. Smith M E F, Awasthi R, et al. Histopathology. 2005; 47:575-581.

Rabbit Polyclonal

0.1 ml, concentrate..... 359A-14
0.5 ml, concentrate..... 359A-15
1 ml, concentrate 359A-16
1 ml, prediluted 359A-17
7 ml, prediluted 359A-18
Positive control slides 359S

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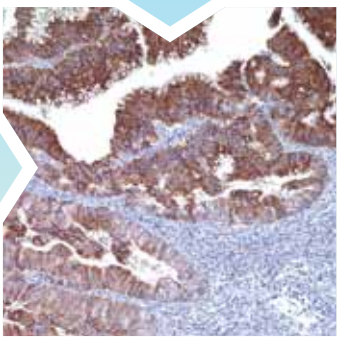

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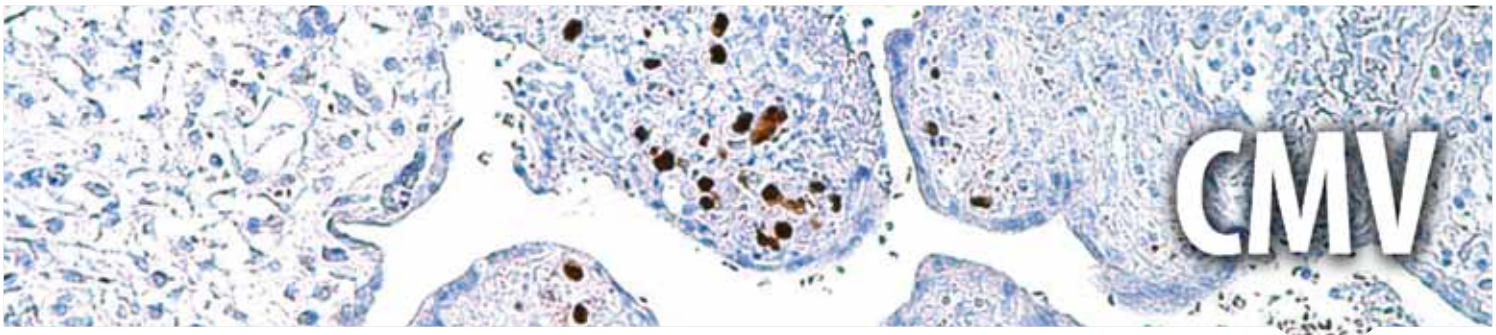

CMV infection is usually seen in immunocompromised patients involving the GI tract, lung, heart, liver, and placenta among other organs. There is no cross-reactivity with other herpesviruses or adenoviruses.

Reactivity Paraffin

Visualization Nuclear

Control CMV Infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype 8B1.2, 1G5.2 & 2D4.2: IgG_{2a}
DDG9/CCH2: IgG_2/k & IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Plachter B, et al. Virus Research 1992;24:265-76
2. Silverberg SG, et al. Principles and Practice of Surgical Pathology and Cytopathology 1997; p. 217-218

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Mouse Monoclonal Clone: 8B1.2, 1G5.2 & 2D4.2

0.1 ml, concentrate. . . 213M-24 (ASR)
0.5 ml, concentrate. . . 213M-25 (ASR)
1 ml, concentrate . . . . 213M-26 (ASR)
1 ml, prediluted . . . . . 213M-27 (ASR)
7 ml, prediluted . . . . . 213M-28 (ASR)
Positive control slides 213S

Mouse Monoclonal Clone: 8B1.2, 1G5.2 & 2D4.2

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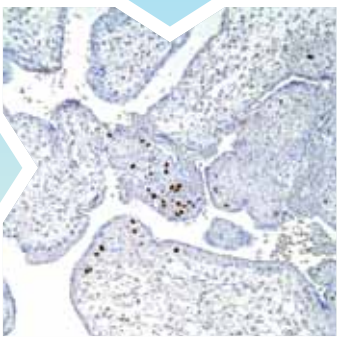
Mouse Monoclonal Clone: DDG9/CCH2

0.1 ml, concentrate. . . 213M-14 (ASR)
0.5 ml, concentrate. . . 213M-15 (ASR)
1 ml, concentrate . . . . 213M-16 (ASR)
1 ml, prediluted . . . . . 213M-17 (ASR)
7 ml, prediluted . . . . . 213M-18 (ASR)
Positive control slides 213S



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Collagen Type IV

Collagen Type IV is the major component of the basal lamina so antibodies to this molecule confirm its presence and reveal the morphological appearance of the structure. Normal tissue stains with this antibody in a fashion consistent with the sites of mesenchymal elements and epithelial basal laminae. Anti-Collagen IV can also be useful in the classification of soft tissue tumors: schwannomas and leiomyomas. Their well-differentiated, malignant counterparts usually immunoreact with this antibody. The vascular nature of neoplasms, hemangiopericytoma, angiosarcoma and epithelioid hemangioendothelioma can be revealed by this antibody with greater reliability than non-specific stains (e.g. silver reticulum).

Spindle Cell Melanoma vs. Epithelioid Peripheral Nerve Sheath Tumor						
	Collagen IV	S-100	HMB-45	Tyrosinase	NGFR	SOX10
Spindle Cell Melanoma	-	+	+	+	+	+
PNST	+	+	+	+	+	+

Skin: Spindle Cell Tumors										
	Collagen IV	FLI-1	S-100	CD99	Factor XIIIa	HHV-8	CD10	CD34	D2-40	MS Actin
Squamous Cell Carcinoma	-	-	-	-	-	-	-	-	+	-
Spindle Cell Melanoma	-	+	+	-	-	-	-	-	+	-
Atypical Fibroxanthomas	-	-	-	+	+/-	-	+	-	-	+
DF-SP	-	-	-	-	-	-	+/-	+	-	-
DF-FH	-	-	-	-	+	-	+	-	-	-
Peripheral Nerve Sheath	-	-	+/-	+	-	-	-	-	+	+
Smooth Muscle	-	-	-	-/+	-	-	-	-	-	+
Angiosarcoma	+/-	+	-	-	-	-	-	+	+/-	-
Glomus Tumor	+	-	-	-	-	-	-	+/-	-	+
Hemangiopericytoma	-	+	-	+/-	+/-	-	-	+	-	-
Hemangioma	+	+	-	-	-	-	-	+	-	-
Kaposiform Hemangioendothelioma	-	+	-	-	-	-	-	+	-	-
Kaposi's Sarcoma	+/-	+	-	-	-	+	-	+	+	-

Reactivity Paraffin

Visualization Intercellular

Control Lung

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: Protease
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gould VE, et al. Pathol Annul 1976;11:353-386
2. McArdle JP, et al. Int J Cancer 1984;34:633-638
3. Sakr WA, et al. Hum Path 1987;18:1043-1050

Mouse Monoclonal Clone: CIV22

0.1 ml, concentrate.....239M-14
0.5 ml, concentrate.....239M-15
1 ml, concentrate 239M-16
1 ml, prediluted 239M-17
7 ml, prediluted 239M-18
Positive control slides 239S

Mouse Monoclonal Clone: CIV22

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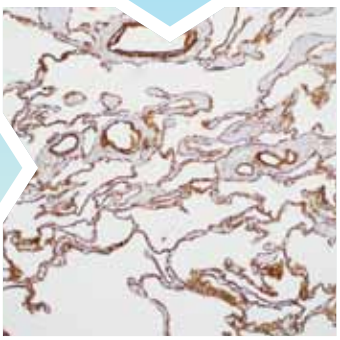

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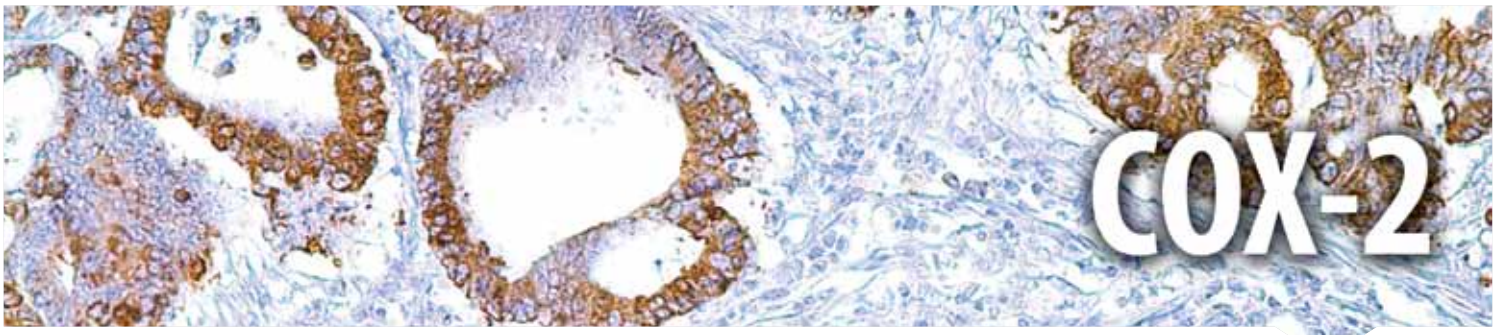

Cyclooxygenase 2 catalyzes the conversion of arachidonic acid to prostaglandin H2 in the first step in the biosynthesis of prostaglandins, thromboxanes, and prostacyclins. COX-2 inhibition by nonsteroidal anti-inflammatory agents has been shown to decrease angiogenesis and tumor growth as well as promote apoptosis. COX-2 overexpression has been associated with increased microvascular density.

Squamous vs. Transitional Carcinoma								
	COX-2	CK, 34βE12	p63	CK 5	Thrombo-modulin	CK 7	CK 20	Uroplakin III
Squamous Carcinoma	-	+	+	+	+	-	-	-
Transitional Cell Carcinoma	+	+	+	-/+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Stoehlmacker J, Lenz Heinz-Josef. Semin Oncol 30 (3) suppl 6 (June), 2003: 10-16
2. Gallo O, et al. Hum Pathol 33: 708-714
3. Sano H, et al. Cancer Res 1995 Sep 1; 55(17): 3785-9

Rabbit Monoclonal
Clone: SP21

0.1 ml, concentrate.....240R-14
0.5 ml, concentrate.....240R-15
1 ml, concentrate 240R-16
1 ml, prediluted 240R-17
7 ml, prediluted 240R-18
Positive control slides 240S

Rabbit Monoclonal
Clone: SP21

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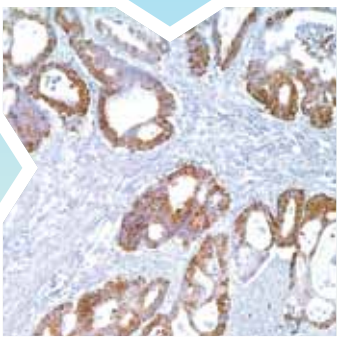

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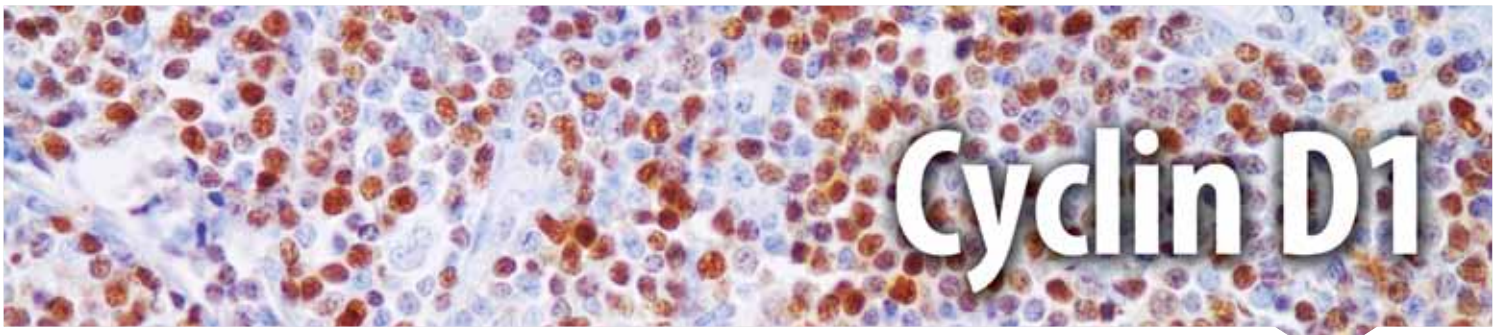

Cyclin D1, one of the key cell cycle regulators, is a putative proto-oncogene overexpressed in a wide variety of human neoplasms. Cyclins are proteins that govern transitions through distinct phases of the cell cycle by regulating the activity of the cyclin-dependent kinases. In mid-to-late G1 phase of the cell cycle, cyclin D1 shows a maximum expression following growth factor stimulation. Anti-cyclin D1 has been successfully employed and is a promising tool for further studies in both cell cycle biology and cancer associated abnormalities. This antibody is useful for separating mantle cell lymphomas (cyclin D1 positive) from CLL/SLL and follicular lymphomas (cyclin D1 negative). Hairy cell leukemia and plasma cell myeloma can weakly express Cyclin D1.

B-cell Lymphomas										
	Cyclin D1	Annexin A1	MUM1	CD79a	BCL2	BCL6	PD-1	CD10	CD23	CD5
Follicular	-	-	-	+	+	+	+	+	-	-
CLL/SLL	-	-	+	+	+	-	-	-	+	+
Mantle Cell	+	-	-/+	+	+	-	-	-	-	+
Marginal Zone	-	-	+	+	+	-	-	-	-	-
Lymphoplasmacytic	-	-	+	+	+	-	-	-	-	-
Diffuse Large Cell	-	-	+	+	+	+	-	-/+	-	-/+
Burkitt	-	-	-	+	-	+	-	+	-	-
Hairy Cell Leukemia	+(weak)/-	+		+	+	-	-	-	-	-

Plasma Cells									
	Cyclin D1	CD138	CD79a	EMA	MUM1	CD56	CD43	CD20	CD19
Plasma Cell Neoplasm	-/+	+	+	+	+	+	-	-/+	-

Reactivity Paraffin

Visualization Nuclear

Control Mantle Cell Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Aagaard L, et al. International J of Cancer 1995;61(1):115-120
2. Bartkova J, et al. Cancer Research 1995;55:949-956
3. Bartkova J, et al. Oncogene 1995'10(4):775-778

Rabbit Monoclonal
Clone: SP4

0.1 ml, concentrate	241R-14
0.5 ml, concentrate	241R-15
1 ml, concentrate	241R-16
1 ml, prediluted	241R-17
7 ml, prediluted	241R-18
Positive control slides	241S

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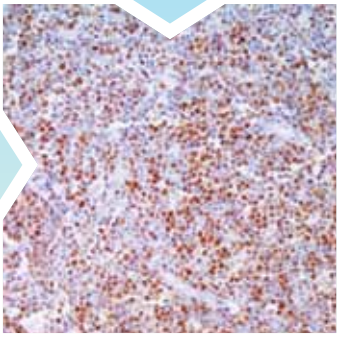

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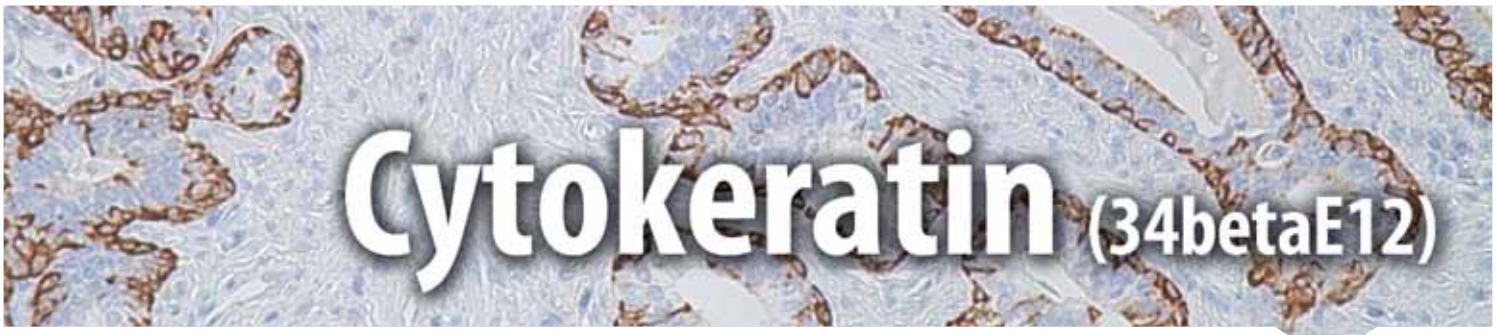

Anti-cytokeratin 34betaE12 is an antibody that recognizes cytokeratins 1, 5, 10, and 14 which are found in complex epithelia. Anti-cytokeratin 34betaE12 shows no reactivity with hepatocytes, pancreatic acinar cells, proximal renal tubules, or endometrial glands; there is no reactivity with cells derived from simple epithelia. Mesenchymal tumors, lymphomas, melanomas, neural tumors, and neuroendocrine tumors are unreactive with this antibody. Anti-cytokeratin 34betaE12 does label myoepithelial cells and has been shown to be useful in distinguishing prostate adenocarcinoma from benign prostate. This antibody has also been useful in separating benign from malignant intraductal breast proliferations.

Prostate: Malignant vs. Benign							
	CK, 34βE12	PSA/PSAP	Androgen Receptor	P504s	p63	CK 5	CK 14
Prostate Carcinoma	-	+	+	+	-	-	-
Benign Prostate	+	+	+	-/+	+	+	+

Prostate Lesions								
	CK, 34βE12	PSA/PSAP	P504s	p63	CK 7	Thrombo-modulin	Uroplakin III	PAX-2
Prostate Carcinoma	-	+	+	-	-	-	-	-
Urothelial Carcinoma	+	-	-	+	+	+	+	-
Nephrogenic Adenoma	+/-	-	+	-	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gown AM, et al. Am J Pathol 1984;114:309
2. O'Malley FP, et al. Virch Arch A 1990;417:191
3. Mahul B, Amin, MD. Arch Pathol Lab Med. Vol 118, March 1994 p. 260-264

Mouse Monoclonal Clone: 34betaE12

0.1 ml, concentrate.....334M-84
0.5 ml, concentrate.....334M-85
1 ml, concentrate 334M-86
1 ml, prediluted 334M-87
7 ml, prediluted 334M-88
25 ml, prediluted.....334M-80
Positive control slides 334S

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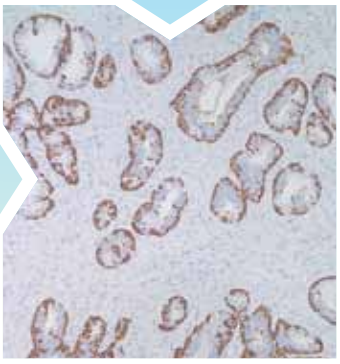

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Cytokeratin 8 (CK8) belongs to a group of proteins known as intermediate-sized filaments that make up the cytoskeletal structure of virtually all epithelial cells. Cytokeratin 8 is a basic (Type II) cytokeratin with a molecular weight of ~52 kDa. Type I and type II keratins heteropolymerize to form in the cytoplasm of epithelial cells. This product typically dimerizes with cytokeratin 18 to form an intermediate filament in simple single-layered epithelial cells. This protein plays a role in maintaining cellular structural integrity and also functions in signal transduction and cellular differentiation. CK8 is present in simple epithelia and all adenocarcinomas.

CK8 exists on several types of normal and neoplastic epithelia, including many ductal and glandular epithelia such as may be found in colon, stomach, small intestine, trachea, and esophagus as well as in transitional epithelium. Anti-35betaH11 does not react with skeletal muscle or nerve cells. Epithelioid sarcoma, chordoma, and adamantinoma express strong positivity corresponding to that of simple epithelia (with antibodies against CK8, CK18 and CK19). Anti-35betaH11 has also been suggested as a marker for the differentiation of lobular ("ring-like, perinuclear") from ductal ("peripheral-predominant") carcinoma of the breast.

Epithelioid Cell Neoplasms										
	CK, 35βH11	INI-1	TFE-3	EMA	CD34	FLI-1	Desmin	S-100	HMB-45	DOG1
Epithelioid Sarcoma	-	+	-	+	+	-	+	-	-	-
Epithelioid Angiosarcoma	+	+	-	-	+	+	-	-	-	-
MPNST	+	+/-	-	-	-/+	-	+	+	-	-
Leiomyosarcoma	+	-	-	-	-/+		+	-	-	-
GIST	-	-	-	-	+	-	-	-	-	+
Endothelial Tumors	-	+	-	-	+	+	-	-	-	-
PEComa	-	-	-	-	-	-	-	+	+	-
Clear Cell Sarcoma	+	-	-	-	-	-	-	+	-	-
Alveolar Soft Part Sarcoma	-	-	+	-	-	-	-	-	-	-
Melanoma	-	-	-	-	-	-	-	+	+	-
Plasmacytoma	+	-	-	+	-	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgM/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Battifora H. Am J Surg Pathol 1988;12:24
2. Gown AM, et al. Am J Clin Pathol 1985;84:413
3. Knapp AC, et al. Cell 1989;59:67-79
4. Sunn TT, et al. J Invest Dermatol 1983;81:109s-115s

Mouse Monoclonal Clone: 35betaH11

0.1 ml, concentrate.....335M-94
0.5 ml, concentrate.....335M-95
1 ml, concentrate 335M-96
1 ml, prediluted 335M-97
7 ml, prediluted 335M-98
Positive control slides 335S

Mouse Monoclonal Clone: 35betaH11

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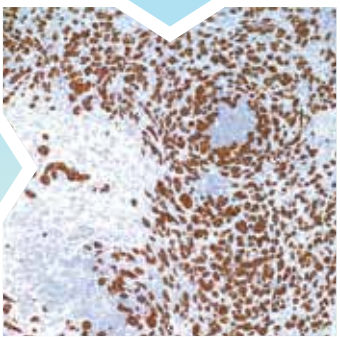

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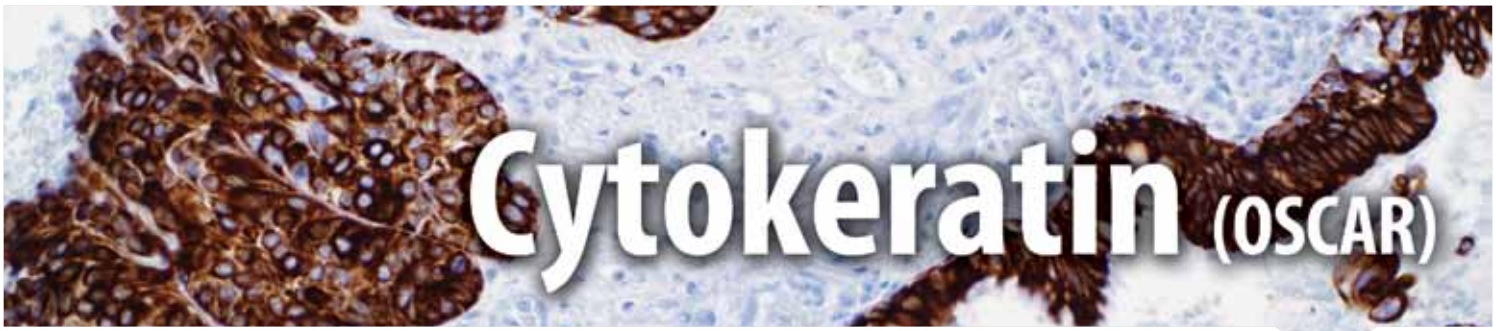

Anti-cytokeratin (OSCAR) is well-suited to distinguish epithelial carcinoma from non-epithelial malignancies and is used to aid epithelial tumor classification. This antibody has been used to characterize the source of various neoplasms and to study the distribution of keratin containing cells in epithelia during normal development and during the development of epithelial neoplasms. This antibody stains cytokeratins present in normal and abnormal human tissues and has shown high sensitivity in the recognition of epithelial cells and carcinomas.

Carcinomas										
	CK, OSCAR	CK 7	CK 20	CK 5	p63	TTF-1	GCDFP-15	pCEA	Hep-Par1	RCC
Hepatocellular Carcinoma	-	-	-	-	-	+ (cytoplasmic)	-	+	+	-
Renal Cell Carcinoma	+	-	-	-	-	-	-	-	-	+
Bladder Carcinoma	+	+	+	-	-	-	-	+	-	-
Salivary Gland Carcinoma	+	+	-	+	+		+	+	-	-
Thyroid Carcinoma	+	+	-	-	-	+	-	-	-	-
Spindle Cell Carcinoma	+	-	-	-	-		-	-	-	-
Breast Carcinoma	+	+	-	-	-	-	+	-	-	-
Lung Adenocarcinoma	+	+	-	-	-	+	-	+	-	-
Colorectal Adenocarcinoma	+	-	+	-	-	-	-	+	-	-
Prostate Adenocarcinoma	+	-	-	-	+	-	-	-	-	-
Transitional Cell Carcinoma	+	+	+	+	+	-	-	-	-	-
Ovarian Carcinoma	+	+	-	+	-	-	-	-	-	-
Cervical Carcinoma	+	+	-	-	-	-	-	+	-	-
Sweat Gland Carcinoma	+	+	-	+	+		+	+	-	-
Pancreatic Carcinoma	+	+	-	-	-	-	-	+	-	-
Gastric Carcinoma	+	+	-	-	-	-	-	+	-	-
Squamous Cell Carcinoma	+	-	-	+	+	-	-	-	-	-
Endometrial Adenocarcinoma	+	+	-			-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Battifora H. Am J Surg Pathol 1988;12:24
2. Gown AM, et al. Am J Clin Pathol 1985;84:413
3. Knapp AC, et al. Cell 1989;59:67-79
4. Sunn TT, et al. J Invest Dermatol 1983;81:109s-115s

Mouse Monoclonal
Clone: OSCAR

0.1 ml, concentrate..... 300M-14
0.5 ml, concentrate..... 300M-15
1 ml, concentrate 300M-16
1 ml, prediluted 300M-17
7 ml, prediluted 300M-18
Positive control slides 300S

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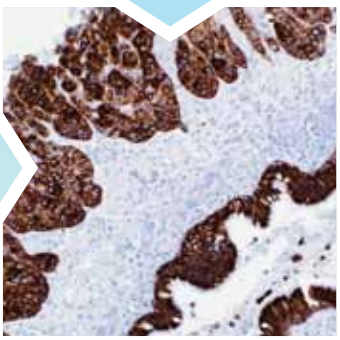

* *ultraView is a trademark of Roche.*

Cytokeratin 5 is an intermediate filament protein of 58 kD molecular weight within the cytokeratin family. It is a type II (basic) cytokeratin. Antibodies to this protein identify basal cells of squamous and glandular epithelia, myoepithelia, and mesothelium.

Anti-cytokeratin 5 has been useful in the differential diagnosis of metastatic carcinoma in the pleura versus epithelioid mesothelioma. Epithelioid mesotheliomas are strongly positive in all cases, but up to 11% of pulmonary adenocarinomas will show focal immunostaining. Almost all squamous cell carcinomas, half of transitional carcinomas, and many undifferentiated large cell carcinomas immunostain with anti-CK 5. Anti-CK 5, along with anti-p63, affords a high sensitivity and specificity for squamous differentiation. Myoepithelial cells of the breast, glandular epithelia, and basal cells of the prostate are labeled with anti-CK 5. This antibody, along with anti-CK 14, has found application in identifying basal-like breast carcinoma, a tumor with poor prognosis. Some carcinomas of ovarian origin may display anti-CK 5 positivity.

Prostate: Malignant vs. Benign							
	CK 5	PSA/PSAP	Androgen Receptor	P504s	CK, 34βE12	p63	CK 14
Prostate Carcinoma	-	+	+	+	-	-	-
Benign Prostate	+	+	+	-/+	+	+	+

Breast Carcinoma								
	CK 5	CK 7	CK 20	ER/PR	CA15-3	CA19-9	p63	CD117
Infiltrating Ductal Carcinoma	-/+	+	-	+	+	-	-	-
Adenoid Cystic Carcinoma	+	+	-	-	+	+	+	+

Squamous vs. Transitional Carcinoma							
	CK 5	CK, 34βE12	p63	Thrombomodulin	CK 7	CK 20	Uroplakin III
Squamous Carcinoma	+	+	+	+	-	-	-
Transitional Cell Carcinoma	-/+	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Mesothelioma, Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Clarke CL, et al. J Pathol. 2004 Oct;204(2):147-52.
2. Comin CE, et al. Am J Surg Pathol. 2007 Aug;31(8):1139-48.
3. Dabbs DJ, et al. Mod Pathol. 2006 Nov;19(11):1506-11. Epub 2006 Aug 25.

Rabbit Monoclonal
Clone: EP1601Y‡

0.1 ml, concentrate	305R-14
0.5 ml, concentrate	305R-15
1 ml, concentrate	305R-16
1 ml, prediluted	305R-17
7 ml, prediluted	305R-18
Positive control slides	305S

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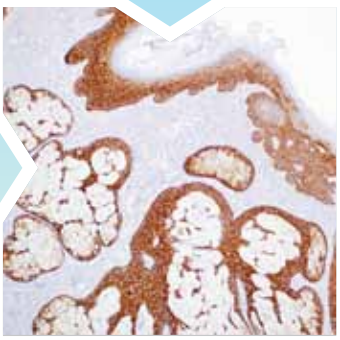
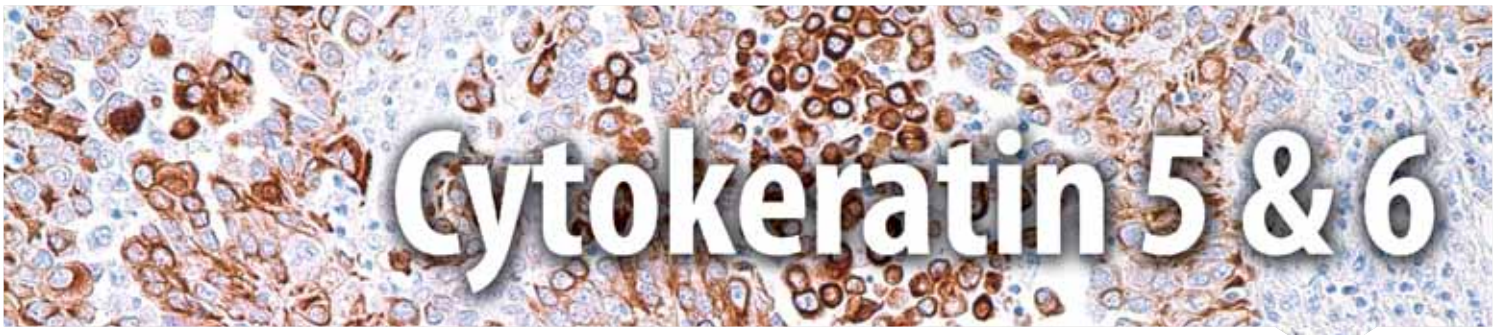


* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



Anti-CK 5 & 6 positivity is seen in nearly 100% of malignant mesotheliomas and in nearly 0% of lung adenocarcinomas. Anti-CK 5 & 6 positivity can be seen in undifferentiated large cell carcinoma as well as squamous carcinoma, and has been useful in recognizing spindle cell squamous cell carcinoma of the skin. Less than 10% of carcinomas of the breast, colon, and prostate stain positively for this marker. Anti-CK 5 & 6 has also been used successfully as a myoepithelial cell marker in the prostate and breast to determine malignancy. Anti-CK 5 & 6 is a useful marker to distinguish lung squamous cell carcinoma from lung adenocarcinoma and large cell carcinoma within a panel including antibodies against TTF-1, Napsin A, p63, SOX2, desmocollin3, and desmoglein3.

Pleura: Adenocarcinoma vs. Mesothelioma										
	CK 5&6	Calretinin	D2-40	HBME-1	Caldesmon	CEA	TAG-72	Ep-CAM	E-cadherin	TTF-1
Adenocarcinoma	-	-	-	-	-	+	+	+	+	+
Mesothelioma	+	+	+	+	+	-	-	-	-	-

Carcinomas										
	CK 5&6	CK Cocktail	CK 7	CK 20	p63	ER/PR	CD10	CEA	CK, HMW	CK, LMW
Salivary Gland Carcinoma	+	+	+	-	+	-		+	+	+
Ovarian Carcinoma	+	+	+	-	-	-	-	-	+	+
Sweat Gland Carcinoma	+	+	+	-	+	+		+	+	+
Squamous Cell Carcinoma	+	+	-	-	+	-	-	-		
Transitional Cell Carcinoma	+	+	+	+	+	-	+	-	+	+

Colon vs. Ovarian Carcinoma										
	CK 5&6	CK 7	CK 20	CEA	CDX-2	Villin	CA19-9	Ep-CAM	WT1	CA-125
Ovarian Carcinoma, Serous	-	+	-	+	-	+	+	+	+	+
Ovarian Carcinoma, Mucinous		+	-	-	+	+	+	+	-	-
Ovarian Endometrioid Ca	-	+	-	-	-		+/-	+	+	+
Colon Carcinoma	-	-	+	+	+	+	+	+	-	-

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Mesothelioma

Stability
Up to 36 mo. at 2-8°C

Isotype
IgG_1 & IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ordonez NG. Am J Surg Pathol 22(10):1215-1221, 1998
2. Tsuta K, et al. J Thoracic Oncol. 2011;7:1190-1199
3. Cury PM, et al. Mod Pathol 13(2):107-12; 2000

Mouse Monoclonal
Clone: D5 & 16B4

0.1 ml, concentrate.....356M-14
0.5 ml, concentrate.....356M-15
1 ml, concentrate 356M-16
1 ml, prediluted 356M-17
7 ml, prediluted 356M-18
25 ml, prediluted.....356M-10
Positive control slides 356S

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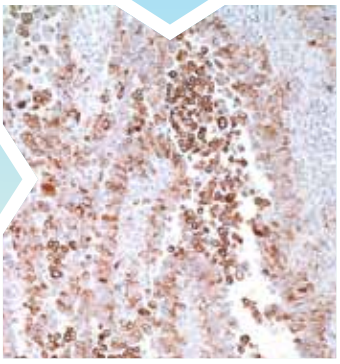

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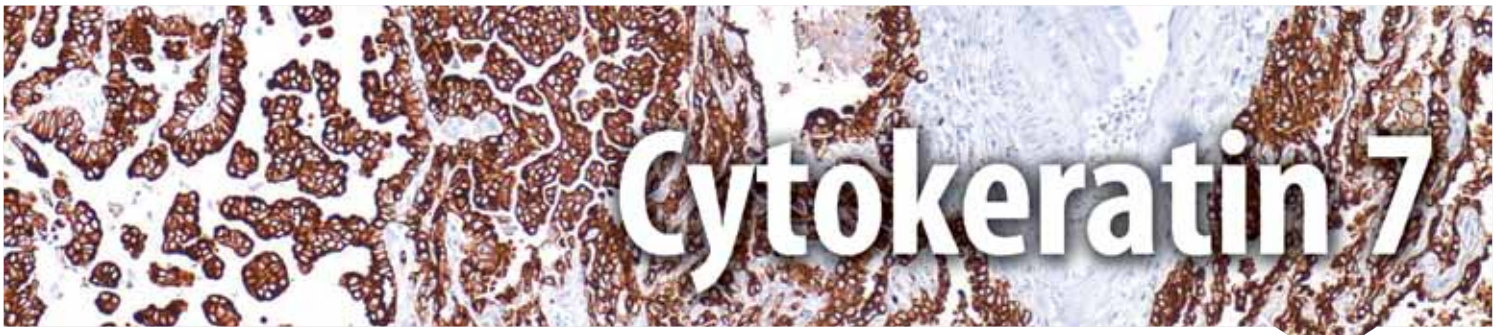

Cytokeratin 7

Anti-cytokeratin 7 reacts with proteins that are found in most ductal, glandular, and transitional epithelia of the urinary tract and bile duct epithelial cells. Anti-cytokeratin 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. Transitional cell carcinomas are positive and prostate cancer is negative. This antibody does not recognize intermediate filament proteins.

Carcinomas										
	CK 7	CK Cocktail	CK 20	GCDFP-15	ER/PR	CK 5	p63	TTF-1	CEA	CDX-2
Bladder Adenocarcinoma	+	+	+	-	-	-	-	-	+	+
Breast Carcinoma	+	+	-	+	+	-	-	-	-	-
Lung Adenocarcinoma	+	+	-	-	-	-	-	+	+	-
Endometrial Adenocarcinoma	+	+	-	-				-	-	-
Ovarian Carcinoma	+	+	-	-	+	+	-	-	-	-
Cervical Carcinoma	+	+	-	-	-	-	-	-	+	-
Sweat Gland Carcinoma	+	+	-	-	-	+	+		+	-
Pancreatic Carcinoma	+	+	-	-	-	-	-	-	+	-
Gastric Carcinoma	+	+	-	-	-	-	-	-	+	+
Transitional Cell Carcinoma	+	+	+	-	-	+	+	-	-	-
Squamous Cell Carcinoma	-	+	-	-	+	+	+	-	-	-

Colon vs. Ovarian Carcinoma										
	CK 7	CK 20	CEA	CDX-2	Villin	CA19-9	Ep-CAM	WT1	CA-125	CK 5
Ovarian Carcinoma, Serous	+	-	+	-	+	+	+	+	+	-
Ovarian Carcinoma, Mucinous	+	-	-	+	+	+	+	-	-	
Ovarian Endometrioid Carcinoma	+	-	-	-		+/-	+	+	+	-
Colon Carcinoma	-	+	+	+	+	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Lung Adenocarcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hatta N, et al. Dermatol Surg. 2004 Oct;30(10): 1329-34
2. Murray SK, et al. Am J Surg Pathol. 2004 Sep;28(9): 1154-62
3. Jerome MV, et al. Histopathology. 2004 Aug;45(2):125-34

Mouse Monoclonal
Clone: OV-TL 12/30

0.1 ml, concentrate.....307M-94
0.5 ml, concentrate.....307M-95
1 ml, concentrate 307M-96
1 ml, prediluted 307M-97
7 ml, prediluted 307M-98
25 ml, prediluted.....307M-90
Positive control slides 307S

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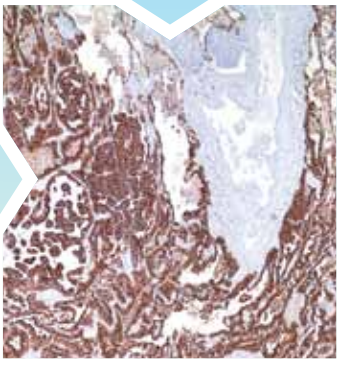

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Cytokeratins 8 & 18 (CK 8 & 18) can be found in most simple epithelia, e.g. thyroid, female breast, gastrointestinal tract, and respiratory tract. Adenocarcinomas and most non-keratinizing squamous carcinomas will stain with anti-CK 8 & 18, but keratinizing 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 this will only stain Paget cells. The use of immunostaining facilitates the interpretation and has been shown to be more sensitive than mucin histochemistry.

Skin: Spindle Cell Tumors										
	CK 8 & 18	FLI-1	HHV-8	CD34	Collagen IV	D2-40	MS Actin	CD10	S-100	CD99
Spindle Squamous Cell Carcinoma	+	-	-	-	-	+	-	-	-	-
Spindle Cell Melanoma	-	+	-	-	-	+	-	-	+	-
Atypical Fibroxanthomas	-	-	-	-	-	-	+	+	-	+
DFSP	-	-	-	+	-	-	-	+/-	-	-
DF-FH	-	-	-	-	-	-	-	+	-	-
Peripheral Nerve Sheath	+	-	-	-	-	+	+	-	+/-	+
Smooth Muscle	-	-	-	-	-	-	+	-	-	-/+
Angiosarcoma	-	+	-	+	+/-	+/-	-	-	-	-
Glomus Tumor	-	-	-	+/-	+	-	+	-	-	-
Hemangiopericytoma	-	+	-	+	-	-	-	-	-	+/-
Hemangioma	-	+	-	+	+	-	-	-	-	-
Kaposiform Hemangioendothelioma	+	+	-	+	-	-	-	-	-	-
Kaposi's Sarcoma	-	+	+	+	+/-	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate, Salivary Gland

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k & IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Angus B, et al. Journal of Pathology 1987;155:377-384
2. Corson JM. Pathol Annual 21 (part 2) 1986:47-81
3. Sasaki M, et al. Histopathology. 1998 Mar;32(3):199-208

Mouse Monoclonal Clone: B22.1 & B23.1

0.1 ml, concentrate.....818M-94
0.5 ml, concentrate.....818M-95
1 ml, concentrate 818M-96
1 ml, prediluted 818M-97
7 ml, prediluted 818M-98
25 ml, prediluted.....818M-90
Positive control slides 818S

Mouse Monoclonal Clone: B22.1 & B23.1

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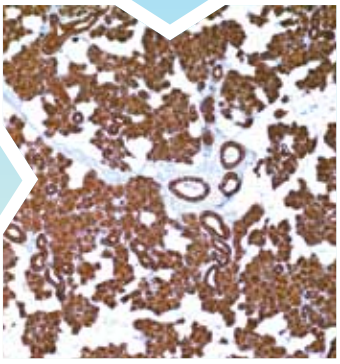

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The cytokeratin14 gene encodes a member of the keratin family, the most diverse group of intermediate filaments. This gene product, a type I (acidic) keratin, is usually found as a heterotetramer with two keratin 5 molecules, keratin 5 being a type II (basic) keratin. Together they form the cytoskeleton of epithelial cells. Mutations in the genes for these keratins are associated with epidermolysis bullosa simplex. Cytokeratin 14 (CK 14) is a 50 kD polypeptide found in basal cells of squamous epithelia, some glandular epithelia, myoepithelium, and mesothelial cells.

Anti-CK 14 has been demonstrated to be useful in differentiating squamous cell carcinomas from other epithelial tumors, particularly those which are poorly differentiated; it may be used in combination with antibodies against p63 and CK 5&6. Anti-CK 14 is one of the specific basal markers for distinguishing between basal and nonbasal subtypes of breast carcinomas. Anti-CK 14 is also a good marker for differentiation of intraductal from invasive salivary duct carcinoma by the positive staining of basal cells surrounding the *in-situ* neoplasm as well as for differentiation of benign prostate from prostate carcinoma. Furthermore, this antibody has been useful in separating oncocytic tumors of the kidney from its renal mimics, and in identifying metaplastic carcinomas of the breast.

Prostate: Malignant vs. Benign							
	CK 14	PSA/PSAP	Androgen Receptor	P504s	CK, 34βE12	p63	CK 5
Prostate Carcinoma	-	+	+	+	-	-	-
Benign Prostate	+	+	+	-/+	+	+	+

Myoepithelial Tumor: Malignant vs. Benign										
	CK 14	CK Cocktail	MS Actin	Calponin	SM Myosin	S-100	GFAP	EMA	p63	Desmin
Malignant Myoepithelioma	+	+	+	+	+	+	+/-	+	-	-
Benign Myoepithelium	+	+	+	+	+	+	+	+	+	-

Breast Carcinoma										
	CK 14	CK 7	CK 20	ER/PR	CA15-3	CA19-9	p63	CD117	CK 5	CD44
Infiltrating Ductal Carcinoma	-	+	-	+	+	-	-	-	-	+
Adenoid Cystic Carcinoma	-	+	-	-	+	+	+	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Squamous Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype LL002: IgG_3
SP53: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Reis-Filho JS, et al. Appl Immunohistochem Mol Morphol. 2003 Mar;11(1):1-8
2. Chu PG, et al. Histopathology. 2001 Jul;39(1):9-16

Mouse Monoclonal Clone: LL002

0.1 ml, concentrate.....314M-14
0.5 ml, concentrate.....314M-15
1 ml, concentrate 314M-16
1 ml, prediluted 314M-17
7 ml, prediluted 314M-18
Positive control slides 314S

Mouse Monoclonal Clone: LL002

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Rabbit Monoclonal Clone: SP53

0.1 ml, concentrate.....314R-14
0.5 ml, concentrate.....314R-15
1 ml, concentrate 314R-16
1 ml, prediluted 314R-17
7 ml, prediluted 314R-18
Positive control slides 314S

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Cytokeratin 17

Cytokeratin 17 (CK 17) is expressed in epithelial cells of various origins, such as bronchial epithelial cells and skin appendages. It may be considered as "epithelial stem cell" marker because CK 17 antibody marks basal cell differentiation. 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. Also important is that cases of triple negative breast carcinoma with expression of CK 17 show an aggressive clinical course. 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.

Cervix Neoplasia			
	CK 17	p16	CK 8
CIN I	+/-	+	-/+
CIN II	+	+	-/+
CIN III	+	+	+

Ampullary Cancer				
	CK 17	MUC1	CDX-2	MUC2
Intestinal Subtype	-	-	+	+
Ductal	+	+	-	-

Ampullary Carcinoma: Enteric vs. Ductal			
	CK 17	Hep-Par1	CDX-2
Enteric	-	+	-
Ductal	+	-	-/+

Reactivity Paraffin

Visualization Cytoplasmic

Control Cervix Neoplasia III

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chen Y, et al. Oncology 2011;80:333-340
2. Thike AA, et al. Am J Surg Pathol 2010;34:956-964
3. Heinvich S, et al. Curr Opin Gastrolinterol 2010;26:280-285

Mouse Monoclonal
Clone: Ks 17.E3

0.1 ml, concentrate..... 317M-14
0.5 ml, concentrate..... 317M-15
1 ml, concentrate 317M-16
1 ml, prediluted 317M-17
7 ml, prediluted 317M-18
Positive control slides 317S

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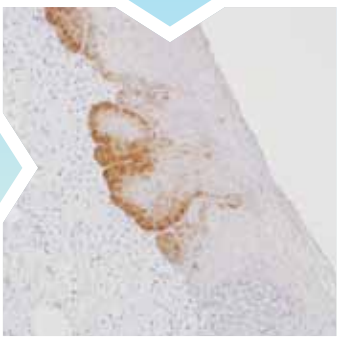

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Anti-cytokeratin 19 reacts with a wide variety of epithelia and epithelial malignancies including adenocarcinomas of the colon, stomach, pancreas, biliary tract, liver, and breast. Perhaps the most useful application is the identification of thyroid carcinoma of the papillary type, although follicular carcinoma is also labeled by this antibody approximately 50%-60% of the time.

Thyroid: Malignant vs. Benign

	CK 19	Thyroglobulin	Calcitonin	Galectin-3	TTF-1	HBME-1
Papillary Carcinoma	+	+	-	+	+	+
Follicular Carcinoma	-/+	+	-	+	+	+/-
Medullary Carcinoma	+/-	-	+	-	+	+
Benign Thyroid	-	+	-	-	+	-

Cutaneous Neoplasm

	CK 19	CD10	Androgen Receptor	CK 20	CD34	Ber-EP4	BCL2
Basal Cell Carcinoma	+	+	+	-	-	+	+
Trichoepithelioma	+	-	-	+	+	+	+
Merkel Cell Carcinoma	+	-	-	+	-	+	+
Microcystic Adnexal Carcinoma		+/-	-	-	-	-/+	+
Sebaceous Carcinoma	-	+/-	+	-	-	+	+/-
Sebaceous Adenoma	-	-	+	-	-	+	+

Pancreas

	CK 19	Synapto-physin	Chromo-granin A	E-cadherin	CD10	Gastrin	CA19-9	CD56	β-Catenin	S100P
Neuroendocrine Tumor	+/-	+	+	-	-	+/-	+/-	+	+	-
Solid Pseudopapillary Tumor	-	+	-	+(nuclear)	+	-	-	+	+	-
Ductal Carcinoma	+	-	-	+/-	+/-	-	+	-	+/-	+
Acinic Cell Carcinoma	+	-	-	+	+/-	-	-/+	-	+	-
Pancreatoblastoma	-	-	+	-	-	-	-	+	+	-
Normal Pancreas	-	+	+	-	-	-	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}/Lambda

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Zubair W, et al. Hum Pathol 30:1166-1171
2. Alexander R, et al. Hum Pathol 30:1373-1376
3. Cerilli LA, et al. Am J Clin Pathol 2002;118:186-193

Mouse Monoclonal
Clone: A53-B/A2.26

0.1 ml, concentrate.....319M-14
0.5 ml, concentrate.....319M-15
1 ml, concentrate 319M-16
1 ml, prediluted 319M-17
7 ml, prediluted 319M-18
Positive control slides 319S

Mouse Monoclonal
Clone: A53-B/A2.26

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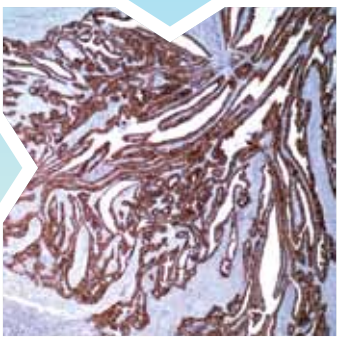

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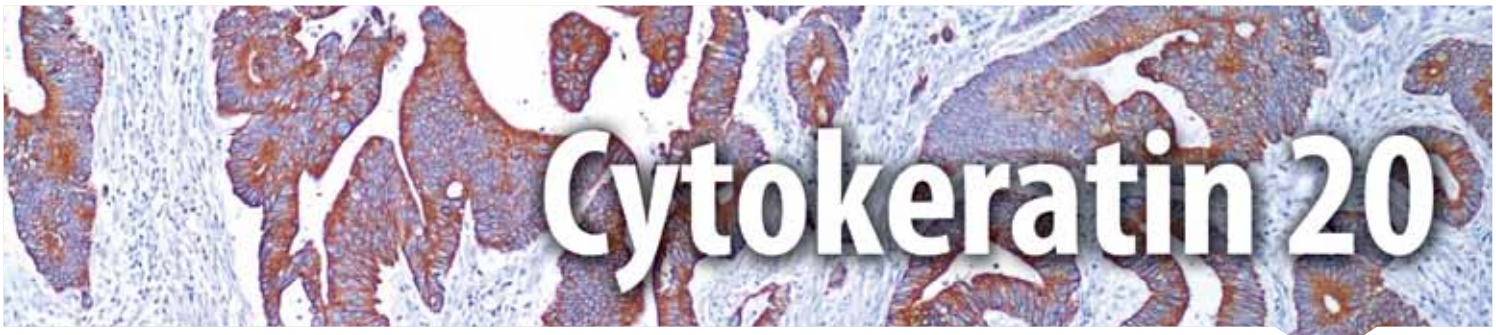

This antibody reacts primarily with gastric and intestinal epithelium, urothelium, and Merkel cells. Anti-cytokeratin 20 is useful in the differentiation of specific types of simple epithelial cells of the urinary tract as well as normal and malignantly transformed epithelia. Studies have identified the presence of cytokeratin 20 in adenocarcinomas of the colon, stomach, pancreas, and biliary system. Additionally, mucinous ovarian tumors, transitional cell, and Merkel cell carcinomas have shown reactivity. In contrast, squamous cell carcinomas and adenocarcinomas of the breast, lung, and endometrium, non-mucinous tumors of the ovary, and small cell carcinomas are non-reactive.

Bladder: Dysplasia vs. Reactive				
	CK 20	p53	CD44	Ki-67
Carcinoma-in-situ	+	+	-	+
Reactive Atypia	-	-	+	+
Normal Urothelium	+	-	+(basal layer)	-

Carcinomas										
	CK 20	CK Cocktail	CK 7	CD10	β-Catenin	CK 5	p63	CEA	CDX-2	Villin
Lung Adenocarcinoma	-	+	+		-	-	-	+	-	-
Colorectal Adenocarcinoma	+	+	-	+	+	-	-	+	+	+
Transitional Cell Carcinoma	+	+	+	+	-	+	+	-	-	-
Squamous Cell Carcinoma	-	+	-	-	-	+	+	-	-	-

Cutaneous Neoplasm							
	CK 20	CD10	Androgen Receptor	CD34	Ber-EP4	BCL2	CK 19
Basal Cell Carcinoma	-	+	+	-	+	+	+
Trichoepithelioma	+	-	-	+	+	+	+
Merkel Cell Carcinoma	+	-	-	-	+	+	+
Microcystic Adnexal Carcinoma	-	+/-	-	-	-/+	+	
Sebaceous Carcinoma	-	+/-	+	-	+	+/-	-
Sebaceous Adenoma	-	-	+	-	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Moll R, et al. Am j Pathol 1992;427-47
2. Moll R, et al. J Cell Biol 1990;111:567-580
3. Moll R, et al. Cell 1982;31:11-24
4. Nan Ping Wang, et al. Appl Immuno 1995;3(2):99-107

Mouse Monoclonal
Clone: Ks20.8

0.1 ml, concentrate.....320M-14
0.5 ml, concentrate.....320M-15
1 ml, concentrate 320M-16
1 ml, prediluted 320M-17
7 ml, prediluted 320M-18
25 ml, prediluted.....320M-10
Positive control slides 320S

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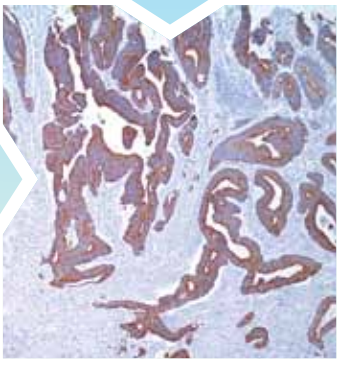

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Anti-cytokeratin cocktail, (AE1 & AE3) is well-suited to distinguish epithelial carcinoma from non-epithelial malignancies and is used to aid epithelial tumor classification. This antibody has been used to characterize the source of various neoplasms 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 and has shown high sensitivity in the recognition of epithelial cells and carcinomas.

Small, Round Blue Cell Tumors										
	CK Cocktail	MS Actin	SM Actin	Myogenin	CD99	CD57	FLI-1	CD45	Vimentin	INI-1
Lymphoblastic Lymphoma	-	-	-	-	+	-	+	+	+	+
Rhabdomyosarcoma	-	-/+	-/+	+	-	-	-	-	+	+
Neuroblastoma	-	-	-	-	-	+	-	-	+	+
Embryonal Carcinoma	+	-	-	-	-	+	-	-	-	+
PNET/ES	-/+	-	-	-	+	+	+	-	+	+
DSRCT	+	-	-	-	-	+/-	+	-	+	+
Medulloblastoma	-	-	-	-	-	+	-	-	-	+

Soft Tissue Tumor										
	CK Cocktail	S-100	MS Actin	SM Actin	CD34	TLE-1	A1AT	CD99	TFE-3	ALK-1
Synovial Sarcoma	+	-	-	-	-	+	-	+	-	-
Epithelioid Sarcoma	+	-	-/+	-	+	-	-	-	-	-
Clear Cell Sarcoma	-	+	-	-	-	-	-	-	-	-
PNET/ES	-/+	+	-	-	-	-	-	+	-	-
Desmoplastic Small Round Cell	+	-	-	-	-	-	-	-	-	-
Myxoid Chondrosarcoma	-	+/-	-	-	-/+	-	-		-	-
Alveolar Soft Part Sarcoma	-	-	+	+	-	-	-	-	+	-
PEComa	-	-	-	+	-	-	-	-	-	-
Fibrous Histiocytoma	-	-	-	-	-	-	+	-	-	-
Inflammatory Myofibroblastic Tumor	-	-	+	+	-	-	-	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Breast, Prostate, Colon, Skin

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k & IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Battifora H. Am J Surg Pathol 1988;12:24
2. Gown AM, et al. Am J Clin Pathol 1985;84:413
3. Knapp AC, et al. Cell 1989;59:67-79

Mouse Cocktail
Clone: AE1 & AE3

0.1 ml, concentrate.....313M-14
0.5 ml, concentrate.....313M-15
1 ml, concentrate 313M-16
1 ml, prediluted 313M-17
7 ml, prediluted 313M-18
25 ml, prediluted.....313M-10
Positive control slides 313S

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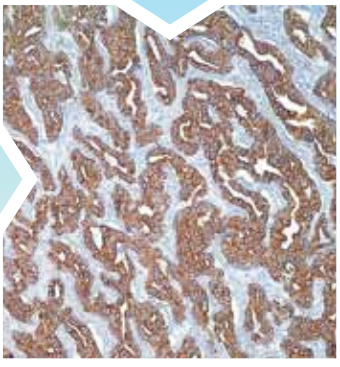

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Cytokeratin, HMW

Anti-cytokeratin, high molecular weight (AE3) is capable of recognizing all basic keratins; therefore, it is a broadly reactive antibody staining most epithelia and their neoplasms. Members of the acidic and basic subfamilies are found together in pairs. Since each epithelium contains at least one acidic and one basic keratin, this antibody is used to observe the distribution of keratin-containing cells in normal epithelia and to identify neoplasms derived from such epithelium.

Carcinomas										
	CK, HMW	CK 7	CK 20	CK, LMW	CK 5	TTF-1	GCDFP-15	pCEA	Hep-Par1	RCC
Hepatocellular Carcinoma	-	-	-	-	-	+ (cytoplasmic)	-	+	+	-
Renal Cell Carcinoma	-	-	-	+	-	-	-	-	-	+
Bladder Carcinoma	+	+	+	+	-	-	-	+	-	-
Salivary Gland Carcinoma	+	+	-	+	+		-	+	-	-
Thyroid Carcinoma	+	+	-	+	-	+	-	-	-	-
Spindle Cell Carcinoma	+	-	-		-		-	-	-	-
Breast Carcinoma	+	+	-	+	-	-	+	-	-	-
Lung Adenocarcinoma	+	+	-	+	-	+	-	+	-	-
Colorectal Adenocarcinoma	-	-	+	+	-	-	-	+	-	-
Prostate Adenocarcinoma	-	-	-	+	-	-	-	-	-	-
Transitional Cell Carcinoma	+	+	+	+	+	-	-	-	-	-
Ovarian Carcinoma , Non Mucinous	+	+	-	+	+	-	-	-	-	-
Pancreatic Carcinoma	+/-	+	-	+	-	-	-	+	-	-
Squamous Cell Carcinoma	+	-	-	+	+	-	-	-	-	-

Skin: Pagetoid Tumors					
	CK, HMW	CK, LMW	S-100	CEA	Vimentin
Melanoma	-	-	+	-	+
Paget's Disease	-	+	-/+	+	-
Bowen's Disease	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Tyler CR. Arch Pathol Lab Med 1978;102:113
2. Weiss RA, et al. J Cell Biol 1984;98:1397
3. Nelson WG, et al. J Cell Biol. 1984;V. 44, 1600-1603

Mouse Monoclonal Clone: AE3

0.1 ml, concentrate..... 303M-14
0.5 ml, concentrate..... 303M-15
1 ml, concentrate 303M-16
1 ml, prediluted 303M-17
7 ml, prediluted 303M-18
Positive control slides 303S

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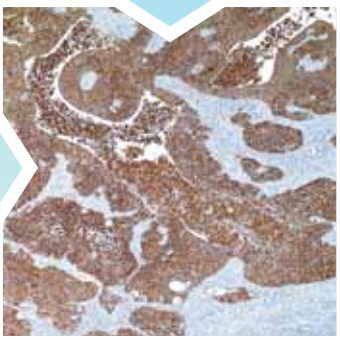

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Cytokeratin, LMW

Anti-cytokeratin, low molecular weight (AE1) labels most acidic keratins; therefore, it is a broadly reactive antibody staining most epithelia and their neoplasms. Members of the acidic and basic cytokeratin subfamilies are found together 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. This antibody has shown great sensitivity and broad specificity for keratins under various conditions of fixation and staining. Anti-low molecular weight 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.

Carcinomas

	CK, LMW	CK 7	CK 20	CK, HMW	CK 5	TTF-1	GCDFP-15	pCEA	Hep-Par1	RCC
Hepatocellular Carcinoma	-	-	-	-	-	+ (cytoplasmic)	-	+	+	-
Renal Cell Carcinoma	+	-	-	-	-	-	-	-	-	+
Bladder Carcinoma	+	+	+	+	-	-	-	+	-	-
Salivary Gland Carcinoma	+	+	-	+	+		-	+	-	-
Thyroid Carcinoma	+	+	-		-	+	-	-	-	-
Spindle Cell Carcinoma		-	-	+	-		-	-	-	-
Breast Carcinoma	+	+	-	+	-	-	+	-	-	-
Lung Adenocarcinoma	+	+	-	+	-	+	-	+	-	-
Colorectal Adenocarcinoma	+	-	+	-	-	-	-	+	-	-
Prostate Adenocarcinoma	+	-	-	-	-	-	-	-	-	-
Transitional Cell Carcinoma	+	+	+	+	+	-	-	-	-	-
Ovarian Carcinoma	+	+	-	+	+	-	-	-	-	-
Pancreatic Carcinoma	+	+	-	+/-	-	-	-	+	-	-
Squamous Cell Carcinoma	+	-	-	+	+	-	-	-	-	-

Skin: Pagetoid Tumors

	CK, LMW	CK, HMW	S-100	CEA	Vimentin
Melanoma	-	-	+	-	+
Paget's Disease	+	-	-/+	+	-
Bowen's Disease	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Tyler CR. Arch Pathol Lab Med 1978;102:113
2. Weiss RA, et al. J Cell Biol 1984;98:1397
3. Swanson PE, et al. Am J Clin Pathol 1991;95:S2-S7

Mouse Monoclonal Clone: AE1

0.1 ml, concentrate	301M-14
0.5 ml, concentrate	301M-15
1 ml, concentrate	301M-16
1 ml, prediluted	301M-17
7 ml, prediluted	301M-18
Positive control slides	301S

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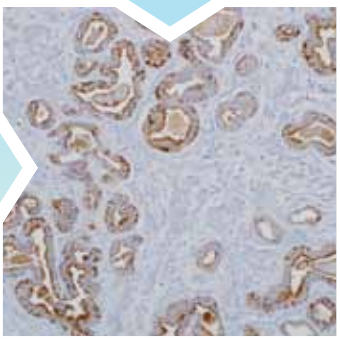

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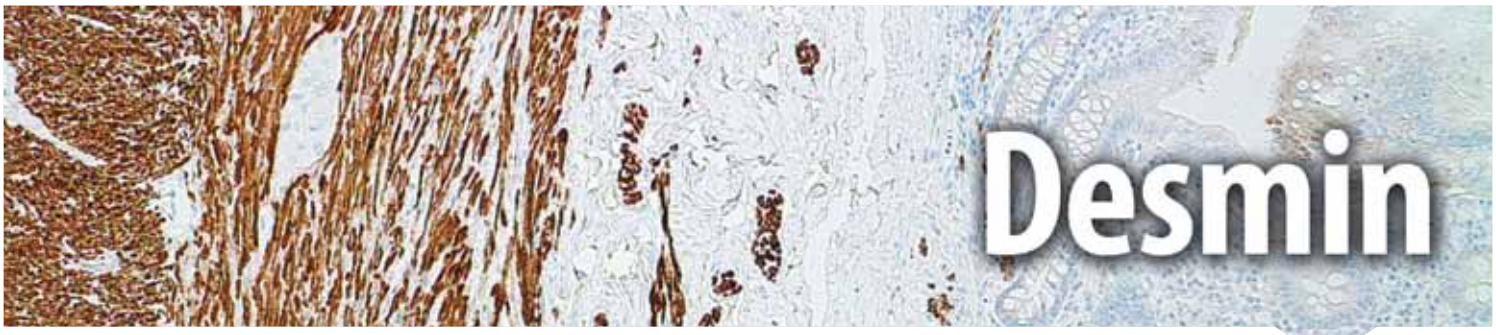

Anti-desmin detects a protein that is expressed by cells of normal smooth, skeletal, and cardiac muscles. The light microscope has suggested that desmin is primarily located at or near the periphery of Z lines in striated muscle fibrils. In smooth muscle, desmin interconnects cytoplasmic dense bodies with membrane-bound dense plaques. Anti-desmin reacts with leiomyomas, leiomyosarcoma, rhabdomyomas, rhabdomyosarcoma, 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.

Soft Tissue Tumor								
	Desmin	CK Cocktail	EMA	MS Actin	SM Actin	CD34	CD99	ALK-1
Epithelioid Sarcoma	-	+	+	-/+	-	+	-	-
PNET/ES	-	-/+	-	-	-	-	+	-
Desmoplastic Small Round Cell	+	+	-	-	-	-	-	-
Myofibroblastic Tumor	+/-	-	-	+	+	-	-	+

Spindle Cell Tumors										
	Desmin	β-Catenin	PGP 9.5	CD117	S-100	Myogenin	CD34	CK Cocktail	Calponin	BCL2
Spindle Cell Carcinoma	-	+/-	+	-	-	-	-	+	-	-
Neurofibroma	-	-	+	-	+	-	-	-	-	+
Rhabdomyosarcoma	+	-	-	+	-	+	-	-	-	+
Endometrial Stromal Tumor	-	+/-	+	-	-	-	-	-	+	-
Smooth Muscle	+	-	-	-	-	-	-	-	+	-
Fibromatosis	-	+	+	-	-	-	-	-	-	-
GIST	-	-	-	+	-	-	+	-	-	+
Schwannoma	-	-	-	-	+	-	-	-	-	+
Leiomyosarcoma	+	-	-	-	-	+/-	-	-/+	+	-
MPNST	-	-	+		+	-	-/+	-		+ (focal)

Reactivity Paraffin

Visualization Cytoplasmic

Control Muscle

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Nadji M, et al. Immunoperoxidase Techniques 1986 ASCP
2. Altmannsberger M, et al. Am J Pathol 1985;118:85-95
3. Debus E, et al. EMBO J 1983;2:2305-2312

Mouse Monoclonal
Clone: D33

0.1 ml, concentrate..... 243M-14
0.5 ml, concentrate..... 243M-15
1 ml, concentrate 243M-16
1 ml, prediluted 243M-17
7 ml, prediluted 243M-18
Positive control slides 243S

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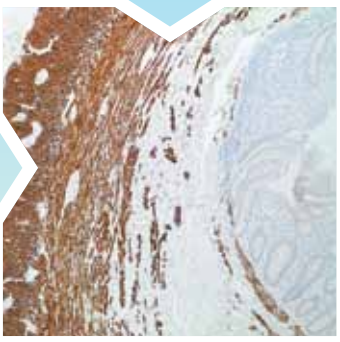

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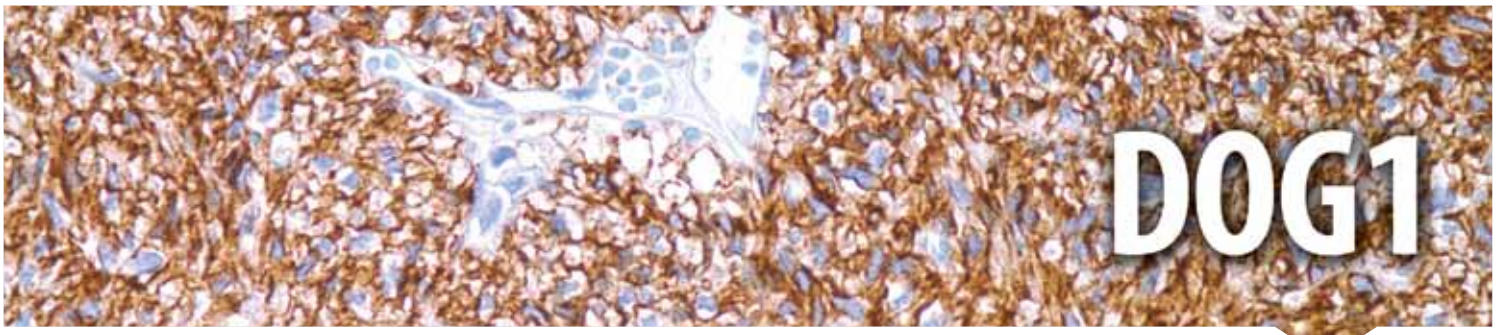

Anti-DOG1 has been shown to be highly specific and sensitive in the diagnosis of gastrointestinal stromal tumors (GIST). Approximately 4%-15% of GIST stain weakly or are negative for anti-c-kit (anti-CD117) by immunohistochemistry. In the vast majority of anti-CD117 (-) GIST cases, anti-DOG1 is expressed by IHC. Therefore, combined use of antibodies against CD117 and DOG1 will increase sensitivity and specificity of the detection.

GIST Mutation vs. Wild Type			
	DOG1	CD117	CD34
GIST, Kit Mutation	+	+	+
GIST, PDGFRA Mutation	+	-	-
GIST, Wild Type	+	+	+/-

Spindle Cell Tumors										
	DOG1	β-Catenin	PGP 9.5	CD34	CK Cocktail	Calponin	BCL2	Desmin	S-100	ALK-1
Myofibroblastic Tumor	-	-	-	-	-	+	-	+	-	+
Spindle Cell Carcinoma	-	+/-	+	-	+	-	-	-	-	-
Neurofibroma	-	-	+	-	-	-	+	-	+	-
Rhabdomyosarcoma	-	-	-	-	-	-	+	+	-	-
Endometrial Stromal Tumor	-	+/-	+	-	-	+	-	-	-	-
Smooth Muscle	-	-	-	-	-	+	-	+	-	-
Fibromatosis	-	+	+	-	-	-	-	-	-	-
GIST	+	-	-	+	-	-	+	-	-	-
Schwannoma	-	-	-	-	-	-	+	-	+	-
Leiomyosarcoma	-	-	-	-	-/+	+	-	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control GIST

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Espinosa I, et al. Am J Surg Pathol. 2008 Feb;32(2):210-8.
2. Miwa S, et al. J Gastroenterol. 2008;43(7):531-7. Epub 2008 Jul 23.
3. Parfitt JR, et al. Histopathology. 2008 Jun;52(7):816-23.

Rabbit Monoclonal Clone: SP31

0.1 ml, concentrate.....244R-14
0.5 ml, concentrate.....244R-15
1 ml, concentrate 244R-16
1 ml, prediluted 244R-17
7 ml, prediluted 244R-18
Positive control slides 244S

Rabbit Monoclonal Clone: SP31

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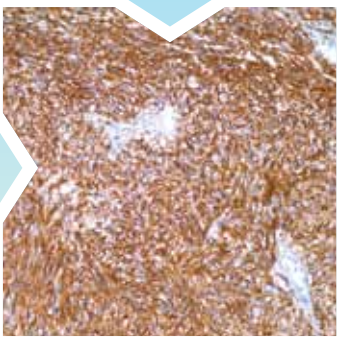

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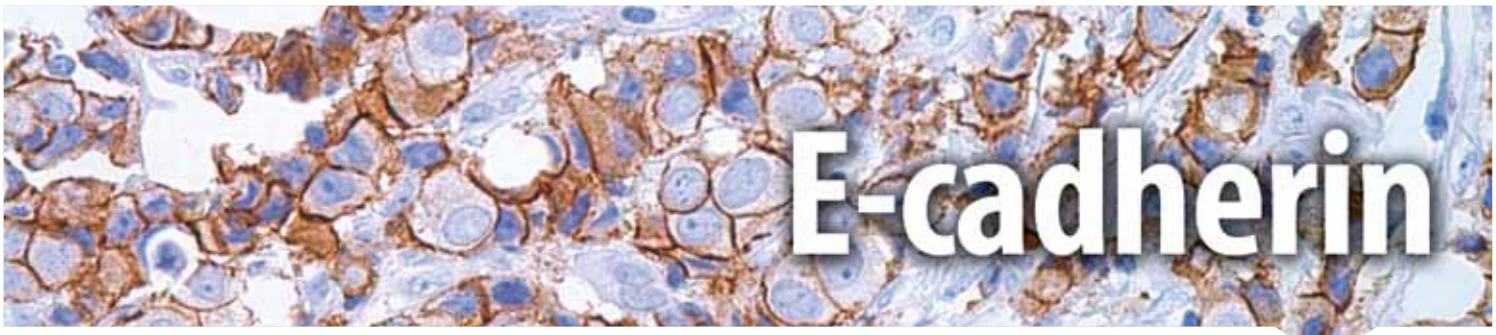

E-cadherin is an adhesion protein that is expressed in cells of epithelial lineage. Anti-E-cadherin stains positively in glandular epithelium as well as adenocarcinomas of the lung, G.I. tract, and ovary. Another application involves the differentiation of ductal (which stains positive) vs. lobular cancer of the breast. It has also been shown to be positive in some thyroid carcinomas. Loss of E-cadherin expression has been suggested as a poor prognostic sign in breast carcinoma and non-small cell lung carcinoma.

Small Cell Carcinoma vs. Merkel Cell Carcinoma								
	E-cadherin	TTF-1	CEA	CK 20	Chromogranin A	Neurofilament	CD117	Synaptophysin
Merkel Cell Carcinoma	+(nuclear)	-	-	+	+	+	+	+
Small Cell Carcinoma	-	+	-	-	-	-	+/-	+

Breast Carcinoma						
	E-cadherin	GCDFP-15	Mammaglobin	β-Catenin	CK, 34βE12	p120
Lobular	-	+	+	-	+	+(cytoplasmic)
Ductal	+	+	+	+(membranous)	-	+(membranous)

Pancreas										
	E-cadherin	Synapto-physin	Chromo-granin A	CD10	Gastrin	CK 19	CA19-9	CD56	β-Catenin	S100P
Neuroendocrine Tumor	-	+	+	-	+/-	+/-	+/-	+	+	-
Solid Pseudopapillary Tumor	+(nuclear)	+	-	+	-	-	-	+	+	-
Ductal Carcinoma	+/-	-	-	+/-	-	+	+	-	+/-	+
Acinic Cell Carcinoma	+	-	-	+/-	-	+	-/+	-	+	-
Pancreatoblastoma	-	-	+	-	-	-	-	+	+	-
Normal Pancreas	-	+	+	-	-	-	-	-	+	-

Reactivity Paraffin

Visualization Membranous

Control Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Krishnadath KK, et al. J Pathol 1997 Jul;182(3):331-8
2. Schofield K, et al. Cancer 1997 Oct 25;81(5):293-8
3. Han AC, et al. Hum Pathol 1997 Jun;28/(6):641-5

Rabbit Monoclonal Clone: EP700Y‡

0.1 ml, concentrate.....246R-14
0.5 ml, concentrate.....246R-15
1 ml, concentrate 246R-16
1 ml, prediluted 246R-17
7 ml, prediluted 246R-18
Positive control slides 246S

Rabbit Monoclonal Clone: EP700Y‡

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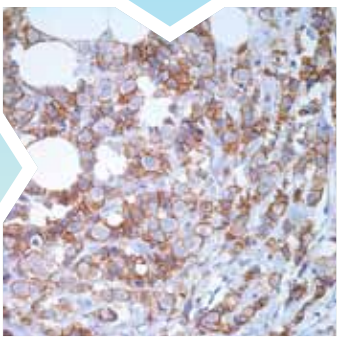

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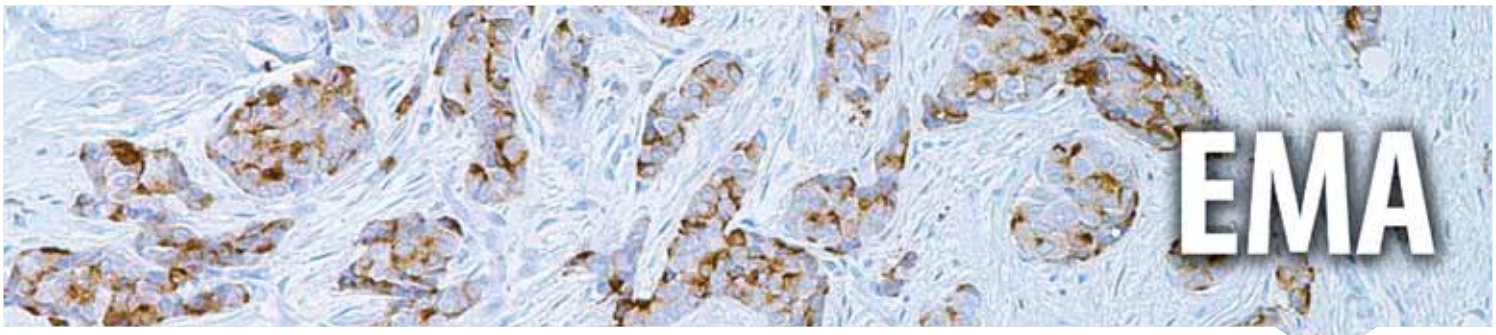
‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



Anti-EMA is a useful marker for staining many carcinomas. 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. Anti-EMA is frequently positive in meningioma, which can be useful when distinguishing it from other intracranial neoplasms, e.g. Schwannomas.

Hodgkin vs. Non-Hodgkin Lymphomas

	EMA	CD79a	CD15	CD30	Fascin	Granzyme B	BCL6	PU.1	MUM1	ALK-1
Hodgkin Lymphoma, Classic	-	-	+	+	+	-	-	-	+	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	+	+	-	-	-	-	+	+	-/+	-
T-cell Rich LBCL	-	+	-	-	-	-	+	-	+	-
Anaplastic LCL	+	-	-	+	-	+	+/-	-	-	+

Skin: Adnexal Tumors

	EMA	CK 7	CK 20	S-100	GCDFP-15	CD15
Merkel Cell Carcinoma	+	-	+	-	-	-
Sebaceous Tumor	-	+	-	-	-	+
Apocrine Tumor	+/-	+	-	-	+	+/-
Eccrine Tumor	+	+	-	+	-	-

Skin: Basal vs. Squamous Cell Carcinoma

	EMA	CK Cocktail	Ep-CAM	BCL2
Basal Cell Carcinoma	-	+	+	+
Squamous Cell Carcinoma	+	+	-	-

Brain: CNS Tumors

	EMA	INI-1	Neurofilament	S-100	CK Cocktail	Vimentin
Meningioma	+	+	-	-	-	+
Rhabdoid Tumors	+	-	+	+/-	+	+

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Pincus GS, et al. Human Pathol 1985;16:929-940
2. Pincus GS, et al. Am J Clin Pathol 1986;77:269-277

Mouse Monoclonal
Clone: E29

0.1 ml, concentrate.....247M-94
0.5 ml, concentrate.....247M-95
1 ml, concentrate 247M-96
1 ml, prediluted 247M-97
7 ml, prediluted 247M-98
25 ml, prediluted.....247M-90
Positive control slides 247S

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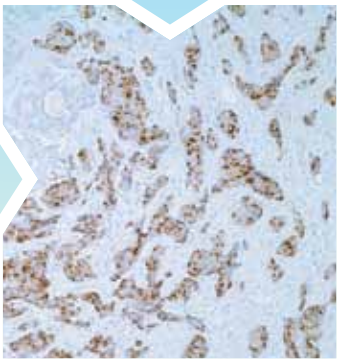

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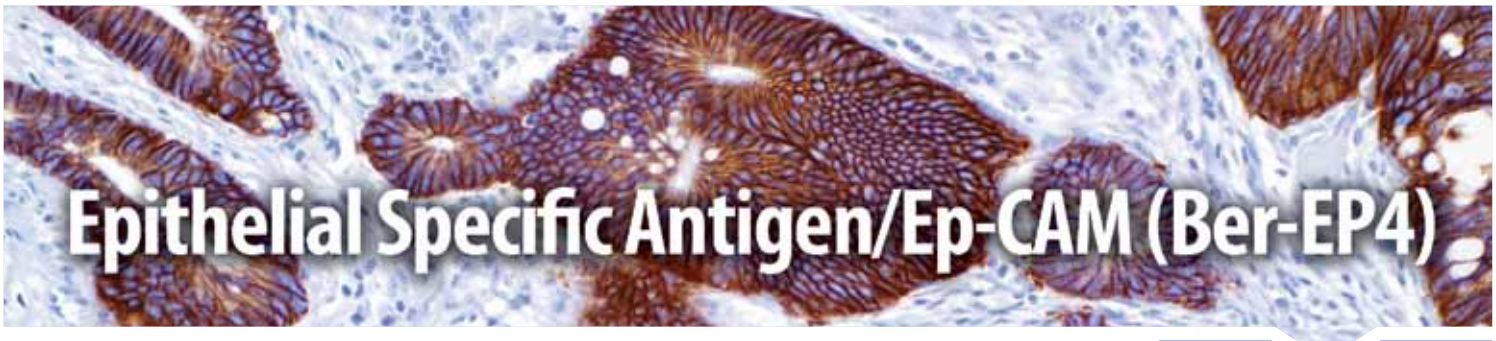

Epithelial Specific Antigen/Ep-CAM (Ber-EP4)

Ep-CAM consists of two glycoproteins, 34 and 39 kDa, sometimes designated as epithelial antigen, epithelial specific antigen, or epithelial glycoprotein. In paraffin sections, the protein is detected with mouse anti-human antibodies like anti-Ber-EP4 and anti-MOC-31. The 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. In liver lesions like hepatitis and cirrhosis, the hepatocytes frequently become anti-Ep-CAM positive. Normal mesothelial cells are anti-Ep-CAM negative, but may express focal reaction when undergoing reactive changes.

Ep-CAM is found in the large majority of adenocarcinomas of most sites (50%-100% in various studies) as well as in neuroendocrine tumors, including small cell carcinoma. Renal cell carcinoma and hepatocellular carcinoma stain with anti-Ber-EP4 in about 30% of cases. Basal cell and basosquamous carcinoma are anti-Ber-EP4 positive in almost all cases. Malignant mesothelioma (epithelioid and biphasic) is anti-Ber-EP4 positive in 4%-26% of the cases. The staining is usually focal, but may occasionally be widespread. Synovial sarcoma (epithelioid and biphasic) and desmoplastic small round cell tumor stain with anti-Ber-EP4 in most cases. Seminoma, embryonal carcinoma, yolk sac tumor, and choriocarcinoma reveal anti-Ber-EP4 positivity in a minor proportion of cases. The lack of reactivity in the majority of malignant mesotheliomas can, in an appropriate panel, be utilized to discriminate between this tumor and adenocarcinoma.

Pleura: Adenocarcinoma vs. Mesothelioma										
	Ber-EP4	Calretinin	CK 5&6	D2-40	HBME-1	Caldesmon	CEA	TAG-72	E-cadherin	TTF-1
Adenocarcinoma	+	-	-	-	-	-	+	+	+	+
Mesothelioma	-	+	+	+	+	+	-	-	-	-

Cutaneous Neoplasm							
	Ber-EP4	CD10	Androgen Receptor	CK 20	CD34	BCL2	CK 19
Basal Cell Carcinoma	+	+	+	-	-	+	+
Trichoepithelioma	+	-	-	+	+	+	+
Merkel Cell Carcinoma	+	-	-	+	-	+	+
Microcystic Adnexal Carcinoma	-/+	+/-	-	-	-	+	
Sebaceous Carcinoma	+	+/-	+	-	-	+/-	-
Sebaceous Adenoma	+	-	+	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Latza, et al. J Clin Pathol. 1990; 43:213-19.
2. Ma, et al. Am J Clin Pathol. 1993;99(5):551-7.
3. Carella, et al. Am J Surg Pathol 2001; 25(1):43-50.

Mouse Monoclonal Clone: Ber-EP4

0.1 ml, concentrate.....248M-94
0.5 ml, concentrate.....248M-95
1 ml, concentrate 248M-96
1 ml, prediluted 248M-97
7 ml, prediluted 248M-98
Positive control slides 248S

Mouse Monoclonal Clone: Ber-EP4

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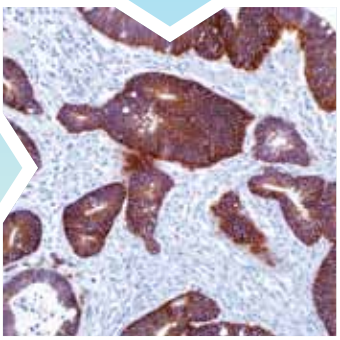

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Epithelial Specific Antigen/Ep-CAM (MOC-31)

Anti-MOC-31 reacts with a transmembrane glycoprotein present on most glandular epithelium and tumors originating from such epithelium. This antibody has been used to distinguish adenocarcinoma from mesothelioma and hepatocellular carcinoma. This antibody is also useful in distinguishing serous carcinomas of the ovary from mesothelioma.

Colon vs. Ovarian Carcinoma										
	MOC-31	CK 7	CK 20	CEA	CDX-2	Villin	CA19-9	WT1	CA-125	CK 5
Ovarian Carcinoma, Serous	+	+	-	+	-	+	+	+	+	-
Ovarian Carcinoma, Mucinous	+	+	-	-	+	+	+	-	-	
Ovarian Endometrioid Carcinoma	+	+	-	-	-		+/-	+	+	-
Colon Carcinoma	+	-	+	+	+	+	+	-	-	-

Kidney: Renal Epithelial Tumors								
	MOC-31	RCC	CD10	PAX-2	Vimentin	Ksp-cadherin	Parvalbumin	CD117
Clear Cell RCC	-	+	+	+	+	-	-	-
Chromophobe RCC	+	-/+	-/+	+	-	+	+	+
Oncocytoma	-	-	+/-	+	-	+/-	+	+

Skin: Basal vs. Squamous Cell Carcinoma				
	MOC-31	CK Cocktail	EMA	BCL2
Basal Cell Carcinoma	+	+	-	+
Squamous Cell Carcinoma	-	+	+	-

Pleura: Adenocarcinoma vs. Mesothelioma										
	MOC-31	Calretinin	CK 5&6	D2-40	HBME-1	Caldesmon	CEA	TAG-72	E-cadherin	TTF-1
Adenocarcinoma	+	-	-	-	-	-	+	+	+	+
Mesothelioma	-	+	+	+	+	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: Protease
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Go kDen M, Shinde A. Diagn Cytopathol. 2005 Sep;33(3):166-72.
2. Hecht JL, et al. Cancer. 2006 Feb 25;108(1):56-9
3. Kakar S, et al. Arch Pathol Lab Med. 2007 Nov;131(11):1648-54. Review.

Mouse Monoclonal
Clone: MOC-31

0.1 ml, concentrate.....248M-14
0.5 ml, concentrate.....248M-15
1 ml, concentrate 248M-16
1 ml, prediluted 248M-17
7 ml, prediluted 248M-18
25 ml, prediluted.....248M-10
Positive control slides 248S

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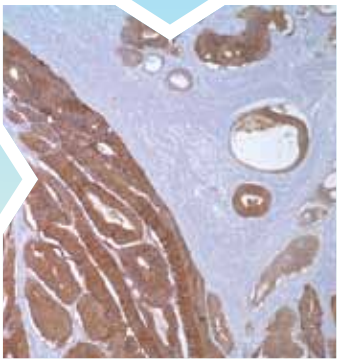

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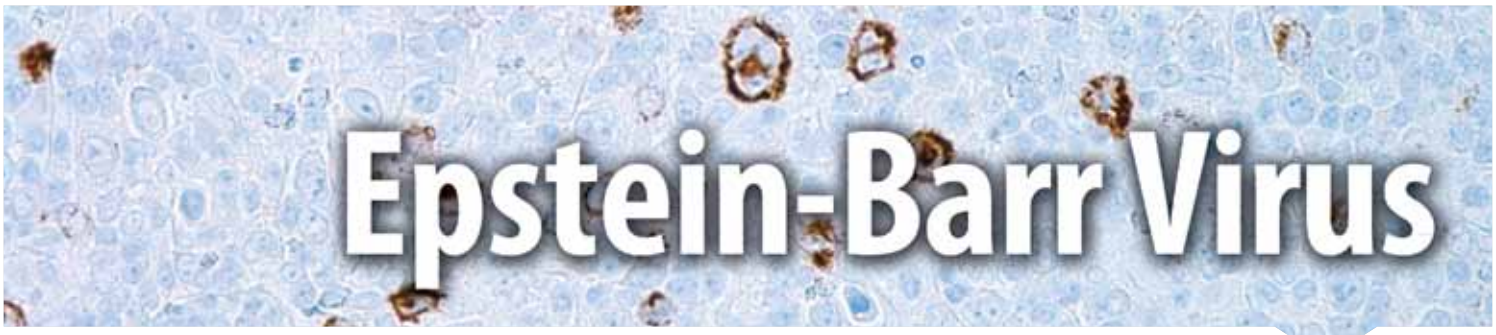

Epstein-Barr Virus

Anti-Epstein-Barr virus targets the 60 kDa latent membrane protein (LMP-1) encoded by the BNLF1 gene of the Epstein-Barr virus. There is cross-reactivity with Reed-Sternberg cells of Hodgkin disease. The Epstein-Barr virus is an important cause of infectious mononucleosis and has been associated with oral carcinomas.

Reactivity Paraffin

Visualization Cytoplasmic

Control EBV-infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype CS1-4: IgG_1
MRQ-47: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Murray PG, et al. J Pathol. 166: 1-5 (1992)
2. Jarrett R,F et al. Blood 78:1-10 (1991)
3. Pailesen G, et al. Lancet. 337: 320-322 (1991)

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For IVD product, please remove the "ASR" suffix from the end of the catalog number when ordering.

For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Note: Ventana® 50 Test Dispenser not available in U.S.

Mouse Cocktail Clone: CS1-4

0.1 ml, concentrate.... 245M-14 (ASR)
0.5 ml, concentrate.... 245M-15 (ASR)
1 ml, concentrate ..... 245M-16 (ASR)
1 ml, prediluted ..... 245M-17 (ASR)
7 ml, prediluted ..... 245M-18 (ASR)
Positive control slides . 245S

Mouse Cocktail Clone: CS1-4

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Rabbit Monoclonal Clone: MRQ-47

0.1 ml, concentrate.... 245R-14 (ASR)
0.5 ml, concentrate.... 245R-15 (ASR)
1 ml, concentrate ..... 245R-16 (ASR)
1 ml, prediluted ..... 245R-17 (ASR)
7 ml, prediluted ..... 245R-18 (ASR)
Positive control slides . 245S

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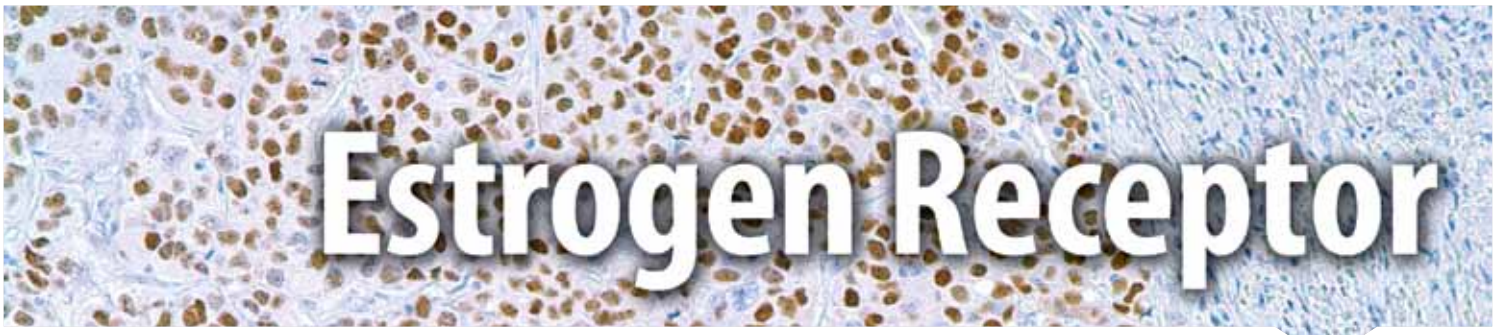

Anti-estrogen receptor reacts with a 67 kDa polypeptide. This antibody stains nuclei of breast epithelial cells and some carcinomas, as well as endometrial epithelia and myometrium.

Reactivity Paraffin

Visualization Nuclear

Control Breast, Endometrium

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dabbs DJ, et al. Diagnostic Immunohistochemistry 2002 Churchill Livingstone
2. Kell DL, et al. Applied Immunohistochemistry 1(4): 275-81,1993
3. Leong ASY, et al. Applied Immunohistochemistry 1(4): 282-288, 1993

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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Rabbit Monoclonal
Clone: SP1

0.1 ml, concentrate	249R-14 (ASR)
0.5 ml, concentrate	249R-15 (ASR)
1 ml, concentrate	249R-16 (ASR)
1 ml, prediluted	249R-17 (ASR)
7 ml, prediluted	249R-18 (ASR)
Positive control slides	249S

ASR†

IVD

IVD

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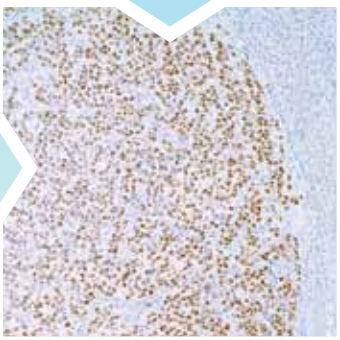

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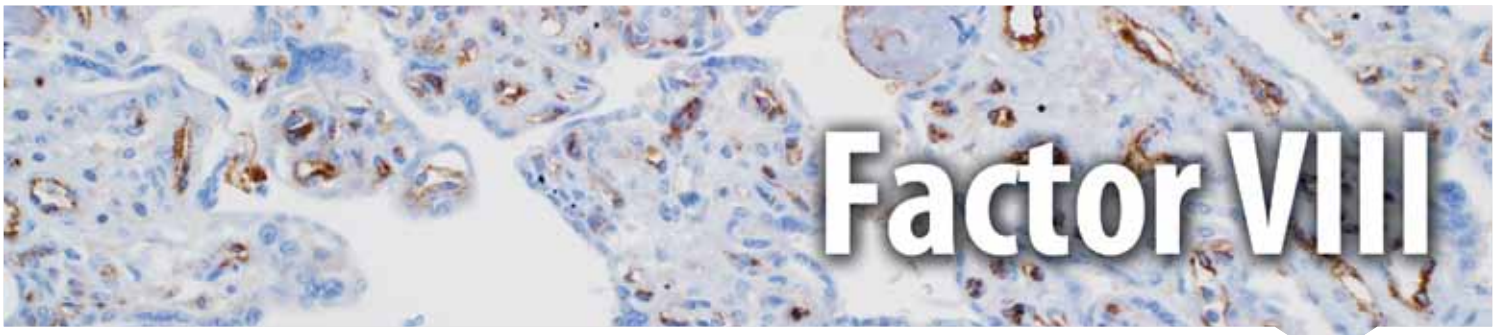

Factor VIII

Anti-factor VIII-related antigen reacts with endothelial cells. This antibody has helped to establish the endothelial nature of some lesions of disputed histogenesis, e.g. Kaposi's sarcoma and cardiac myxoma. This antibody is widely used for differentiating vascular lesions from those of other tissue differentiation within a panel of other vascular markers although not all tumors of endothelial differentiation react with this antigen.

Skin: Spindle Cell Tumors										
	Factor VIII	FLI-1	HHV-8	D2-40	SM Actin	MS Actin	NGFR	CD10	CK Cocktail	S-100
Spindle Squamous Cell Carcinoma	-	-	-	+	-	-	-	-	+	-
Spindle Cell Melanoma	-	+	-	+	-	-	+	-	-	+
Atypical Fibroxanthomas	-	-	-	-	+	+	-	+	-	-
Peripheral Nerve Sheath	-	-	-	+	-	+	-	-	-	+/-
Smooth Muscle	-	-	-	-	+	+	-	-	-	-
Angiosarcoma	+	+	-	+/-	-	-	-	-	-	-
Hemangioma	+	+	-	-	+	-	-	-	-	-
Kaposi's Sarcoma	+	+	+	+	+	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Placenta

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Abenoza P, et al. Am J Dermatopathol 1993 Oct: 15(5): 429-34
2. Anstey A, et al. Am J Dermatopathol 1994 Feb: 16(1):14-22
3. Glusac EJ, et al. Am J. Surg Pathol 1994 Jun: 18(6): 583-90
4. Nemes Z. Hum Pathol 1992 Jul; 23(7):805-10

Rabbit Polyclonal

0.1 ml, concentrate.....250A-14
0.5 ml, concentrate.....250A-15
1 ml, concentrate 250A-16
1 ml, prediluted 250A-17
7 ml, prediluted 250A-18
Positive control slides 250S

Rabbit Polyclonal

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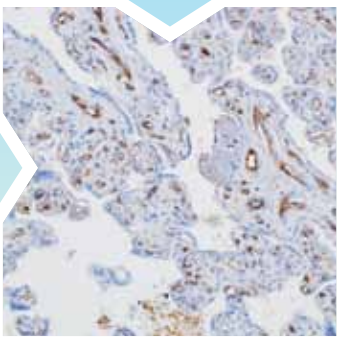

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Factor XIIIa is a blood proenzyme that has been identified in platelets, megakaryocytes, and fibroblast-like mesenchymal or histiocytic cells present in the placenta, uterus, and prostate; it is also present in monocytes, macrophages, and dermal dendritic cells. Anti-factor XIIIa has been found to be useful in differentiating between dermatofibroma (90% (+)), dermatofibrosarcoma protuberans (25%(+)), and desmoplastic malignant melanoma (0%(+)). Anti-factor XIIIa positivity is also seen in capillary hemangioblastoma (100%(+)), hemangioendothelioma (100%(+)), hemangiopericytoma (100%(+)), xanthogranuloma (100%(+)), xanthoma (100%(+)), hepatocellular carcinoma (93%(+)), glomus tumor (80%(+)), and meningioma (80 % (+)).

Melanotic Lesions									
	Factor XIIIa	S-100	HMB-45	MART-1	Tyrosinase	MiTF	CD63	WT1	SOX10
Junctional Nevus	-	+	+	+	+	+	-	+/-	
Primary Melanoma	-	+	+	+	+	+	+		+
Metastatic Melanoma	-	+	+	+	+	+	+	+	+
Adrenal Cortical	-	+	-	+	-	-	-		
Dermatofibroma	+	-	-	-	-	-	-		

Skin: Spindle Cell Tumors									
	Factor XIIIa	MS Actin	CD10	SM Actin	CD34	NGFR	CD99	A1ACT	A1AT
Atypical Fibroxanthomas	+/-	+	+	+	-	-	+	+	+
Dermatofibrosarcoma Protuberans	-	-	+/-	-	+	+	-	-	-
Dermatofibroma Fibrous Histiocytoma	+	-	+	-	-	-	-	-	-

Histiocytic Proliferation							
	Factor XIIIa	S-100	CD68	Vimentin	Lysozyme	CD1a	HAM-56
Juvenile Xanthogranuloma	+	-	+	+	+	-	+
Langerhans Cell Histiocytosis	-	+	+	+	+	+	+
Dermatofibroma	+	-	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Dermatofibroma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Abenoza P, et al. Am J Dermatopathol 1993 Oct: 15(5):429-34
2. Anstey A, et al. Am J Dermatopathol 1994 Feb: 16(1):14-22
3. Glusac EJ, et al. Am J. Surg Pathol 1994 Jun: 18(6): 583-90

Rabbit Monoclonal Clone: EP3372‡

0.1 ml, concentrate.....251R-14
0.5 ml, concentrate.....251R-15
1 ml, concentrate 251R-16
1 ml, prediluted 251R-17
7 ml, prediluted 251R-18
Positive control slides 251S

Rabbit Monoclonal Clone: EP3372‡

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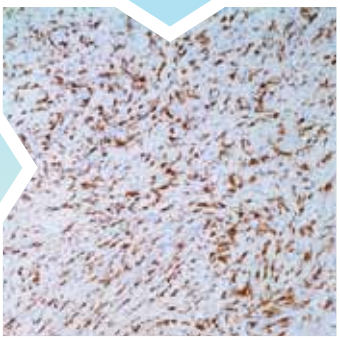

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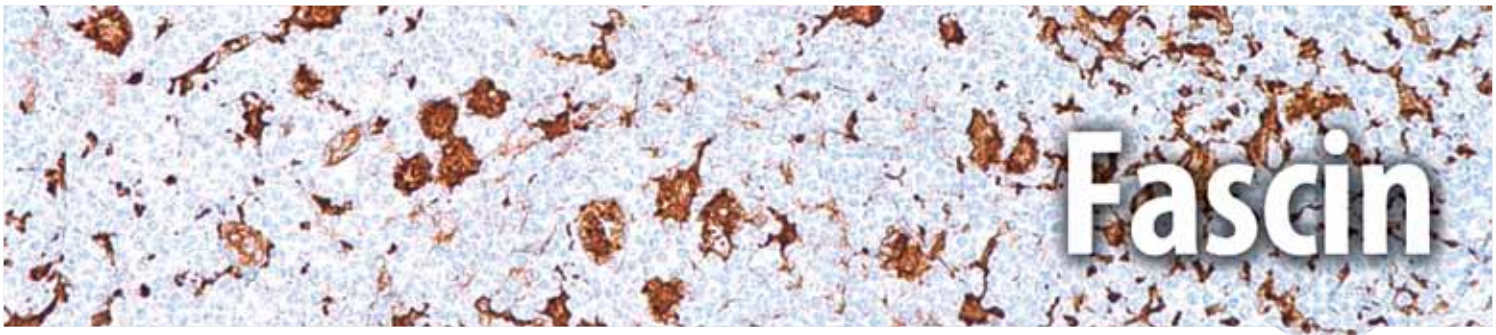
‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



Anti-fascin is a very sensitive marker for Reed-Sternberg cells and variants in nodular sclerosis, mixed cellularity, and lymphocyte depletion Hodgkin disease. It is uniformly negative in lymphoid cells, plasma cells, and myeloid cells. Anti-fascin is positive in dendritic cells. This marker may be helpful to distinguish between Hodgkin lymphoma 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. Anti-fascin has been suggested as a prognostic marker in neuroendocrine neoplasms of the lung as well as in ovarian cancer.

Hodgkin vs. Non-Hodgkin Lymphomas										
	Fascin	CD79a	CD15	CD30	Granzyme B	BCL6	PU.1	MUM1	ALK-1	EMA
Hodgkin Lymphoma, Classic	+	-	+	+	-	-	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-	+	-	-	-	+	+	-/+	-	+
T-cell Rich LBCL	-	+	-	-	-	+	-	+	-	-
Anaplastic Large Cell Lymphoma	-	-	-	+	+	+/-	-	-	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Hodgkin Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Pincus GS, et al. American Journ. of Path.; vol. 150, No. 2, p. 543 – 562
2. Pelosi G, et al. Lung Cancer. 2003 Nov;42(2):203-13
3. Goncharuk VN, et al. J Cutan Pathol. 2002 Aug;29(7):430-8

Mouse Monoclonal Clone: 55k-2

0.1 ml, concentrate.....252M-14
0.5 ml, concentrate.....252M-15
1 ml, concentrate 252M-16
1 ml, prediluted 252M-17
7 ml, prediluted 252M-18
Positive control slides 252S

Mouse Monoclonal Clone: 55k-2

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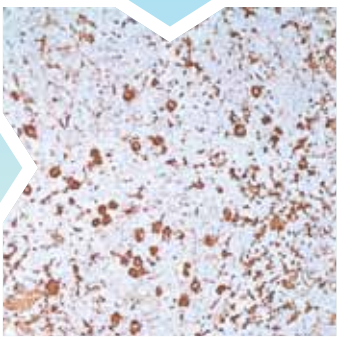

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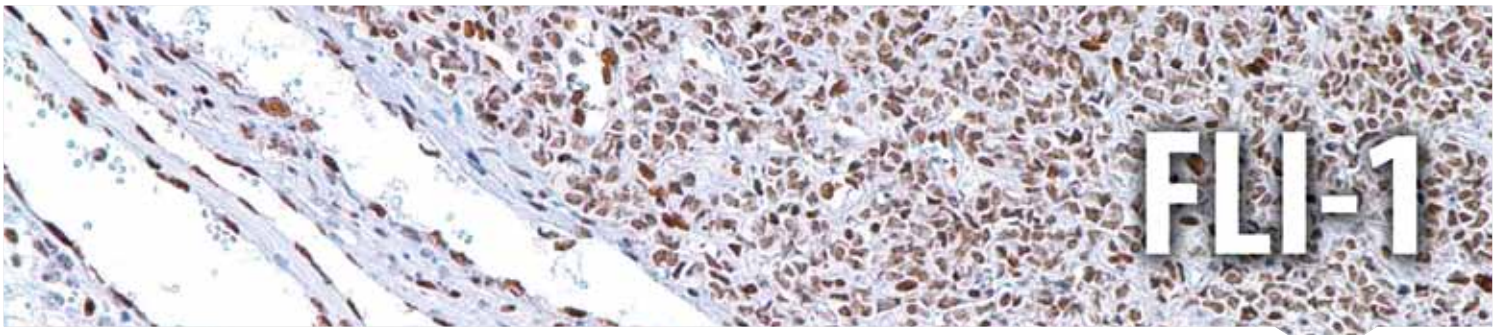

Ewing sarcoma/peripheral primitive neuroectodermal tumor (ES/pPNET) is a rare primary tumor of the bone/soft tissue that resembles other undifferentiated tumors. The differential diagnosis of undifferentiated tumors of the soft tissue includes blastemal Wilms' tumor, rhabdoid tumor, neuroblastoma, lymphoma, clear cell sarcoma, small cell carcinoma, synovial sarcoma (SS), neuroblastoma, desmoplastic small round cell tumor (DSRCT), and ES/pPNET. The Fli-1 gene and Fli-1 protein are best known for their critical role in the pathogenesis of ES/pPNET. Fli-1 is normally expressed in endothelial cells and in hematopoietic cells, including T-lymphocytes. The immunohistochemical detection of Fli-1 protein has been shown in two recent studies to be valuable in the discrimination of ES/pPNET from most of its potential mimics, with the notable exception of lymphoblastic lymphoma.

Small, Round Blue Cell Tumors										
	FLI-1	MS Actin	SM Actin	Myogenin	CK Cocktail	CD99	PGP 9.5	CD45	Vimentin	CD57
Lymphoblastic Lymphoma	+	-	-	-	-	+		+	+	-
Rhabdomyosarcoma	-	-/+	-/+	+	-	-	+	-	+	-
Neuroblastoma	-	-	-	-	-	-	+	-	+	+
Embryonal Carcinoma	-	-	-	-	+	-	+	-	-	+
PNET/ES	+	-	-	-	-/+	+	+	-	+	+
DSRCT	+	-	-	-	+	-	-	-	+	+/-
Medulloblastoma	-	-	-	-	-	-		-	-	+

Skin: Spindle Cell Tumors										
	FLI-1	GLUT1	CD99	Factor VIII	HHV-8	CK 8 & 18	CD34	NGFR	Collagen IV	D2-40
Spindle Cell Melanoma	+	-	-	-	-	-	-	+	-	+
Angiosarcoma	+	-	-	+	-	-	+	-	+/-	+/-
Hemangiopericytoma	+	-	+/-	-	-	-	+	-	-	-
Hemangioma	+	+	-	+	-	-	+	-	+	-
Kaposiform Hemangioendothelioma	+	-	-	-	-	+	+	-	-	-
Kaposi's Sarcoma	+	-	-	+	+	-	+	-	+/-	+

Reactivity Paraffin

Visualization Nuclear

Control PNET

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mhawech-Fauceglia P, et al. Histopathology. 2006 Dec;49(6):569-75.
2. Kuroda N, et al. Med Mol Morphol. 2006 Dec;39(4):221-5. Epub 2006 Dec 21.
3. Blind C, Koepenik A, et al. J Clin Pathol. 2008 Jan;61(1):79-83. Epub 2007 Apr 5.

Mouse Monoclonal Clone: MRQ-1

0.1 ml, concentrate	254M-14
0.5 ml, concentrate	254M-15
1 ml, concentrate	254M-16
1 ml, prediluted	254M-17
7 ml, prediluted	254M-18
Positive control slides	254S

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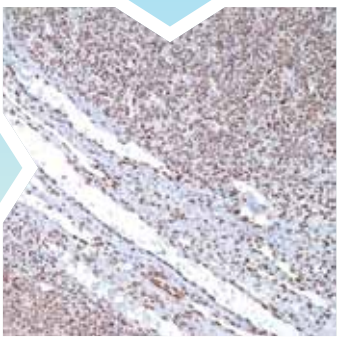

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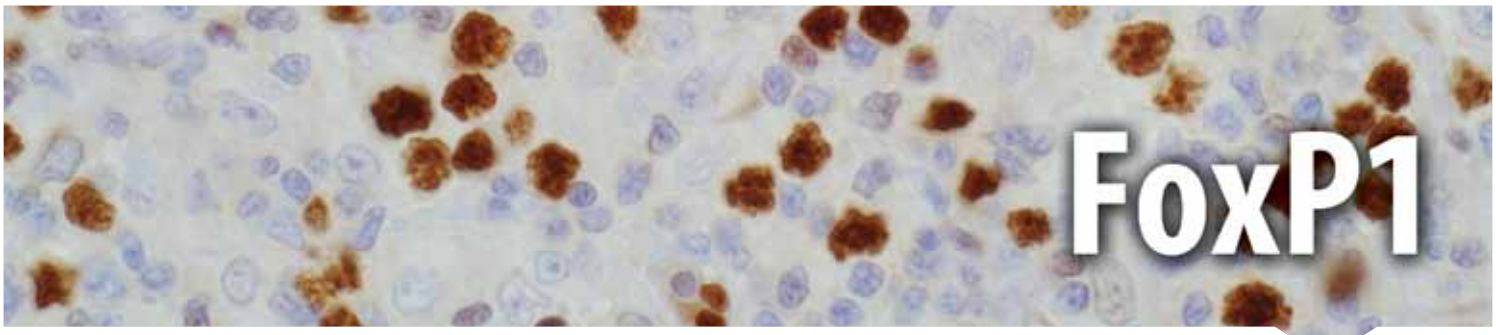

Diffuse large B-cell lymphoma (DLBCL) represents different clinicopathologic entities which are difficult to separate using standard techniques. From the clinical standpoint, the introduction of immunochemotherapy in the treatment of DLBCL has dramatically improved the outcome of these patients compared with chemotherapy alone. Gene expression profiling (GEP) studies have shown that DLBCL can be reproducibly divided into the important subtypes of germinal center B-cell–like (GCB), activated B-cell–like (ABC), and unclassified DLBCL. It is beneficial to translate the GEP classification into protein expression by tumor cells through immunohistochemical (IHC) staining of formalin-fixed, paraffin-embedded tissues. A panel of antibodies: CD10, BCL6, MUM1/IRF4, GCET1, FoxP1, LMO2, and BCL2 has been used to determine GCB or ABC and each has different percentage thresholds for positive staining. Choi et al. demonstrated that the cases positive for GCET1 (≥ 80% of tumor cells) and MUM1/IRF4 (≥ 80%) and/or FoxP1 (≥ 80%) or negative for CD10 and BCL6 (≤ 30%) were assigned to the group. The cases positive for CD10 (≥ 30%), GCET1 (≥ 80%) without MUM1 expression, or positive for BCL6 without FoxP1 expression were classified as GCB. This study indicated the importance of FoxP1 in the subclassification of DLBCL. Choi et al then modified their approach to DLBCL subclassification by focusing on FoxP1. The tumors that are positive for both FoxP1 and GCET1 are assigned to GCB subgroup, but, if FoxP1 is positive and GCET1 is negative, the tumors belong to the ABC phenotype. If a case is FoxP1 negative but MUM-1/IRF4 positive, it still belongs to the ABC phenotype as long as CD10 is not expressed. This modified method emphasized the role of FoxP1, MUM1/IRF4, and GCET1 in the subclassification of DLBCL. The Choi's algorithm had a very high concordance with the GEP results (87%). Therefore, FoxP1 is useful in subclassification of DLBCL and a high cutoff (≥80%) for FoxP1 is needed to achieve high specificity for the ABC subtype.

B-cell Lymphomas										
	FoxP1	CD79a	TCL1	BCL2	BCL6	CD10	CD23	Cyclin D1	MUM1	Annexin A1
Follicular	-	+	+	+	+	+	-	-	-	-
CLL/SLL	-	+	+	+	-	-	+	-	+	-
Mantle Cell	-	+	+	+	-	-	-	+	-/+	-
Splenic Marginal Zone	-	+	-	+	-	-	-	-	+/-	-
Lymphoplasmacytic	-	+	+	+	-	-	-	-	+	-
Diffuse Large Cell	+	+	+	+	+	-/+	-	-	+	-
Burkitt	+	+	+	-	+	+	-	-	-	-
Hairy Cell Leukemia	-	+	+	+	-	-	-	+(weak)/-		+
MALT Lymphoma	+	+	+	+	-/+	-	-	-	-	

Reactivity Paraffin

Visualization Nuclear

Control Tonsil, Lymph Node, DLBCL

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hoefnagel JJ, et al. Mod Pathol. 2006 Sep;19(9):1270-6. Epub 2006 Jun 16.
2. Sagaert X, et al. J Clin Oncol. 2006 Jun 1;24(16):2490-7. Epub 2006 Apr 24.
3. Choi WW, et al. Clin Cancer Res. 2009; 15:5494-5502.

Rabbit Monoclonal Clone: SP133

0.1 ml, concentrate.....350R-14
0.5 ml, concentrate.....350R-15
1 ml, concentrate 350R-16
1 ml, prediluted 350R-17
7 ml, prediluted 350R-18
Positive control slides 350S

Rabbit Monoclonal Clone: SP133

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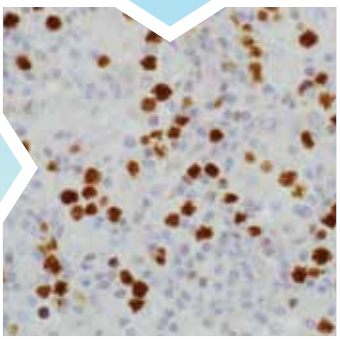

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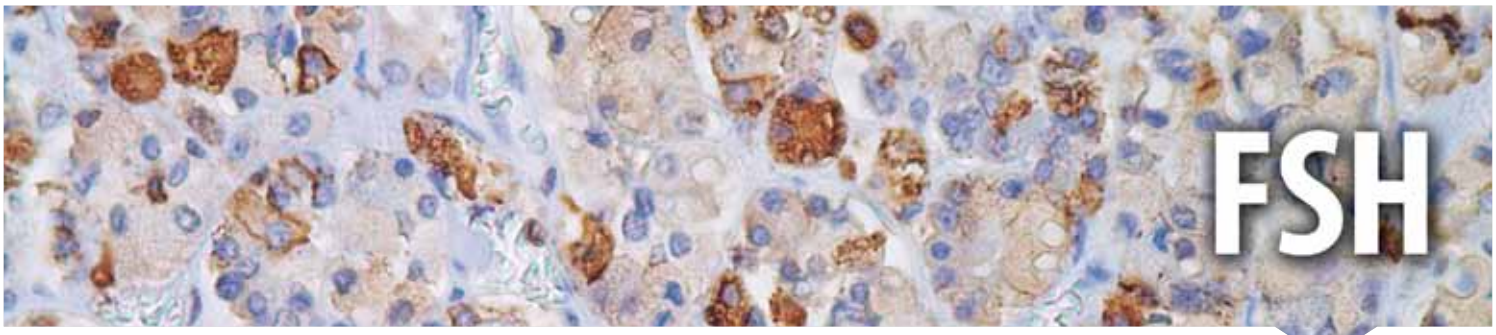

Follicle-stimulating hormone (FSH) is a member of the pituitary glycoprotein hormone family which includes luteinizing hormone, chorionic gonadotropin, and thyroid-stimulating hormone. Follicle-stimulating hormone enables ovarian folliculogenesis to the antral follicle stage and is essential for Sertoli cell proliferation and maintenance of sperm quality in the testis. Members of the pituitary glycoprotein hormone family consist of a shared alpha chain and a beta chain encoded by a separate gene. The FSHB gene encodes the beta subunit of follicle stimulating hormone.

Anti-FSH is a useful marker in classification of pituitary tumors and the study of pituitary disease. It reacts with FSH-producing cells (gonadotrophs).

Pituitary Panel						
	FSH	ACTH	GH	LH	Prolactin	TSH
Pituitary	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Pituitary

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Schmidt M, et al. Pathol Res Pract. 2001;197(10):663-9
2. Uccella S, et al. Pituitary. 2000 Nov;3(3):131-9
3. La Rosa S, et al. Virchows Arch. 2000 Sep;437(3):264-9
4. Zheng W, et al. Gynecol Oncol. 2000 jan;76(1):80-8

Rabbit Polyclonal

0.1 ml, concentrate.....207A-74
0.5 ml, concentrate.....207A-75
1 ml, concentrate 207A-76
1 ml, prediluted 207A-77
7 ml, prediluted 207A-78
Positive control slides 207S

Rabbit Polyclonal

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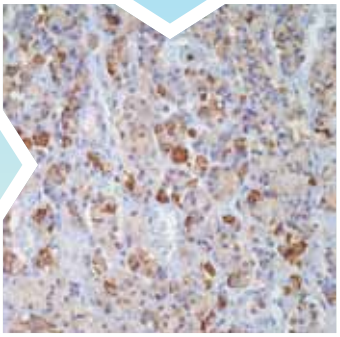

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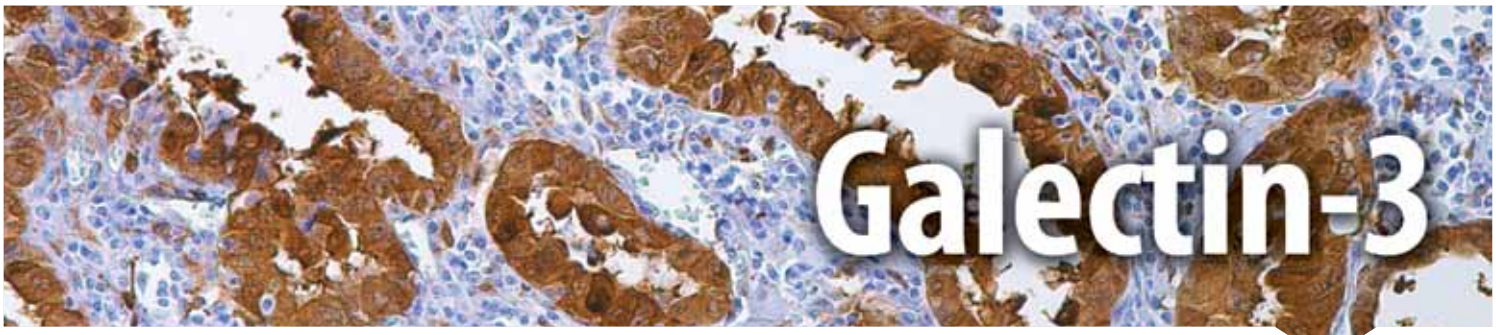

Galectin-3 is a 30 kD protein, a member of the b-galactosidase-binding lectin family. It has been implicated in processes including cell growth, adhesion, inflammation, mRNA processing, and apoptosis. It is predominantly expressed in the nucleus of epithelial and immune cells.

Galectin-3 is found in neutrophils and vascular endothelium. Over-expression is related to malignant transformation and metastasis in carcinomas of the breast, colon, tongue, liver, and thyroid but is absent in thyroid adenomas. Anti-galectin-3 is utilized for differentiation between follicular adenoma, follicular carcinoma, and papillary carcinoma of the thyroid, and is best used in a panel with other markers such as anti-CK19 and anti-HBME-1. Anti-galectin-3 shows the most intense staining in the advancing tongues of minimally invasive follicular carcinoma and may be helpful in differentiating a follicular adenoma from a minimally invasive carcinoma.

Thyroid: Malignant vs. Benign						
	Galectin-3	Thyroglobulin	Calcitonin	CK 19	TTF-1	HBME-1
Papillary Carcinoma	+	+	-	+	+	+
Follicular Carcinoma	+	+	-	-/+	+	+/-
Medullary Carcinoma	-	-	+	+/-	+	+
Benign Thyroid	-	+	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Papillary Carcinoma of Thyroid

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Inohara H, et al. Cancer 1999;85:2475-84.
2. Herrmann ME, et al. Arch Pathol Lab Med. 2002;126:710-713

Mouse Monoclonal
Clone: 9C4

0.1 ml, concentrate.....255M-14
0.5 ml, concentrate.....255M-15
1 ml, concentrate 255M-16
1 ml, prediluted 255M-17
7 ml, prediluted 255M-18
Positive control slides 255S

Mouse Monoclonal
Clone: 9C4

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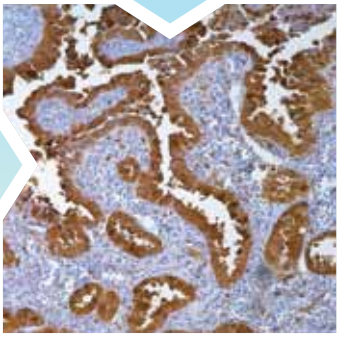

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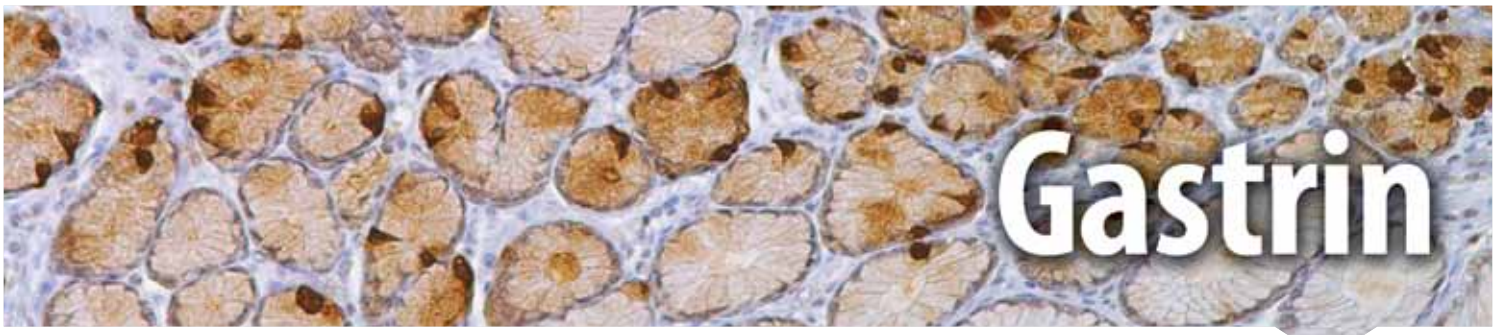

Gastrin is a hormone whose main function is to stimulate secretion of hydrochloric acid by the gastric mucosa, which results in gastrin formation inhibition. This hormone also acts as a mitogenic factor for gastrointestinal epithelial cells. Gastrin has two biologically active peptide forms: G34 and G17. They activate two different receptors: the CCK-1 receptor, which has low affinity for gastrin but high affinity for the related hormone cholecystokinin (CCK), and the CCK-2 receptor, which has high affinity for both gastrin and CCK and mediates the acid-secretory as well as the proliferative effects of gastrin. More recently, gastrin has been suggested to induce leukocyte-endothelial cell interactions and to have a pro-inflammatory effect.

Anti-gastrin stains G-cells of human antral/pyloric mucosa and cells producing gastrin or a structural gastrin analog as is seen in stomach; no staining of other cells or tissue types has been observed. This antibody may react with sulfated and non-sulfated forms of gastrin.

Reactivity Paraffin

Visualization Cytoplasmic

Control Stomach

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Rehfeld JF, et al. J Biol Chem 1981; 256:10426-9
2. Kirchner T, et al. Am J Surg Path 1987;11:909-17
3. Bornstein-Quevedo L, Gamboa-Dominguez A. Hum Pathol.. 2001 Nov;32(11):1252-6
4. Herrmann ME, et al. Arch Pathol Lab Med. 2000 Jun;124(6):832-5

Rabbit Polyclonal

0.1 ml, concentrate.....256A-14
0.5 ml, concentrate.....256A-15
1 ml, concentrate 256A-16
1 ml, prediluted 256A-17
7 ml, prediluted 256A-18
Positive control slides 256S

Rabbit Polyclonal

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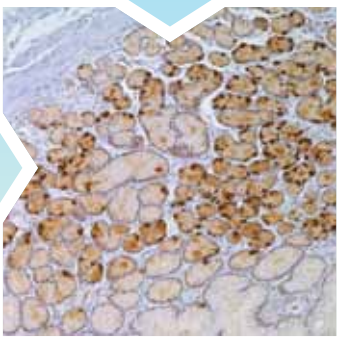

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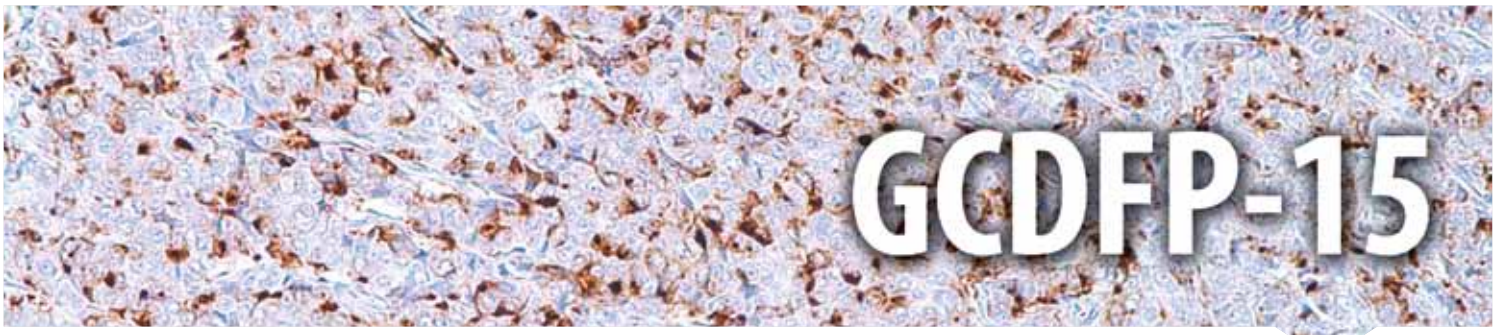

GCDFP-15 is a 15 kD glycoprotein which is localized in the apocrine metaplastic epithelium lining breast cysts and in apocrine glands in the axilla, vulva, eyelid, and ear canal. Approximately 70% of breast carcinomas stain positive with antibody to GCDFP-15. Anti-GCDFP-15 is the most specific marker for breast carcinoma. Colorectal carcinomas, lung carcinoma, and mesotheliomas usually do not stain with this antibody. Lung adenocarcinoma rarely stains with this antibody.

Carcinomas

	GCDFP-15	CK 7	CK 20	CK, LMW	CK, HMW	CK 5	p63	Vimentin	ER/PR	CEA
Salivary Gland Carcinoma	+	+	-	+		+	+	+	-	+
Breast Carcinoma	+	+	-	+	+	-	-	-	+	-
Sweat Gland Carcinoma	+	+	-			+	+	-	-	+

Carcinoma: Differential Diagnosis

	GCDFP-15	Androgen Receptor	BCA-225	ER/PR	Mammaglobin	PSA/PSAP	CD44
Salivary Duct Carcinoma	+	+	+	-	-	-	-
Breast Carcinoma	+	+(apocrine)	+	+/-	+	-	-
Prostate Carcinoma	-	+	-	-	-	+	+
Lung Carcinoma	-			+/-	-	-	-

Breast Lesion

	GCDFP-15	Mammaglobin	β-Catenin	E-cadherin	CK, 34βE12	p120
Lobular	+	+	-	-	+	+(cytoplasmic)
Ductal	+	+	+(membranous)	+	-	+(membranous)

Breast vs. Lung vs. Prostate Carcinoma

	GCDFP-15	Mammaglobin	PSA	TTF-1	Napsin A
Breast Carcinoma	+	+	-	-	-
Lung Carcinoma	-	-	-	+	+
Prostate Carcinoma	-	-	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Breast, Breast Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype EP1582Y‡: IgG
23A3: IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mazoujian G, et al. Am J Dermatopathol 1988 Feb;10(1):28-35
2. Ansai S, et al. Am J Dermatopathol 1995 Jun;17(3):249-55
3. Mazoujian G, et al. Am J Pathol 1983 Feb;110(2):105-12

Rabbit Monoclonal Clone: EP1582Y‡

0.1 ml, concentrate.....257R-14
0.5 ml, concentrate.....257R-15
1 ml, concentrate 257R-16
1 ml, prediluted 257R-17
7 ml, prediluted 257R-18
Positive control slides 257S

Rabbit Monoclonal Clone: EP1582Y‡

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Mouse Monoclonal Clone: 23A3

0.1 ml, concentrate.....257M-14
0.5 ml, concentrate.....257M-15
1 ml, concentrate 257M-16
1 ml, prediluted 257M-17
7 ml, prediluted 257M-18
Positive control slides 257S

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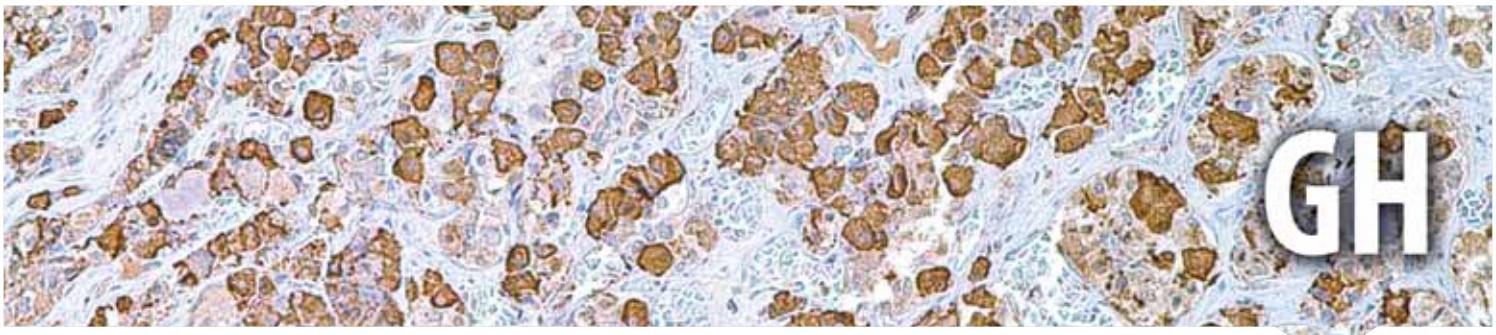
‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



Pituitary growth hormone (GH) plays a crucial role in stimulating and controlling the growth, metabolism and differentiation of many mammalian cell types by modulating the synthesis of multiple mRNA species. These effects are mediated by the binding of GH to its membrane-bound receptor, GHR, and involve a phosphorylation cascade that results in the modulation of numerous signaling pathways. GH is synthesized by acidophilic or somatotropic cells of the anterior pituitary gland. Human growth hormone contains 191 amino acid residues with two disulfide bridges.

Anti-GH is a useful marker in classification of pituitary tumors and the study of pituitary disease (acromegaly). It reacts with GH-producing cells. Growth hormone receptors have been found in various non-pituitary cells, including that from hepatocellular carcinoma and various benign and malignant cutaneous lesions.

Pituitary Panel						
	GH	ACTH	FSH	LH	Prolactin	TSH
Pituitary	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Pituitary

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Fukaya T, et al. Cancer 1980;45:1598
2. Kovacs K, et al. Virch Arch Pathol Anat 1982;395:59
3. Cunha KS, et al. J Clin Pathol. 2003 Oct;56(10):758-63
4. Chopin LK, et al. Growth Horm IGF Res. 2002 Apr;12(2):126-36
5. Matsuno A, et al. Pathol Res Pract. 2001;197(1):13-20

Rabbit Polyclonal

0.1 ml, concentrate.....208A-74
0.5 ml, concentrate.....208A-75
1 ml, concentrate 208A-76
1 ml, prediluted 208A-77
7 ml, prediluted 208A-78
Positive control slides 208S

Rabbit Polyclonal

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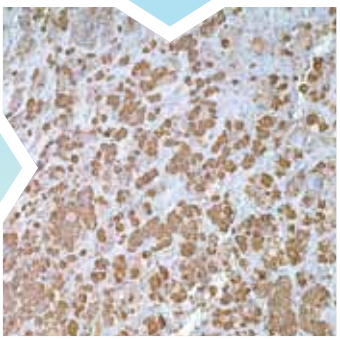

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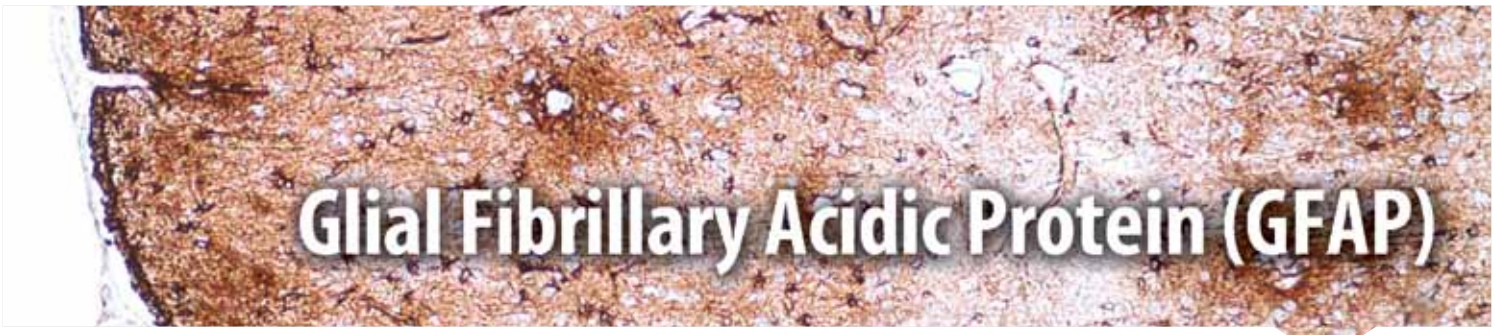

Glial Fibrillary Acidic Protein (GFAP)

Anti-GFAP antibody detects astrocytes, Schwann cells, satellite cells, enteric glial cells, and some groups of ependymal cells. This marker is mainly used to distinguish neoplasms of astrocytic origin from other neoplasms in the central nervous system.

Retroperitoneal Lesions	GFAP	NSE	Synaptophysin	Chromogranin A	Neurofilament	PGP 9.5	S-100	CD99
Neuroblastoma	+/-	+	+	+	+	+	-	-
Ganglioneuroblastoma	+	+	+	+	+	+	+	-
Ganglioneuroma	+	+	+	+	+	+	+	-

Myoepithelial Tumor: Malignant vs. Benign	GFAP	CK Cocktail	MS Actin	Calponin	SM Myosin	S-100	EMA	CK 14	p63	Desmin
Malignant Myoepithelioma	+/-	+	+	+	+	+	+	+	-	-
Benign Myoepithelium	+	+	+	+	+	+	+	+	+	-

CNS Tumors	GFAP	Neuro-filament	Synapto-physin	S-100	CK Cocktail	PR	EMA	Vimentin	NGFR	INI-1
Astrocytoma	+	-	-	+	-	-	-	+	+	+
Glioblastoma	+	-	-	+	-	-	-	+	-	+
Oligodendriglioma	-	-	-	+	-	-	-	+	-	+
Ependymoma	+	-	-	+	-	-	-	-/+	+	+
Choroid Plexus Carcinoma	-/+	-	+	+	+	-	-		-	+
Central Neurocytoma	-	-	+	-	-	-	-	-	+	+
Neuroblastoma	+/-	+	+	+/-	-	-	-	+	+	+
Pineocytoma	-	-	+	-	-	-	-		-	+
Meningioma	-	-	-	-	-	+	+	+	-	+
Schwannoma	+	-	-	+	-	-	-	+	+	+
Rhabdoid Tumors	-	+/-		+/-	+		+	+		-
Metastatic Carcinoma	-	-	-	-	+	-/+	+	-/+	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Brain

Stability Up to 36 mo. at 2-8°C

Isotype EP672Y‡: IgG
G-A-5: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Viale G, et al. Virchow's Arch A Pathol Anat 1991;418:339-348
2. Choi BH, et al. Science 1984;223:407-409
3. Funata N, et al. Bull Tokyo Med Dent Univ 1985;32:9-18

Rabbit Monoclonal Clone: EP672Y‡

0.1 ml, concentrate.....258R-14
0.5 ml, concentrate.....258R-15
1 ml, concentrate 258R-16
1 ml, prediluted 258R-17
7 ml, prediluted 258R-18
Positive control slides 258S

Rabbit Monoclonal Clone: EP672Y‡

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Mouse Monoclonal Clone: G-A-5

0.1 ml, concentrate.....258M-14
0.5 ml, concentrate.....258M-15
1 ml, concentrate 258M-16
1 ml, prediluted 258M-17
7 ml, prediluted 258M-18
Positive control slides 258S

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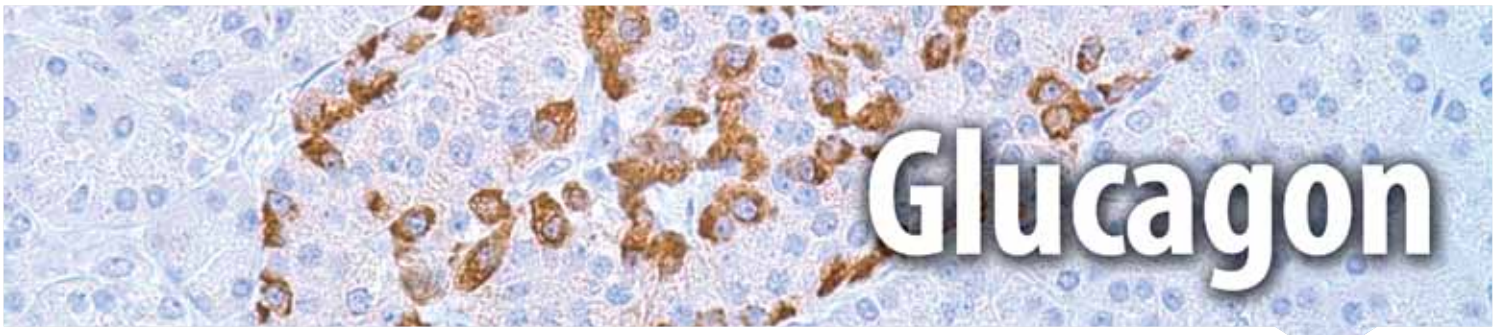

Anti-glucagon detects glucagon-secreting cells and tumors such as glucagonomas. Studies show that approximately 80% of glucagonomas are malignant and these patients have a syndrome often initially recognized by dermatologists. Symptoms include necrolytic migratory erythema as well as diabetes, anemia, 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.

Pancreas										
	Glucagon	Synapto-physin	Chromo-granin A	Gastrin	CD56	β-Catenin	CK 19	CA19-9	E-cadherin	CD10
Neuroendocrine Tumor	+/-	+	+	+/-	+	+	+/-	+/-	-	-
Solid Pseudopapillary Tumor	-	+	-	-	+	+	-	-	+(nuclear)	+
Ductal Carcinoma	-	-	-	-	-	+/-	+	+	+/-	+/-
Acinic Cell Carcinoma	-	-	-	-	-	+	+	-/+	+	+/-
Pancreatoblastoma	-	-	+	-	+	+	-	-	-	-
Normal Pancreas	+	+	+	-	-	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Pancreas

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Unger RH, et al. N Eng J Med 1981;304:1518-1524
2. Larson L. Hum Pathol 1978;9:401-416
3. Erlandsen SL. Williams and Wilkins. Baltimore, 1980,pp 140-155
4. Friesen SR. N Eng J Med 1982;306:580-590
5. Weitgasser R, et al. Appl Immuno-histochem Mol Morphol. 2001.

Rabbit Polyclonal

0.1 ml, concentrate.....259A-14
0.5 ml, concentrate.....259A-15
1 ml, concentrate 259A-16
1 ml, prediluted 259A-17
7 ml, prediluted 259A-18
Positive control slides 259S

Rabbit Polyclonal

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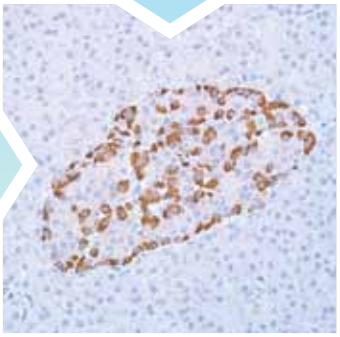

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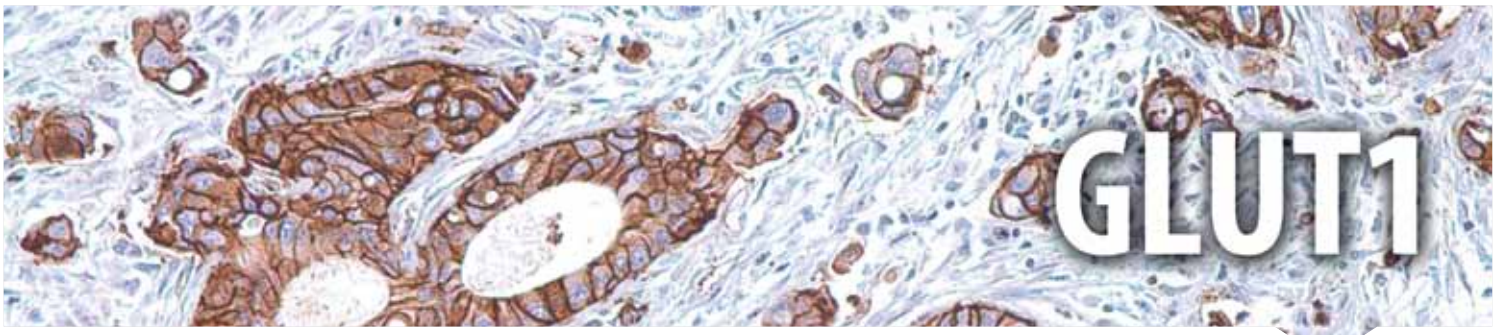

Glucose transporter type I (GLUT1), a prototype member of the GLUT superfamily, is a membrane-associated, erythrocyte glucose transport protein. It is a major glucose transporter in the mammalian blood-brain barrier, and also mediates glucose transport in endothelial cells of the vasculature, adipose tissue, and cardiac muscle. GLUT1 is detectable in many human tissues including those of colon, lung, stomach, esophagus, and breast. GLUT1 is overexpressed in malignant cells and in a variety of tumors that include the breast, pancreas, cervix, endometrium, lung, mesothelium, colon, bladder, thyroid, bone, soft tissues, and oral cavity.

Immunohistochemical detection of GLUT1 has been shown to discriminate between reactive mesothelium and malignant mesothelioma in more than one study. Anti-GLUT1, anti-claudin1, and anti-EMA are "perineurial" markers that are useful in the diagnosis of perineuriomas. Anti-GLUT1 is also useful in distinguishing benign endometrial hyperplasia from atypical endometrial hyperplasia and adenocarcinoma. GLUT1 expression has been shown to be associated with increased malignant potential, invasiveness, and a poor prognosis in general. Expression of GLUT1 is a late event in colorectal cancer and expression in a high proportion of cancer cells is associated with a high incidence of lymph node metastases.

Mesothelial Cells: Malignant vs. Benign				
	GLUT1	Mesothelin	Calretinin	p53
Malignant	+	+	+	+
Reactive Benign	-	+	+	-

Skin: Spindle Cell Tumors										
	GLUT1	SM Actin	BG8	Factor VIII	Collagen IV	FLI-1	CD34	CD31	Factor XIIIa	CD99
Hemangiopericytoma	-	-	-	-	-	+	+	-	+/-	+/-
Hemangioma	+	+	+	+	+	+	+	+	-	-

Perineurioma vs. Neurofibroma				
	GLUT1	Claudin 1	EMA	S-100
Perineurioma	+	+	+	-
Neurofibroma	-	+	+	+

Reactivity Paraffin

Visualization Membranous

Control Colorectal Carcinoma, Mesothelioma

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Brown RS, Wahl RL. Cancer 1993, 72:2979-2985.
2. Grove-McKay M, Walsh SA, et al. Pathol Oncol Res 1998,4:115-120
3. Chang S, Lee S, et al. Urol 2000, 55:448-452.
4. Alo PL, Visca P, et al. Am J Clin Pathol. 2001 Jul; 116(1):129-34.

Rabbit Polyclonal

0.1 ml, concentrate.....355A-14
0.5 ml, concentrate.....355A-15
1 ml, concentrate 355A-16
1 ml, prediluted 355A-17
7 ml, prediluted 355A-18
Positive control slides 355S

Rabbit Polyclonal

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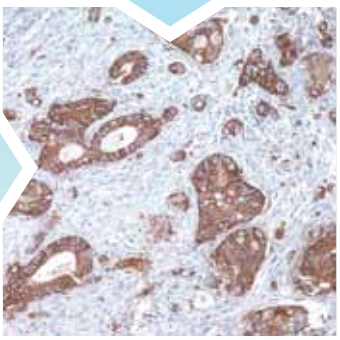

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Glycophorin A

Glycophorins A (GPA) and B (GPB) are major sialoglycoproteins of the human erythrocyte membrane which bear the antigenic determinants for the MN and SU blood groups. Glycophorins span the membrane and present their amino-terminal end to the extracellular surface of the human erythrocyte. The genetic array of expressed glycophorin surface antigens on erythrocytes defines the blood group phenotype of the individual. 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.

Acute Myeloid Leukemia										
	Glyco-phorin A	MPO	CD68	Factor VIII	CD61	Lysozyme	BOB.1	Oct-2	CD34	CD117
Acute Myeloid, M0	-	-	-	-	-	+	-	-	+	+
Acute Myeloid, M1&2	-	+	+	-	-	+			+	+
Promyelocytic, M3	-	+	-	-	-	-	+	+	-	+
Myelomonocytic, M4	-	+	+	-	-	+	-	+	+	+
Monoblastic, M5	-	+	+	-	-	+	-	+	-/+	+
Acute Erythroid, M6	+	+	-	-	-		-	-	-/+	+/-
Megakaryoblastic, M7	-	-	-	+	+		+/-	-	-	-

Reactivity Paraffin

Visualization Membranous

Control Bone Marrow

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. van der Valk P, et al. Am J Surg Pathol. 1989 Feb; 13(2): 97-106
2. Muller M, et al. J Vet Med A Physiol Pathol Clin Med. 2001 Feb; 48(1): 51-7
3. Sadahira Y, et al. J Clin Pathol. 1999 Dec; 52(12): 919-21

Mouse Monoclonal Clone: GA-R2

0.1 ml, concentrate.....260M-14
0.5 ml, concentrate.....260M-15
1 ml, concentrate 260M-16
1 ml, prediluted 260M-17
7 ml, prediluted 260M-18
Positive control slides 260S

Mouse Monoclonal Clone: GA-R2

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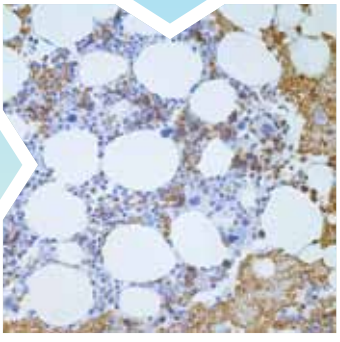

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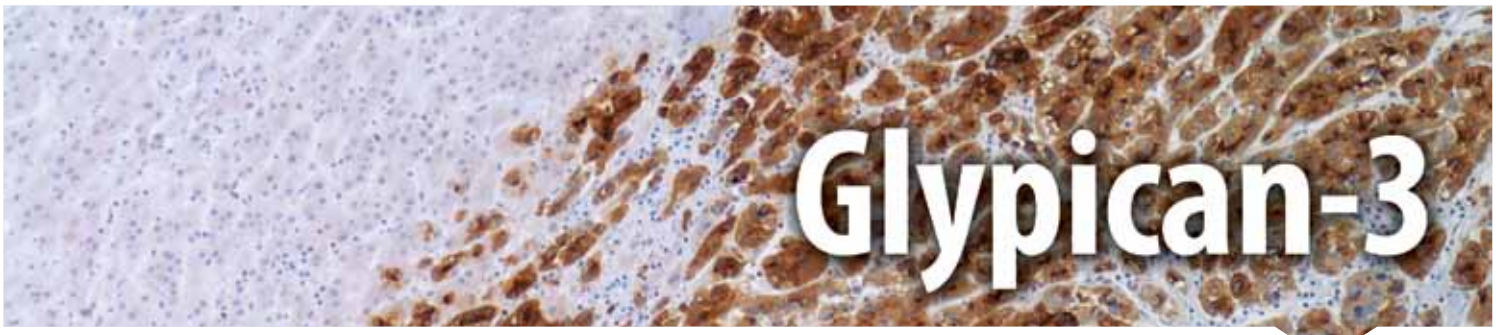

Glypican-3 (GPC3) is a glycosylphospatidyl inositol-anchored membrane protein, which may also be found in a secreted form. Anti-GPC3 has been identified as a useful tumor marker for the diagnosis of hepatocellular carcinoma (HCC), hepatoblastoma, melanoma, testicular germ cell tumors, and Wilms' tumor. In patients with HCC, GPC3 is overexpressed in neoplastic liver tissue and elevated in serum, but is undetectable in normal liver, benign liver, and the serum of healthy donors. GPC3 expression is 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, with a low or undetectable expression in normal adjacent tissue.

Liver: Malignant vs. Benign

	Glypican-3	Hep-Par1	CD34	p53	AFP	A1AT	pCEA	mCEA	TTF-1
Hepatocellular Carcinoma	+	+	+	+	-/+	-/+	+	-	+ Cytoplasmic
Hepatoblastoma	+	+	-	+	+	+	+	-	-
Benign Liver Nodules	-	+	-	-	-	+/-	-	-	+ Cytoplasmic

Gonads: Germ Cell Tumors vs. Somatic Adenocarcinoma

	Glypican-3	Oct-4	AFP	Vimentin	EMA	Inhibin	hPL	CD30	CD117	PLAP
Seminoma	-	+	-	+	-	-	-	-	+	+
Embryonal Carcinoma	-	+	-	-	-	-	-	+	-	+
Choriocarcinoma	+	-	-	-/+	+	-	+	-	-	+
Yolk Sac Tumor	+	-	+	-	-	-	-	-	-	+
Somatic Carcinoma	-	-	-	-	+	-	-	-	-	-
Granulosa Cell Tumor	-	-	-	+	-	+	-	-	-	
Hypercalcaemic Small Cell Carcinoma	-	-	-	-	+	-	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Hepatocellular Carcinoma (HCC)

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Capurro M, et al. Gastroenterology. 2003 Jul;125(1):89-97.
2. Coston WMP, et al. Am J Surg Pathol. 2008 00(00):1-12
3. Kandil D, et al. Cancer. 2007 Oct 25;111(5):316-22.

Mouse Monoclonal Clone: 1G12

0.1 ml, concentrate.....261M-94
0.5 ml, concentrate.....261M-95
1 ml, concentrate 261M-96
1 ml, prediluted 261M-97
7 ml, prediluted 261M-98
Positive control slides 261S

Mouse Monoclonal Clone: 1G12

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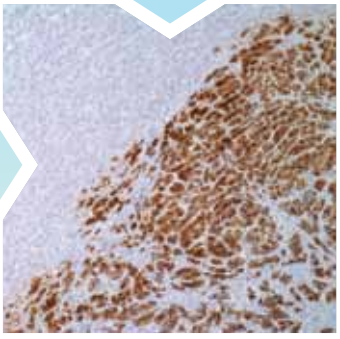

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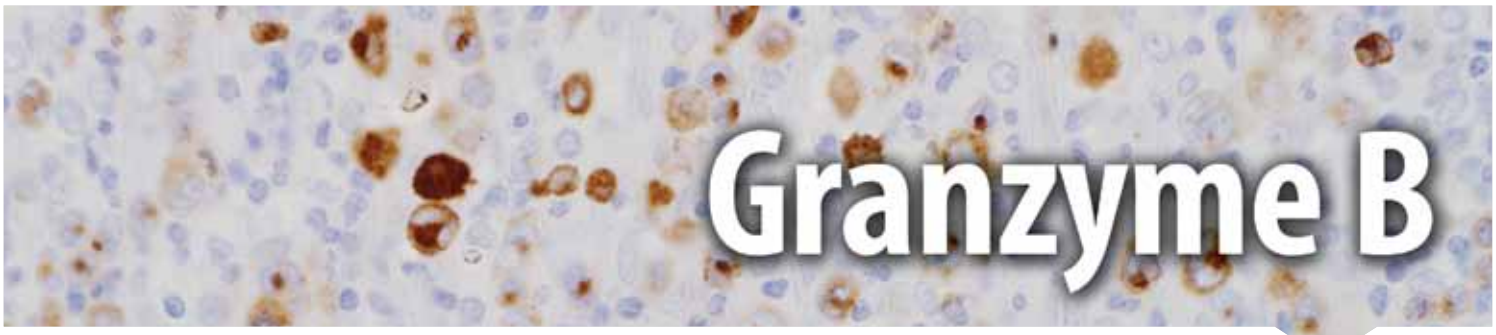

Granzyme B

Granzymes are serine proteases which are stored in specialized lytic granules of cytotoxic T-lymphocytes and in natural killer cells. Anti-granzyme B has 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 disease.

T-cell Lymphomas										
	Granzyme B	CD2	CD3	CD4	CD5	CD7	CD8	CD25	CD45RO	PD-1
Angioimmunoblastic	-	+	+	+	+	+	-	+	+	+
Lymphoblastic	+/-	+/-	+	+/-	+	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	+	+	+	-	+	+	+/-	-	+	-
NK	+	+	+	-	-	-/+	-	+	+	-
Cutaneous	+	+	+	+	-	+	-	-	-	-/+
Peripheral, NOS	-/+	+	+	+/-	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	+/-	+	+	+	+	-	-	+	+	-

Hodgkin vs. Non-Hodgkin Lymphomas										
	Granzyme B	CD79a	CD15	CD30	Fascin	BCL6	PU.1	MUM1	ALK-1	EMA
Hodgkin Lymphoma, Classic	-	-	+	+	+	-	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-	+	-	-	-	+	+	-/+	-	+
T-cell Rich LBCL	-	+	-	-	-	+	-	+	-	-
Anaplastic Large Cell Lymphoma	+	-	-	+	-	+/-	-	-	+	+

Reactivity Paraffin

Visualization Granular Cytoplasmic

Control Spleen, ALCL

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Oudejans JJ, et al. Blood. 1997 Feb 15;89(4): 1376-82
2. Oudejans JJ, et al. Am J Pathol. 1996 Jan; 148(1): 233-40
3. Liu J, et al. J Dermatol. 2003 Oct; 30(10): 735-41
4. Kato N, et al. Am J Dermatopathol. 2003 Apr; 25(2): 142-7

Rabbit Polyclonal

0.1 ml, concentrate.....262A-14
0.5 ml, concentrate.....262A-15
1 ml, concentrate 262A-16
1 ml, prediluted 262A-17
7 ml, prediluted 262A-18
Positive control slides 262S

Rabbit Polyclonal

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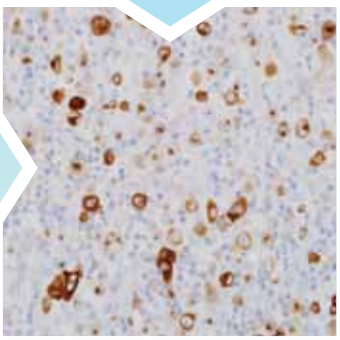

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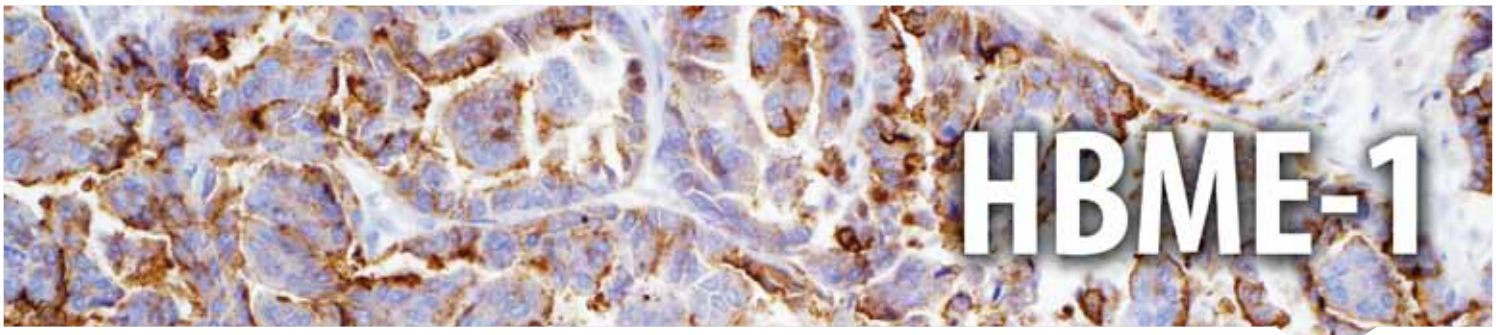

This antibody is a mesothelioma marker (HBME-1) which reacts with an antigen present in the membrane of mesothelial cells. The target epitope is located in microvilli. Mesothelioma is a malignancy of mesothelial cells that normally line the body cavities, including the pleura, peritoneum, pericardium, and testis. It may be localized or diffuse and is an aggressive tumor with high mortality.

Anti-HBME-1 has been demonstrated to label mesothelial cells, both benign and malignant (malignant mesothelioma), and thus has been used to distinguish mesothelioma from adenocarcinomas of various origins. A systematic review of fourteen studies (consisting of 769 epithelioid mesotheliomas and 676 pulmonary adenocarcinomas) reported sensitivity and specificity of HBME-1 for epithelioid mesothelioma of 85% and 43% respectively.

Anti-HBME-1 labels thyroid papillary carcinoma and follicular carcinoma, but not normal thyroid, nodular goiter, or nodular hyperplasia. Anti-HBME-1, combined with other markers such as anti-galectin-3, anti-CK19, anti-TTF1, anti-calcitonin, and anti-thyroglobulin, is a valuable marker for distinguishing thyroid tumors.

Pleura: Adenocarcinoma vs. Mesothelioma										
	HBME-1	Calretinin	CK 5&6	D2-40	Caldesmon	CEA	TAG-72	Ep-CAM	E-cadherin	TTF-1
Adenocarcinoma	-	-	-	-	-	+	+	+	+	+
Mesothelioma	+	+	+	+	+	-	-	-	-	-

Thyroid: Malignant vs. Benign						
	HBME-1	Thyroglobulin	Calcitonin	CK 19	Galectin-3	TTF-1
Papillary Carcinoma	+	+	-	+	+	+
Follicular Carcinoma	+/-	+	-	-/+	+	+
Medullary Carcinoma	+	-	+	+/-	-	+
Benign Thyroid	-	+	-	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Mesothelioma

Stability Up to 36 mo. at 2-8°C

Isotype IgM/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Coli A, et al. J Exp Clin Cancer Res. 2007 Jun;26(2):221-7.
2. Cabibi D, et al. Thyroid. 2007 Jul;17(7):603-7.
3. Torregrossa L, et al. Hum Pathol. 2007 Oct;38(10):1482-8. Epub 2007 Jun 26.

Mouse Monoclonal Clone: HBME-1

0.1 ml, concentrate.....283M-14
0.5 ml, concentrate.....283M-15
1 ml, concentrate 283M-16
1 ml, prediluted 283M-17
7 ml, prediluted 283M-18
Positive control slides 283S

Mouse Monoclonal Clone: HBME-1

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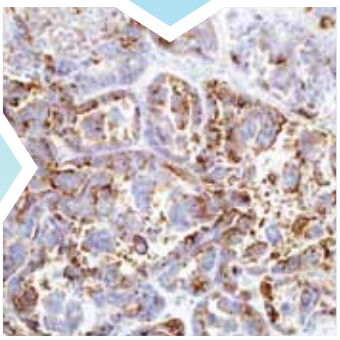

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Helicobacter pylori

The spiral shaped bacterium Helicobacter pylori is strongly associated with inflammation of the stomach and is also implicated in the development of gastric malignancy, peptic ulcers, and chronic gastritis in humans. It is associated with the development of adenocarcinoma and low grade lymphoma of mucosa associated lymphoid tissue in the stomach. More recently this bacterium has also been implicated with a number of vascular disorders including heart disease. It is not clear how H. pylori is transmitted or why some patients become symptomatic while others do not. The bacteria are most likely spread from person to person through fecal to oral or oral to oral routes. Possible environmental sources include contaminated water reservoirs. Helicobacter pylori can exist in a number of locations: in the mucus, attached to epithelial cells, or inside of vacuoles in epithelial cells, where it produces adhesions that bind to membrane-associated lipids and carbohydrates in or on epithelial cells.

One can test noninvasively for H. pylori infection with a blood antibody test, stool antigen test, or with the carbon urea breath test (in which the patient drinks 14C- or 13C-labelled urea, which the bacterium metabolizes, producing labelled carbon dioxide that can be detected in the breath). However, the most reliable method for detecting H. pylori infection is a biopsy during endoscopy with a rapid urease test, histologic examination, and microbial culture. None of the test methods are completely failsafe. Even a biopsy as a test method is dependent on the location of the biopsy. Blood antibody tests, for example, range from 76% to 84% sensitivity. Some drugs can affect H. pylori urease activity and give false negatives with the urea-based tests. Immunohistochemistry staining anti-H.pylori on the surface and stomach mucosa is a valuable tool for diagnosis of H. pylori infections.

Reactivity Paraffin

Visualization Bacterium

Control H. pylori-Infected Stomach Tissue

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Toulaymat M, et al. Arch Pathol Lab Med 1999 Sep;123(9):778-81
2. Cartun RW, et al. Modern Pathology Vol. 4, No. 4, p. 498-502, 1991
3. Shimizu T, et al. Helicobacter 1996 Dec;1(4):197-206

Rabbit Polyclonal

0.1 ml, concentrate.....215A-74
0.5 ml, concentrate.....215A-75
1 ml, concentrate 215A-76
1 ml, prediluted 215A-77
7 ml, prediluted 215A-78
25 ml, prediluted.....215A-70
Positive control slides 215S

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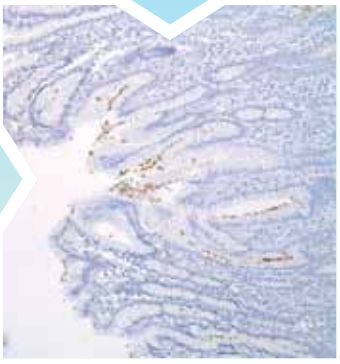

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Hemoglobin A

Hemoglobin alpha chain belongs to the globin family and is involved in oxygen transport from the lung to the various peripheral tissues. Hemoglobin A is comprised of two alpha chains and two beta chains, whereas hemoglobin A2 is comprised of two alpha chains and two delta chains.

Immunohistochemical localization of hemoglobin is excellent as an erythroid marker for the detection of immature, dysplastic, and megaloblastic erythroid cells in myeloproliferative disorders, such as erythroleukemia. In contrast, myeloid cells, lymphoid cells, plasma cells, histiocytes, and megakaryocytes stain negative with anti-hemoglobin A. Anti-hemoglobin A, combined with antibodies against CD34, CD117, CD68, and MPO can be helpful in distinguishing between reactive extramedullary hematopoiesis and that seen in neoplastic myeloid disorders in spleen. Anti-hemoglobin A is limited to expression by erythroid precursors in bone marrow and is therefore of assistance in calculating percentages of erythroid precursors.

Splenic Hematopoietic Proliferations in Neoplastic and Benign Disorders

	Hemoglobin A	MPO	CD34	CD117	CD68
Chronic Myelogenous Leukemia	-	+	-/+	+/-	+
Chronic Idiopathic Myelofibrosis	-	+	+/-	-/+	
Myelodysplastic Syndrome	-		+	-/+	
Myelodysplastic / Myeloproliferative Disorders	-	+	-	-	+
Mastocytosis	-	+	-	+	
Erythroid Disorders	+	+/-	-	-	-/+
Splenic Lymphoma	-	-/+	-	-	
Acute Myeloid Leukemia	-	+	+	+	+
Polycythemia Vera	+		+	+	

Reactivity Paraffin

Visualization Cytoplasmic

Control Bone Marrow, Placenta

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dennis P O'Malley, et al,. Mod Pathol, 2005; 18: 1550-1561
2. Cherie H Dunphy, et al,. Appl Immun Mol Morphol, 2005; 15(2):154-159

Rabbit Monoclonal
Clone: EPR3608‡

0.1 ml, concentrate..... 360R-14
0.5 ml, concentrate..... 360R-15
1 ml, concentrate 360R-16
1 ml, prediluted 360R-17
7 ml, prediluted 360R-18
Positive control slides 360S

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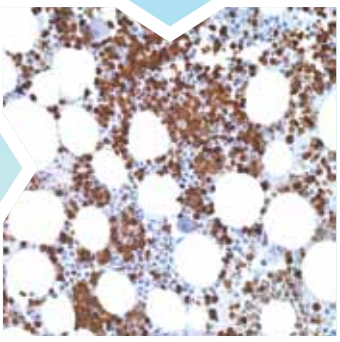

* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*

Hepatitis B Virus Core Antigen

Anti-hepatitis B core antigen labels cell nuclei infected with hepatitis B virus, a common cause of hepatitis leading to cirrhosis. Hepatitis B is the second most common cause of parenterally transmitted hepatitis.

Reactivity Paraffin

Visualization Nuclear

Control Hepatitis B-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Inohara H, et al. Cancer 1999;85:2475-84.
2. Herrmann ME, et al. Arch Pathol Lab Med. 2002;126:710-713
3. Papotti M, et al. European Journal of Endocrinology (2002); 147: 515-521
4. Bartolazzi A, et al. Lancet 2001;357:1644-50

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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Rabbit Polyclonal

0.1 ml, concentrate.....216A-14 (ASR)
0.5 ml, concentrate.....216A-15 (ASR)
1 ml, concentrate .....216A-16 (ASR)
1 ml, prediluted .....216A-17 (ASR)
7 ml, prediluted .....216A-18 (ASR)
Positive control slides 216S

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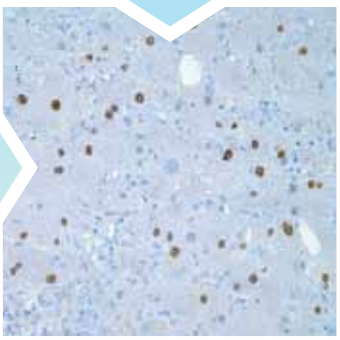

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Hepatitis B Virus Surface Antigen

Anti-hepatitis B surface antigen labels the cell cytoplasm infected with hepatitis B virus, a common cause of hepatitis leading to cirrhosis. Hepatitis B is the second most common cause of parenterally transmitted hepatitis.

Reactivity Paraffin

Visualization Cytoplasmic

Control Hepatitis B-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Stahl S, et al. Proc Natl Acad Sci 1982; 79:1606
2. Goodman ZD, et al. Am J Clin Pathol. 1988 Apr;89(4):533-7
3. van den Oord JJ, et al. J Histochem Cytochem. 1989 Apr;37(4):551-4

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For IVD product, please remove the "ASR" suffix from the end of the catalog number when ordering.

For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Mouse Monoclonal
Clone: S1-210

0.1 ml, concentrate.....217M-14 (ASR)
0.5 ml, concentrate.....217M-15 (ASR)
1 ml, concentrate .....217M-16 (ASR)
1 ml, prediluted .....217M-17 (ASR)
7 ml, prediluted .....217M-18 (ASR)
Positive control slides 217S

ASR†
IVD
RUO
RUO

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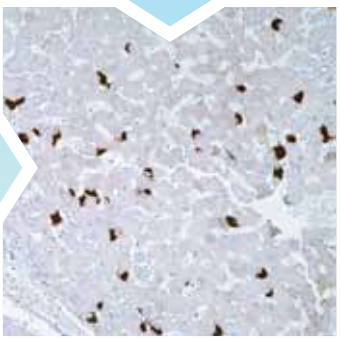

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Hepatocyte Specific Antigen (Hep-Par1)

Anti-hepatocyte specific antigen, also known as anti-Hep-Par1, 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 labeling hepatoblastoma, it is useful in differentiating this entity from other small round cell tumors.

Liver: Malignant vs. Benign									
	Hep-Par1	Glypican-3	CD34	p53	AFP	A1AT	pCEA	mCEA	TTF-1
Hepatocellular Carcinoma	+	+	+	+	-/+	-/+	+	-	+ Cytoplasmic
Hepatoblastoma	+	+	-	+	+	+	+	-	-
Benign Liver Nodules	+	-	-	-	-	+/-	-	-	+ Cytoplasmic

Reactivity Paraffin

Visualization Cytoplasmic

Control Liver

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Minervini MI, et al. Mod Pathol 1997;10(7):686-692
2. Fasano M, et al. Mod Pathol 1998;11(10):934-938
3. Tsui WMS, et al. Am J Surg Pathol 23(1): 34-48, 1999

Mouse Monoclonal Clone: 0CH1E5

0.1 ml, concentrate.....264M-94
0.5 ml, concentrate.....264M-95
1 ml, concentrate 264M-96
1 ml, prediluted 264M-97
7 ml, prediluted 264M-98
Positive control slides 264S

Mouse Monoclonal Clone: 0CH1E5

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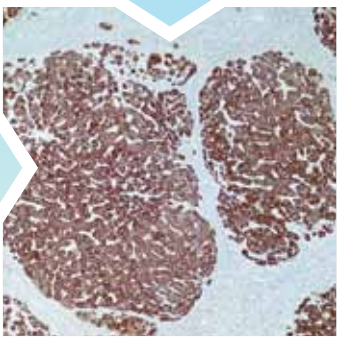

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Her2/Neu (c-erbB-2)

The c-erbB-2 oncoprotein is in the epidermal growth factor receptor family. These receptors are overexpressed in various adenocarcinomas including that from the gastrointestinal tract, ovary, and up to 30% of breast carcinomas. Overexepression in breast carcinoma has been shown to be associated with a poor prognosis. Similar observations have been made in the case of osteosarcoma, gastric carcinoma, and bladder carcinoma.

Reactivity Paraffin

Visualization Membranous

Control Breast Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype SP3: IgG_1
CB-11: IgG_1

Protocols

- Pretreatment:
  SP3: EDTA/Trilogy™
  CB-11: Citrate/Declere
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wright C, et al. Cancer Research 49:2087-90 (1989)
2. Wright C, et al. British J Cancer 65: 118-121 (1992)

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For IVD product, please remove the "ASR" suffix from the end of the catalog number when ordering.

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Rabbit Monoclonal Clone: SP3

0.1 ml, concentrate	237R-14 (ASR)
0.5 ml, concentrate	237R-15 (ASR)
1 ml, concentrate	237R-16 (ASR)
1 ml, prediluted	237R-17 (ASR)
7 ml, prediluted	237R-18 (ASR)
Positive control slides	237S

ASR†
IVD
IVD
RUO

Mouse Monoclonal Clone: CB-11

0.1 ml, concentrate	237M-14 (ASR)
0.5 ml, concentrate	237M-15 (ASR)
1 ml, concentrate	237M-16 (ASR)
1 ml, prediluted	237M-17 (ASR)
7 ml, prediluted	237M-18 (ASR)
Positive control slides	237S

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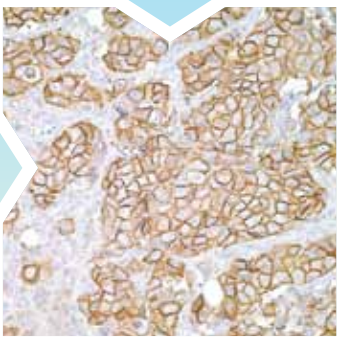

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Herpes Simplex Virus I

Herpes simplex virus is quite ubiquitous and is variable in its presentation in human disease. Type I usually infects the non-genital mucosal surfaces. It may affect the skin or internal organs (typically brain, lung, liver, adrenal gland, or GI tract) of immunocompromised individuals. This polyclonal antibody reacts with Type I Herpes viruses. There may be cross-reactivity with varicella zoster virus at higher concentrations. Cross-reactivity with CMV or Epstein-Barr virus is not seen with this antibody.

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control HSV I-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Adams RL, et al. J Pathol 1984;143:241-7
2. Silverberg SG, et al. Principles and Practice of Surgical Pathology and CytoPathology, 3rd edition. (1997), p. 214-217
3. Vago L, et al. Acta Neuropathol (Berl). 1996 Oct;92(4):404-8

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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Rabbit Polyclonal

0.1 ml, concentrate. . . 361A-14 (ASR)
0.5 ml, concentrate. . . 361A-15 (ASR)
1 ml, concentrate . . . . 361A-16 (ASR)
1 ml, prediluted . . . . . 361A-17 (ASR)
7 ml, prediluted . . . . . 361A-18 (ASR)
Positive control slides . 214S

Rabbit Polyclonal

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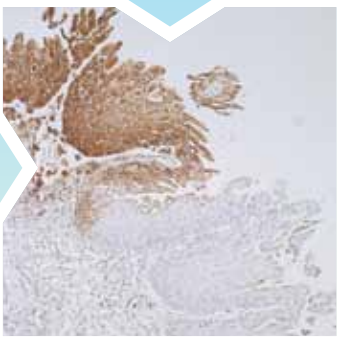

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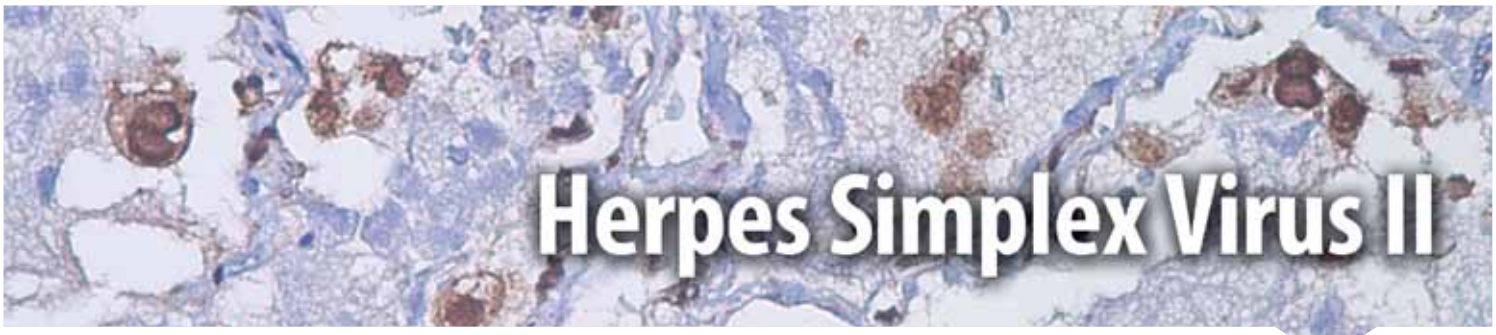

Herpes Simplex Virus II

Herpes simplex virus is quite ubiquitous and is quite variable in its presentation in human disease. Type II typically involves the genitalia. It may affect the skin or internal organs (typically brain, lung, liver, adrenal gland, or GI tract) of immunocompromised individuals. This polyclonal antibody reacts with Type II Herpes viruses. There may be cross-reactivity with varicella zoster virus at higher concentrations. Cross-reactivity with CMV or Epstein-Barr virus is not seen with this antibody.

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control HSV II-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Adams RL, et al. J Pathol 1984;143:241-7
2. Silverberg SG, et al. Principles and Practice of Surgical Pathology and CytoPathology, 3rd edition. (1997), p. 214-217
3. Vago L, et al. Acta Neuropathol (Berl). 1996 Oct;92(4):404-8

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Rabbit Polyclonal

0.1 ml, concentrate. . . 362A-14 (ASR)
0.5 ml, concentrate. . . 362A-15 (ASR)
1 ml, concentrate . . . . 362A-16 (ASR)
1 ml, prediluted . . . . . 362A-17 (ASR)
7 ml, prediluted . . . . . 362A-18 (ASR)
Positive control slides . 214S

Rabbit Polyclonal

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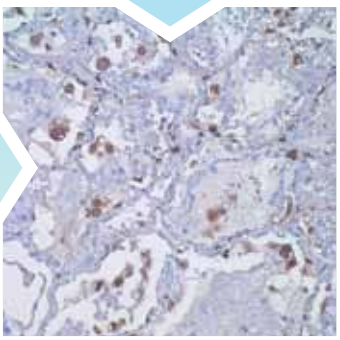

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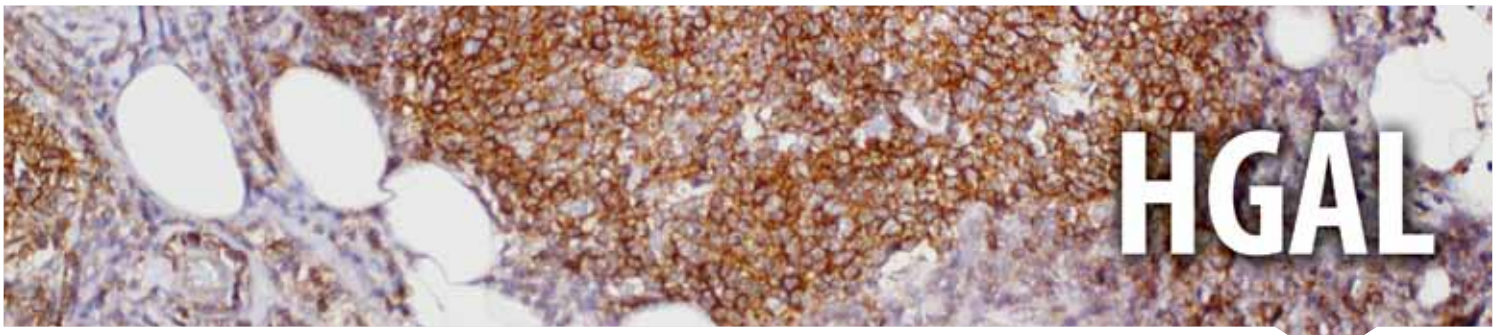

Human germinal center–associated lymphoma (HGAL) protein is specifically expressed in the cytoplasm of germinal center B-cells, but is absent in mantle and marginal zone B-cells and in the interfollicular and paracortical regions in normal tonsils and lymph nodes. Its high degree of specificity for germinal center B-cells makes anti-HGAL an ideal marker for the detection of germinal center-derived B-cell lymphomas. Anti-HGAL has the highest overall sensitivity of detecting follicular lymphoma (FL) and in detecting the interfollicular and diffuse components of FL compared with antibodies against BCL2, LMO2, CD10, and BCL6. The addition of anti-HGAL to the immunohistochemical panel is beneficial in the work-up of nodal and extranodal B-cell lymphomas and the efficacy of anti-HGAL in detecting the follicular, interfollicular, and diffuse components of FL is of particular value in the setting of variant immunoarchitectural patterns.

Mature B-cell Lymphomas							
	HGAL	LMO2	CD20	CD5	CD23	CD10	BCL2
Follicular Lymphoma	+	+	+	-	-	+/-	+/-
Diffuse Large B-cell Lymphoma	+	+	+	-/+	-	+/-	+
Small Lymphocytic Lymphoma	-	-	+	+	+	-	+
Mantle Cell Lymphoma	-	-	+	+	-	-	+
Marginal Zone Lymphoma	-	-	+	-	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil, Lymph Node

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Natkunam, Y et al. Blood 2005; 105:3979–3986.
2. Natkunam, Y et al. Blood 2007; 109:298-305.
3. Younes, SF et al. Am J Surg Pathol 2010; 34:1266-1276.

Mouse Monoclonal Clone: MRQ-49

0.1 ml, concentrate.....375M-94
0.5 ml, concentrate.....375M-95
1 ml, concentrate 375M-96
1 ml, prediluted 375M-97
7 ml, prediluted 375M-98
Positive control slides 375S

Mouse Monoclonal Clone: MRQ-49

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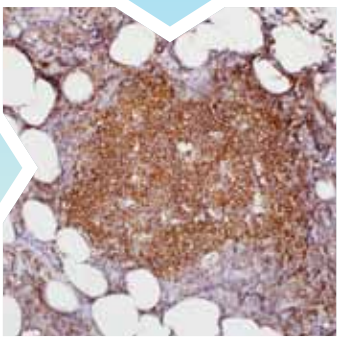

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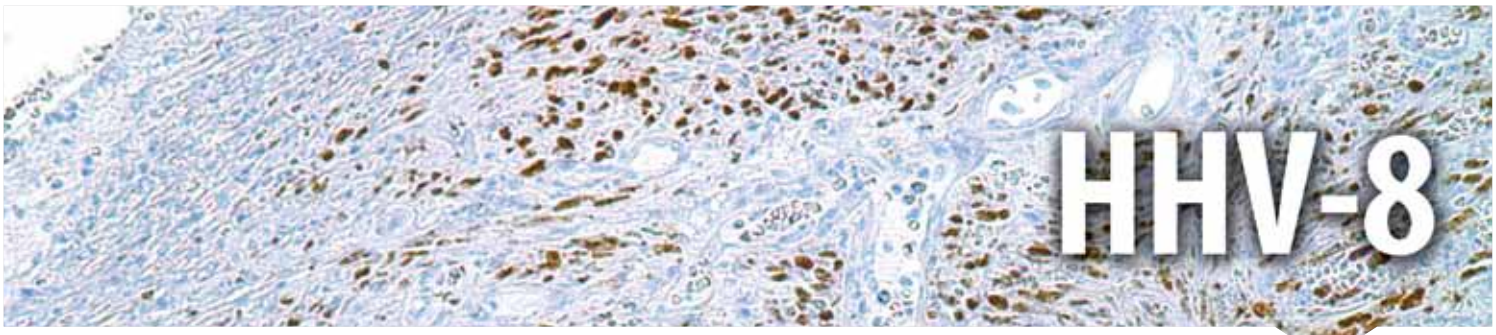

Human herpesvirus type 8 (HHV-8) is the likely etiologic agent of Kaposi's sarcoma (KS). HHV-8 DNA sequences have been found in Kaposi's sarcoma lesions, primary effusion lymphoma, and multicentric Castleman's disease via polymerase chain reaction and *in situ* hybridization. Latent nuclear antigen (LNA-1, LNA, LANA-1), also known as ORF73, is a 222 or 234 kD protein that is consistently expressed in HHV-8 infected cells. Anti-HHV-8 labels the latent nuclear antigen protein via immunohistochemistry.

Skin: Spindle Cell Tumors										
	HHV-8	FLI-1	Factor VIII	CD34	Collagen IV	D2-40	SM Actin	MS Actin	NGFR	CD10
Spindle Squamous Cell Ca	-	-	-	-	-	+	-	-	-	-
Spindle Cell Melanoma	-	+	-	-	-	+	-	-	+	-
Atypical Fibroxanthomas	-	-	-	-	-	-	+	+	-	+
DF-SP	-	-	-	+	-	-	-	-	+	+/-
DF-FH	-	-	-	-	-	-	-	-	-	+
Peripheral Nerve Sheath	-	-	-	-	-	+	-	+	-	-
Smooth Muscle	-	-	-	-	-	-	+	+	-	-
Angiosarcoma	-	+	+	+	+/-	+/-	-	-	-	-
Glomus Tumor	-	-	-	+/-	+	-	+	+	-	-
Hemangiopericytoma	-	+	-	+	-	-	-	-	-	-
Hemangioma	-	+	+	+	+	-	+	-	-	-
Kaposiform Hemangioendothelioma	-	+	-	+	-	-	-	-	-	-
Kaposi's Sarcoma	+	+	+	+	+/-	+	+	-	-	-

Reactivity Paraffin

Visualization Nuclear

Control Kaposi's Sarcoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Corbellino M, et al. AIDS Res Hum Retroviruses. 1996 May 20;12(8):651-7
2. Katano H, et al. Am J Pathol. 1999 Jul;155(1):47-52
3. Katano H, et al. J Med Virol. 1999 Nov;59(3):346-55

Mouse Monoclonal Clone: 13B10

0.1 ml, concentrate.....265M-14
0.5 ml, concentrate.....265M-15
1 ml, concentrate 265M-16
1 ml, prediluted 265M-17
7 ml, prediluted 265M-18
Positive control slides 265S

Mouse Monoclonal Clone: 13B10

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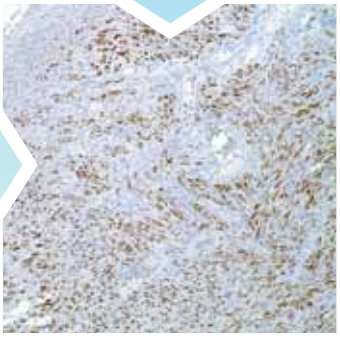

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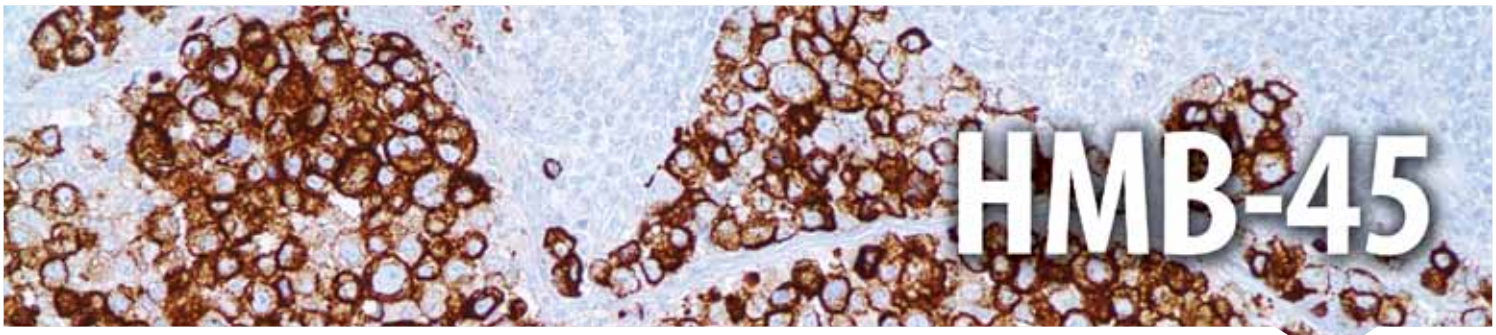

Metastatic amelanotic melanoma can often be confused with a variety of poorly differentiated carcinomas, large cell lymphomas, and sarcomas using H & E stains alone. It is also difficult to differentiate melanoma from spindle cell carcinomas and various types of mesenchymal neoplasms. Anti-HMB-45 stains fetal and neonatal melanocytes, junctional and blue nevus cells, and malignant melanoma. Angiomyolipoma (PEComa) is also labeled by this product.

Melanotic Lesions	HMB-45	S-100	SOX10	MART-1	Tyrosinase	MiTF	CD63	Factor XIIIa
Adult Melanocytes	-	+	+	+	+	+	+	-
Junctional Nevus	+	+	+	+	+	+	-	-
Interdermal Nevus	-	+	+	+	+	+	-	-
Primary Melanoma	+	+	+	+	+	+	+	-
Metastatic Melanoma	+	+	+	+	+	+	+	-
Spindle Cell Melanoma	+	+	+	+	+	+	+	-
Angiomyolipoma	+	+	+	+	-	+	+	-
Adrenal Cortical	-	+		+	-	-	-	-
Intranodal Nevus Cells	-	+	+	+	+	+	-	-
Dermatofibroma	-	-	-	-	-	-	-	+

PEComa	HMB-45	MART-1	CD63	S-100	Tyrosinase	SM Actin	Calponin	Caldesmon	Desmin	CD68
Angiomyolipoma	+	+	+	-	-	+	+	+	-	+
Lymphangiomyomatosis	+	+	+	-	-	+	+	+	-	-
Extrapulmonary Clear Cell Tumor	+	+	+	+	-	+	-	-	-	-
Primary Cutaneous PEComa	+	+	+	-	-	-	-	-	-	+/-
Pulmonary Clear Cell Sugar Tumor	+	+	+	+/-	-	-	-	-	-	+/-

Reactivity Paraffin

Visualization Cytoplasmic

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gown AM, et al. A J Path 1986;123:195
2. Wick MR, et al. Arch Path Lab 1988;112:616
3. Leong ASY, et al. Surg Path 1989:2:137

Mouse Monoclonal Clone: HMB-45

0.1 ml, concentrate..... 282M-94
0.5 ml, concentrate..... 282M-95
1 ml, concentrate 282M-96
1 ml, prediluted 282M-97
7 ml, prediluted 282M-98
Positive control slides 282S

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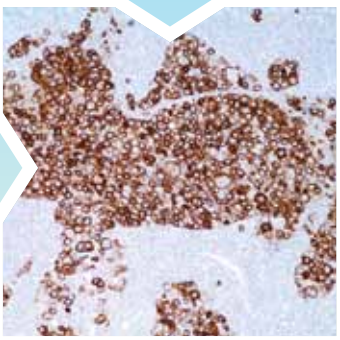

* *ultraView is a trademark of Roche.*

Human Chorionic Gonadotropin (hCG)

hCG is a protein secreted in large quantities by normal trophoblasts; the antibody detects cells and tumors of trophoblastic origin such as choriocarcinoma. Large cell carcinoma and adenocarcinoma of the lung demonstrate anti-hCG positivity in 90% and 60% of cases respectively. 20% of lung squamous cell carcinomas are positive for anti-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.

Gonads: Germ Cell Tumors vs. Somatic Adenocarcinoma

	hCG	Oct-4	AFP	EMA	Inhibin	D2-40	CD30	Glypican-3	CD117	PLAP
Seminoma	-	+	-	-	-	+	-	-	+	+
Embryonal Carcinoma	-	+	-	-	-	-	+	-	-	+
Choriocarcinoma	+	-	-	+	-	-	-	+	-	+
Yolk Sac Tumor	-	-	+	-	-	-	-	+	-	+
Somatic Carcinoma	-	-	-	+	-		-	-	-	-
Granulosa Cell Tumor	-	-	-	-	+		-	-	-	
Hypercalcaemic Small Cell Carcinoma	-	-	-	+	-	+	-	-	-	-

Placental 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%

Placental Trophoblastic Proliferations

	hCG	p57	PLAP	hPL	Cytokeratin, Oscar	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

Reactivity Paraffin

Visualization Cytoplasmic

Control Placenta

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Morrish DW, et al. J Histochem Cytochem 1987;35:39-101
2. Kurman RJ, et al. Cancer 1976;38:2404-2419
3. Kurman RJ, et al. Int J Gyn Pathol 1984;3:101-12
4. Boucher LD, et al. Human Pathol 1995 Nov;26(11):1201-6

Rabbit Polyclonal

0.1 ml, concentrate.....234A-14
0.5 ml, concentrate.....234A-15
1 ml, concentrate 234A-16
1 ml, prediluted 234A-17
7 ml, prediluted 234A-18
Positive control slides 234S

Rabbit Polyclonal

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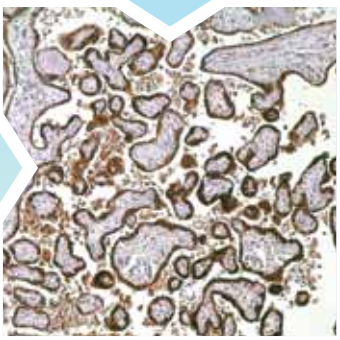

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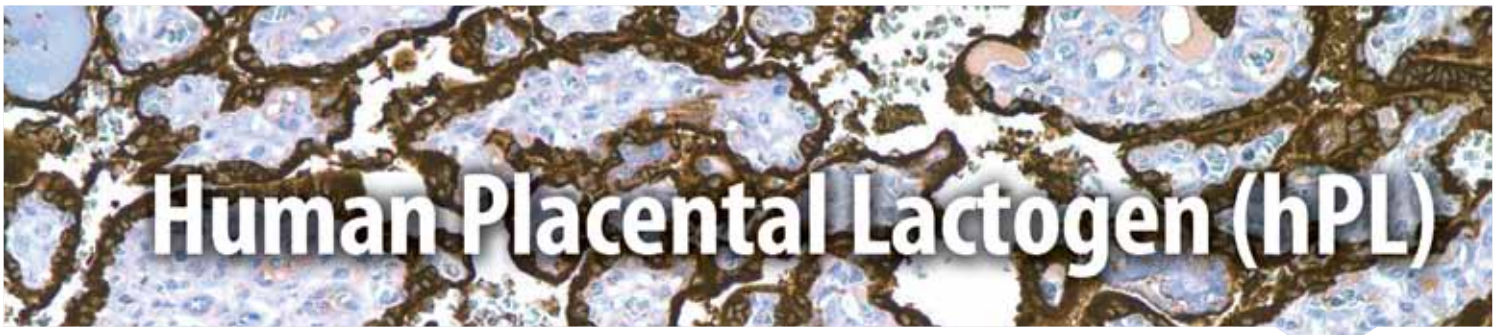

Human Placental Lactogen (hPL)

Human placental lactogen (hPL), also previously known as 'human chorionic somatomammotropin', is a 22 kD protein with partial homology to growth hormone. hPL is first detectable in the maternal serum in the fifth week of gestation and reaches a plateau by the thirty-fourth week. hPL has been demonstrated by immunochemistry 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 consists purely of intermediate trophoblasts which are diffusely positive for hPL and focally for β-hCG.

Gonads: Germ Cell Tumors vs. Somatic Adenocarcinoma

	hPL	Oct-4	AFP	Vimentin	EMA	Inhibin	CD30	Glypican-3	CD117	PLAP
Seminoma	-	+	-	+	-	-	-	-	+	+
Embryonal Carcinoma	-	+	-	-	-	-	+	-	-	+
Choriocarcinoma	+	-	-	-/+	+	-	-	+	-	+
Yolk Sac Tumor	-	-	+	-	-	-	-	+	-	+
Somatic Carcinoma	-	-	-	-	+	-	-	-	-	-
Granulosa Cell Tumor	-	-	-	+	-	+	-	-	-	
Hypercalcaemic Small Cell Carcinoma	-	-	-	-	+	-	-	-	-	-

Placental 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%

Trophoblastic Proliferations

	hPL	p57	hCG	PLAP	Cytokeratin, Oscar	Vimentin
Partial Mole	Weak, diffuse	+	Weak, diffuse	+	Strong, diffuse	-
Complete Mole	Weak, focal	-	Strong, diffuse	Weak, focal	Strong, diffuse	-
Choriocarcinoma	Weak, focal	-	Strong, diffuse	Weak, focal	Strong, diffuse	-/+
Placental Site Tumor	Strong, diffuse		Strong, focal	Strong, diffuse	Strong, diffuse	Strong, diffuse

Reactivity Paraffin

Visualization Cytoplasmic

Control Placenta

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Shih IM, Kurman RJ. Am J Surg Pathol. 2004 Sep;28(9):1177-83.
2. Ulbright TM, et al. Am J Surg Pathol 1997;21:282-288

Rabbit Polyclonal

0.1 ml, concentrate.....266A-14
0.5 ml, concentrate.....266A-15
1 ml, concentrate 266A-16
1 ml, prediluted 266A-17
7 ml, prediluted 266A-18
Positive control slides 266S

Rabbit Polyclonal

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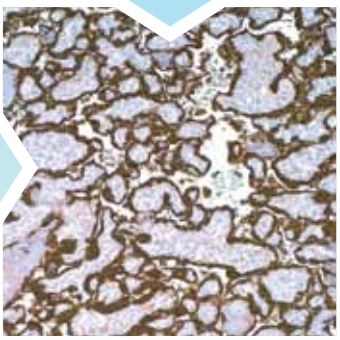

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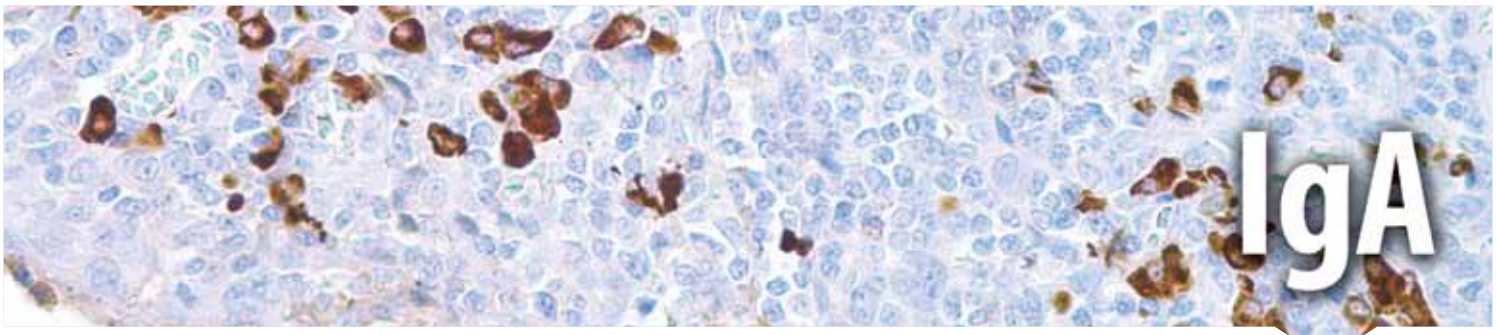

Immunoglobulin A (IgA) is a class of antibodies which plays a critical role in mucosal immunity. More IgA is produced in mucosal linings than all other types of antibody combined; between 3g and 5g is secreted into the intestinal lumen each day. In its secretory form, it is the main immunoglobulin found in mucous secretions, including tears, saliva, colostrum, intestinal juice, vaginal fluid, and secretions from the prostate and respiratory epithelium. It is also found in small amounts in blood. Because it is resistant to degradation by enzymes, secretory IgA can survive in harsh environments such as the digestive and respiratory tracts, to provide protection against microbes that multiply in body secretions. IgA is a poor activator of the complement system, and opsonizes only weakly. Its heavy chains are of the type α. IgA exists in two isotypes, IgA1 (90%) and IgA2 (10%). IgA1 is found in serum and is made by bone marrow B-cells. IgA2 is made by B-cells located in the mucosa and has been found in colostrum, maternal milk, tears, and saliva.

Anti-IgA antibody reacts with surface immunoglobulin IgA alpha chains. It is useful when identifying plasma cell myeloma.

Immunoglobulin, Heavy and Light Chain						
	IgA	IgG	IgD	IgM	Kappa	Lambda
Secretory Meningioma	+	-	-	+		
Cutaneous Lymphoma	-	-	-	-	+/-	-/+
Myeloma	+	+	-/+	-/+	+/-	-/+
Diffuse LBCL	-	+	-	+	+/-	-/+
Marginal Zone Lymphoma	-	-	-/+	+	+/-	-/+
SLL/CLL	-	-	+	+	+/-	-/+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Arnold, A, et al. New Eng J Med 1983;309:1593-1599
2. Leong AS, et al. Manual of Diagnostic Antibodies for Immunohistology. Greenwich Medical Media Ltd. 1999. pp 217-219.
3. Hertel BF, et al. New Eng J Med 1980;302:1293-1297

Rabbit Polyclonal

0.1 ml, concentrate.....267A-14
0.5 ml, concentrate.....267A-15
1 ml, concentrate 267A-16
1 ml, prediluted 267A-17
7 ml, prediluted 267A-18
Positive control slides 267S

Rabbit Polyclonal

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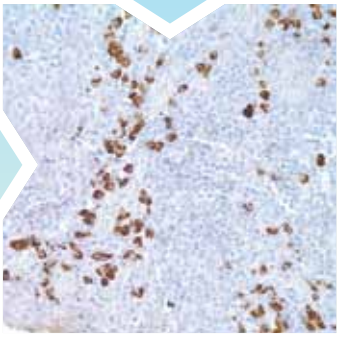

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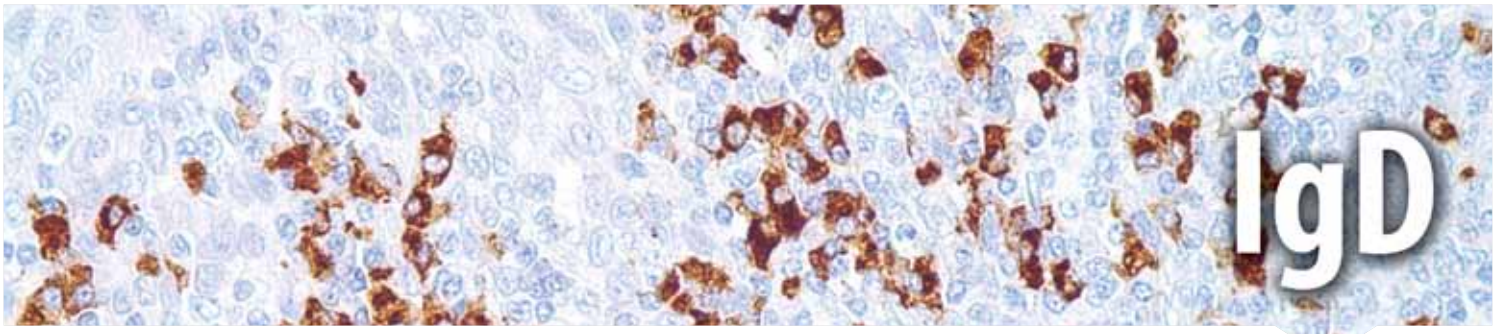

Anti-IgD reacts with surface immunoglobulin D delta chains. This antibody is useful when identifying leukemias, plasmacytomas, and B-cell lineage-derived lymphomas (in particular marginal zone lymphoma). Cytoplasmic staining is easily identified on paraffin tissue.

Immunoglobulin, Heavy and Light Chain						
	IgD	IgA	IgG	IgM	Kappa	Lambda
Secretory Meningioma	-	+	-	+		
Cutaneous Lymphoma	-	-	-	-	+/-	-/+
Myeloma	-/+	+	+	-/+	+/-	-/+
Diffuse LBCL	-	-	+	+	+/-	-/+
Marginal Zone Lymphoma	-/+	-	-	+	+/-	-/+
SLL/CLL	+	-	-	+	+/-	-/+

B-cell Lymphomas										
	IgD	CD79a	BCL2	BCL6	MUM1	CD10	CD23	Cyclin D1	p27	Annexin A1
Follicular	+	+	+	+	-	+	-	-	+	-
CLL/SLL	+	+	+	-	+	-	+	-	+	-
Mantle Cell	+	+	+	-	-	-	-	+	+	-
Marginal Zone BCL	-/+	+	+	-	+	-	-	-	+	-
Lymphoplasmacytic	-	+	+	-	+	-	-	-	+	-
Diffuse Large Cell Lymphoma	-	+	+	+	+	-	-	-	-	
Burkitt Lymphoma	-	+	-	+	-	+	-	-	-	
Hairy Cell Leukemia	-	+	+	-		-	-	+(weak)/-	-	+

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Tonsil

Stability
Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Campo E, et al. Am J Surg Pathol 1999 Jan;23(1):59-68
2. Mori S, et al. Acta Pathol Jpn 1986 Oct;36(1):1429-40
3. Oka K, et al. Acta Haematol 1993;90(2):84-9
4. Bertero M, et al. J Am Acad Dermatol 1994 Jan;30(1):23-30

Rabbit Polyclonal

0.1 ml, concentrate.....268A-14
0.5 ml, concentrate.....268A-15
1 ml, concentrate 268A-16
1 ml, prediluted 268A-17
7 ml, prediluted 268A-18
Positive control slides 268S

Rabbit Polyclonal

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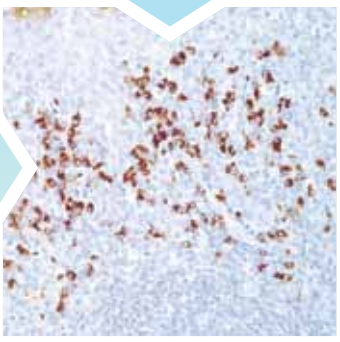

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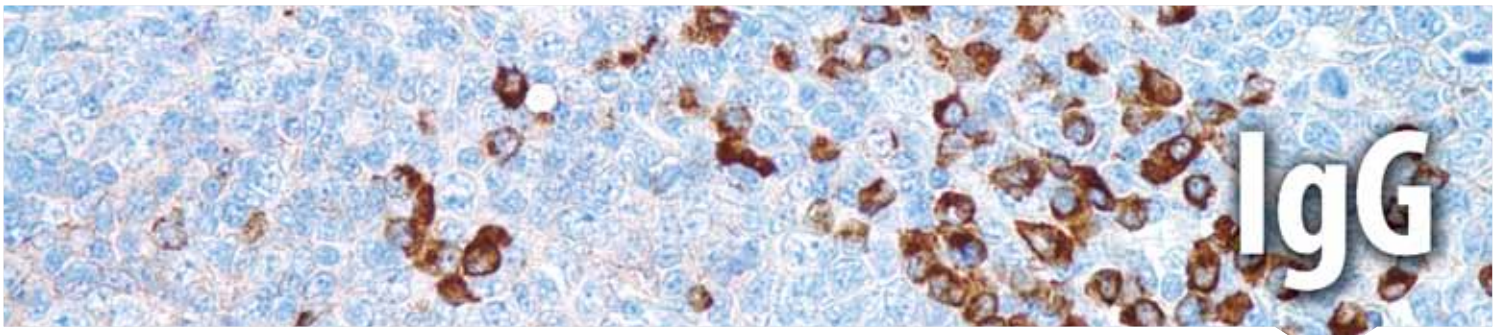

Immunoglobulin G (IgG) is a monomeric immunoglobulin, built of two heavy chains (γ) and two light chains. Each IgG has two antigen binding sites. It is the most abundant immunoglobulin and is approximately equally distributed in blood and in tissue liquids, constituting 75% of serum immunoglobulins in humans. IgG molecules are synthesized and secreted by plasma cells and B-cells. IgG antibodies are predominately involved in the secondary antibody response, (the main antibody involved in primary response is IgM) which occurs approximately one month following antigen recognition, thus the presence of specific IgG generally corresponds to maturation of the antibody response. Pro-inflammatory cytokines, particularly IL-4 and IL-2, have a crucial role in activation of the IgG antibody response. This is the only isotype that can pass through the human placenta, thereby providing protection to the fetus *in utero*. Along with IgA secreted in the breast milk, residual IgG absorbed through the placenta provides the neonate with humoral immunity before its own immune system develops.

IgG can bind to many kinds of pathogens (for example viruses, bacteria, and fungi), and protects the body against such agents by agglutination and immobilization, complement activation (classical pathway), opsonization for phagocytosis and neutralization of their toxins. It also plays an important role in antibody-dependent, cell-mediated cytotoxicity (ADCC). IgG is also associated with type II and type III hypersensitivity.

Anti-IgG reacts with surface immunoglobulin IgG gamma chains. This antibody is useful when identifying leukemias, plasmacytomas, and B-cell lineage-derived Hodgkin lymphomas.

Immunoglobulin, Heavy and Light Chain						
	IgG	IgA	IgD	IgM	Kappa	Lambda
Secretory Meningioma	-	+	-	+		
Cutaneous Lymphoma	-	-	-	-	+/-	-/+
Myeloma	+	+	-/+	-/+	+/-	-/+
Diffuse LBCL	+	-	-	+	+/-	-/+
Marginal Zone Lymphoma	-	-	-/+	+	+/-	-/+
SLL/CLL	-	-	+	+	+/-	-/+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Arnold A, et al. New Eng J Med 1983;309:1593-1599
2. Leong AS, et al. Manual of Diagnostic Antibodies for Immunohistology. Greenwich Medical Media Ltd. 1999. pp 217-219
3. Hertel BF, et al. New Eng J Med 1980;302:1293-1297

Rabbit Polyclonal

0.1 ml, concentrate.....269A-14
0.5 ml, concentrate.....269A-15
1 ml, concentrate 269A-16
1 ml, prediluted 269A-17
7 ml, prediluted 269A-18
Positive control slides 269S

Rabbit Polyclonal

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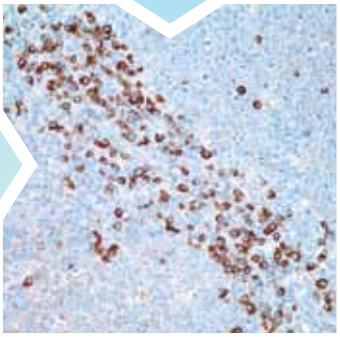

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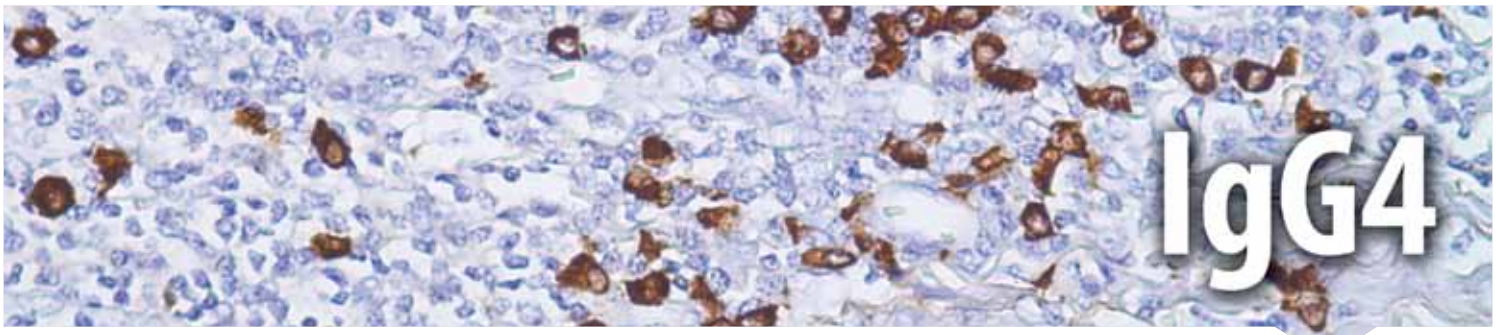

IgG4-related sclerosing disease has been recognized as a systemic disease entity characterized by an elevated serum IgG4 level, sclerosing fibrosis, and diffuse lymphoplasmacytic infiltration with the presence of many IgG4-positive plasma cells. As these patients tend to respond favorably to steroid 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, gall bladder, 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%).

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: Protease
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Noriyuki Sakata, et al. Am J Surg Pathol; April 2008, 32 (4):553-559
2. Sudhir Dhobale, et al. J Clin Rheumatol 2009; 15:354-357
3. Yaqiong Li, et al. Pathology International 2009; 59: 636-641

Mouse Monoclonal Clone: MRQ-44

0.1 ml, concentrate.....367M-14
0.5 ml, concentrate.....367M-15
1 ml, concentrate 367M-16
1 ml, prediluted 367M-17
7 ml, prediluted 367M-18
Positive control slides 367S

Mouse Monoclonal Clone: MRQ-44

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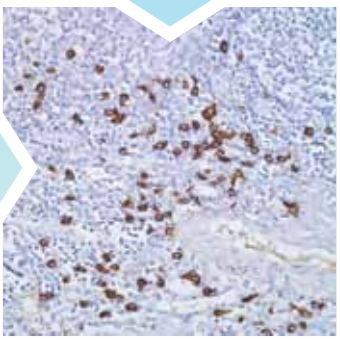

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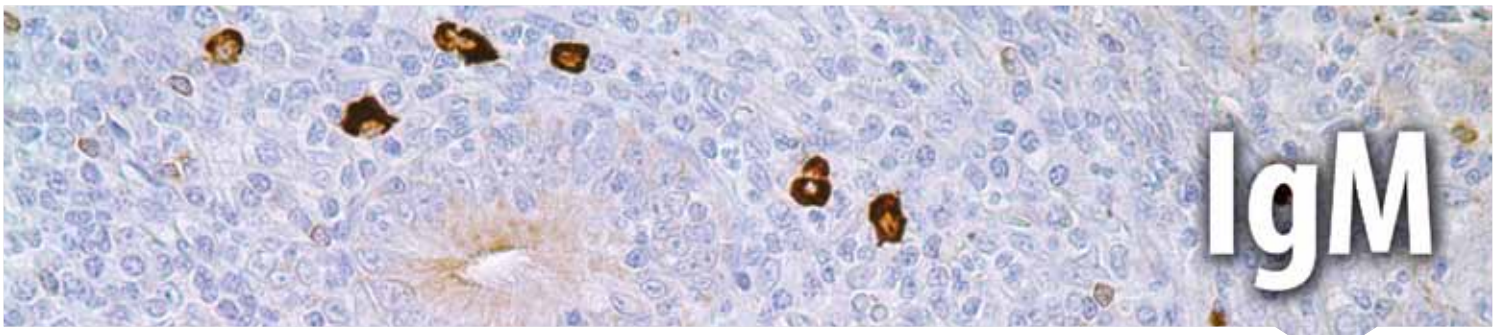

Immunoglobulin M (IgM) is a basic antibody that is present on B-cells. It is the primary antibody against A and B antigens on red blood cells. IgM is the largest antibody in the human blood. IgM forms polymers where multiple immunoglobulins are covalently linked together with disulfide bonds, mostly as a pentamer but also as a hexamer. IgM has a molecular mass of approximately 900 kD (in its pentamer form). Because each monomer has two antigen binding sites, a pentameric IgM has 10 binding sites. Typically however, IgM cannot bind 10 antigens at the same time because the large size of most antigens hinders binding to nearby sites. Due to its polymeric nature, IgM possesses high avidity, and is particularly effective in germline cells; the gene segment encoding the μ 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 antibodies appear early in the course of an infection and usually reappear, to a lesser extent, after further exposure. Demonstrating IgM antibodies in a patient's serum indicates recent infection.

Anti-IgM reacts with surface immunoglobulin M μ chains. IgM is one of the predominant surface immunoglobulins on B-lymphocytes. This antibody is useful when identifying lymphomas, plasmacytomas, and B-cell lineage-derived Hodgkin lymphomas.

Immunoglobulin, Heavy and Light Chain						
	IgM	IgA	IgG	IgD	Kappa	Lambda
Secretory Meningioma	+	+	-	-		
Cutaneous Lymphoma	-	-	-	-	+/-	-/+
Myeloma	-/+	+	+	-/+	+/-	-/+
Diffuse LBCL	+	-	+	-	+/-	-/+
Marginal Zone Lymphoma	+	-	-	-/+	+/-	-/+
SLL/CLL	+	-	-	+	+/-	-/+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Arnold A, et al. New Eng J Med 1983;309:1593-1599
2. Leong AS, et al. Manual of Diagnostic Antibodies for Immunohistology. Greenwich Medical Media Ltd. 1999. pp 217-219
3. Hertel BF, et al. New Eng J Med 1980;302:1293-1297

Rabbit Polyclonal

0.1 ml, concentrate.....270A-14
0.5 ml, concentrate.....270A-15
1 ml, concentrate 270A-16
1 ml, prediluted 270A-17
7 ml, prediluted 270A-18
Positive control slides 270S

Rabbit Polyclonal

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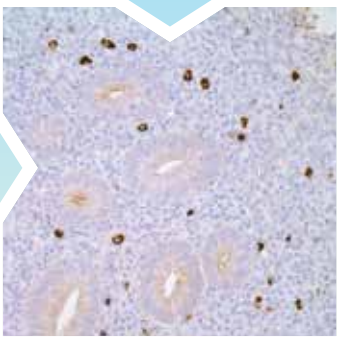

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Anti–inhibin alpha is an antibody against a peptide hormone which has demonstrated utility in the differentiation between adrenal cortical tumors and renal cell carcinoma. Sex cord stromal tumors of the ovary as well as trophoblastc tumors also demonstrate cytoplasmic positivity with this antibody. This antibody has been used to make the differential diagnosis of intra-uterine vs. ectopic pregnancy in endometrial curettings.

Adrenal Tumors						
	Inhibin	Calretinin	MART-1	Synaptophysin	Chromogranin A	CD56
Pheochromocytoma	-	-	-	+	+	+
Adrenocortical Carcinoma	+	+	+	-/+	-	+
Adrenocortical Adenoma	+	+	+	-/+	-	+

Germ Cell Tumors vs. Carcinoma										
	Inhibin	Oct-4	AFP	Vimentin	EMA	hPL	CD30	Glypican-3	CD117	PLAP
Seminoma	-	+	-	+	-	-	-	-	+	+
Embryonal Carcinoma	-	+	-	-	-	-	+	-	-	+
Choriocarcinoma	-	-	-	-/+	+	+	-	+	-	+
Yolk Sac Tumor	-	-	+	-	-	-	-	+	-	+
Carcinoma	-	-	-	-	+	-	-	-	-	-
Hypercalcaemic Small Cell Carcinoma	-	-	-	-	+	-	-	-	-	-

Sex Cord Stromal Tumors							
	Inhibin	Calretinin	CD99	CK 7	EMA	Vimentin	MART-1
Granulosa Cell Tumors	+	+	+	-	-	+	+
Sertoli-Leydig Cell Tumors	+	+	-/+	+	-	+	+
Gynandroblastoma	+	+					
Gonadoblastomas	+	+	+	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Adrenal Cortex

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Arora DS, et al. J Pathol 1997 Apr;181(4):413-8
2. Stewart CJ, et al. Histopathology 1997 Jul;31(1):67-74
3. Yamashita K, et al. Am J Obstet Gynecol 1997 Dec;177(6):1450 –7

Mouse Monoclonal Clone: R1

0.1 ml, concentrate.....271M-14
0.5 ml, concentrate.....271M-15
1 ml, concentrate 271M-16
1 ml, prediluted 271M-17
7 ml, prediluted 271M-18
Positive control slides 271S

Mouse Monoclonal Clone: R1

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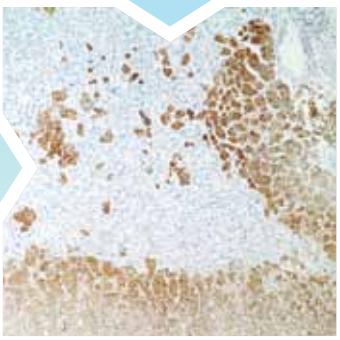

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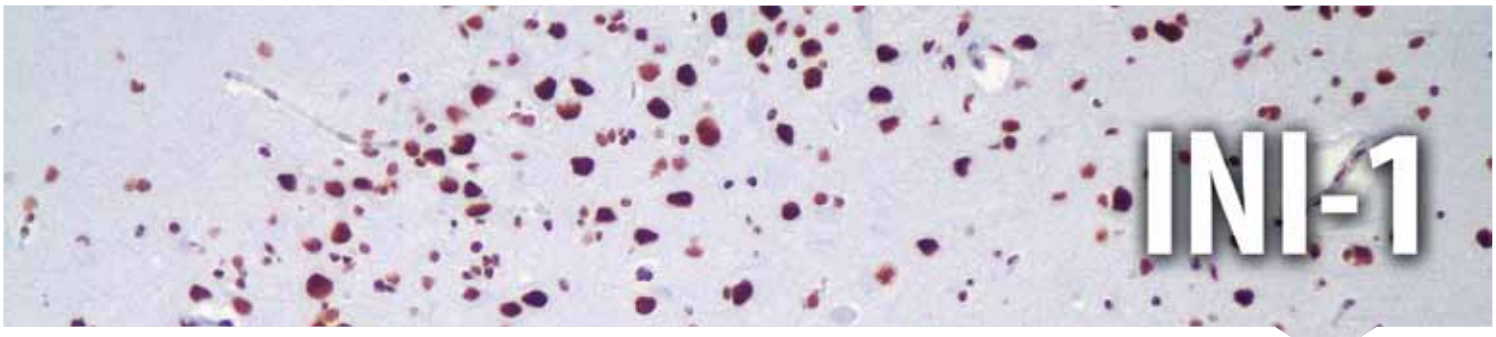

The INI-1 gene, which encodes a functionally uncharacterized protein component of the hSWI/SNF chromatin remodeling complex, is often mutated or deleted in malignant rhabdoid tumor (MRT). Two isoforms of INI-1, that differ by the variable inclusion of amino acids, potentially are produced by differential RNA splicing.

The morphology of MRTs can present challenges in differential diagnosis. The overall survival of patients with MRT 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. Epithelioid sarcoma in soft tissue frequently demonstrates rhabdoid features in histology. Sometimes, it is difficult to distinguish epithelioid sarcoma from malignant rhabdoid tumor since both tumors have demonstrated a loss of INI-1 expression. However, epithelioid sarcoma shows anti-CD34 and anti-β-Catenin immunoreactivity. MRT is negative for both markers.

Small, Round Blue Cell Tumors										
	INI-1	MS Actin	Myoglobin	Myogenin	CK Cocktail	CD99	CD57	FLI-1	WT1	Vimentin
Rhabdomyosarcoma	+	+	+	+	-	-	-	-	-	+
PNET/ES	+	-	-	-	-/+	+	+	+	-	+
DSRCT	+	-	-	-	+	-	+/-	+	+	+
Medulloblastoma	+	-		-	-	-	+	-		-

Brain: CNS Tumors										
	INI-1	GFAP	Neuro-filament	Synapto-physin	S-100	CK Cocktail	PR	EMA	Vimentin	NGFR
Astrocytoma	+	+	-	-	+	-	-	-	+	+
Glioblastoma	+	+	-	-	+	-	-	-	+	-
Oligodendriglioma	+	-	-	-	+	-	-	-	+	-
Ependymoma	+	+	-	-	+	-	-	-	-/+	+
Choroid Plexus Carcinoma	+	-	-	-	+	+	-	-		-
Neuroblastoma	+	+/-	+	+	+/-	-	-	-	+	+
Pineocytoma	+	-	-	+	-	-	-	-		-
Meningioma	+	-	-	-	-	-	+	+	+	-
Rhabdoid Tumors	-	+/-	+/-	+/-	+/-	+		+	+	

Reactivity Paraffin

Visualization Nuclear

Control Brain, Endothelial Cells

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bourdeaut F, et al. J Pathol. 2007 Feb;211(3):323-30.
2. Kohashi K, et al. Hum Pathol. 2009;40:349-355
3. Haberler C, et al. Am J Surg Pathol. 2006 Nov;30(11):1462-8.

Mouse Monoclonal Clone: MRQ-27

0.1 ml, concentrate.....272M-14
0.5 ml, concentrate.....272M-15
1 ml, concentrate 272M-16
1 ml, prediluted 272M-17
7 ml, prediluted 272M-18
Positive control slides 272S

Mouse Monoclonal Clone: MRQ-27

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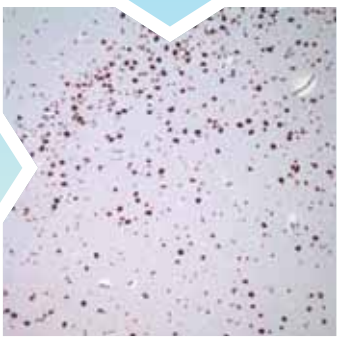

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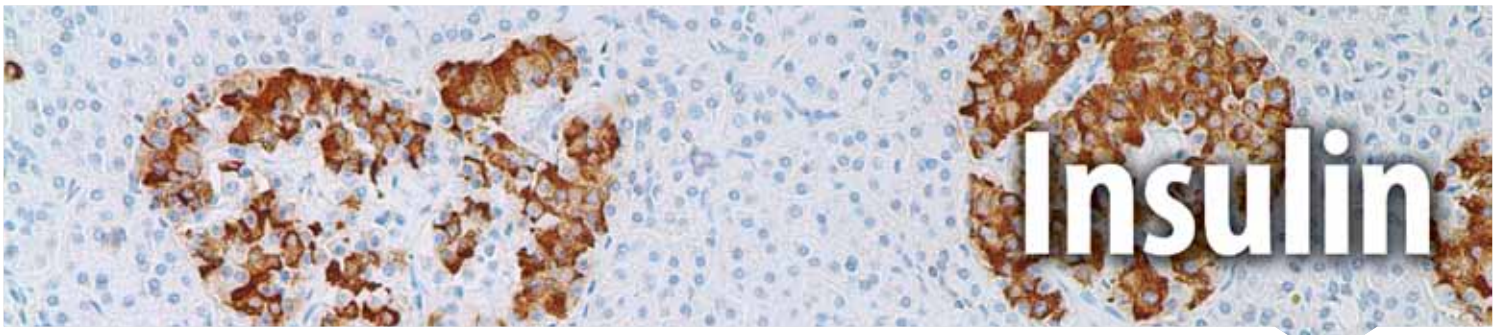

Insulin is a 51-amino acid polypeptide composed of A and B chains connected through the C-peptide. Insulin is one of the major regulatory hormones of intermediate metabolism throughout the body. The biological actions of this hormone involve integration of carbohydrate, protein, and lipid metabolism. Insulin enhances membrane transport of glucose, amino acids, and certain ions. It also promotes glycogen storage, formation of triglycerides, and synthesis of proteins and nucleic acids. Immunohistochemical investigations have localized insulin in the beta cells of pancreatic islets of Langerhans. Deficiency of insulin results in diabetes mellitus, one of the leading causes of morbidity and mortality in the general population. Insulin is also present in tumors of beta cell origin such as insulinoma.

Anti-insulin staining in the cytoplasm of tumors is the most reliable indication of functional insulinomas.

Pancreas										
	Insulin	Synapto-physin	Chromo-granin A	Gastrin	CD56	β-Catenin	CK 19	CA19-9	E-cadherin	CD10
Neuroendocrine Tumor	+/-	+	+	+/-	+	+	+/-	+/-	-	-
Solid Pseudopapillary Tumor	-	+	-	-	+	+	-	-	+(nuclear)	+
Ductal Carcinoma	-	-	-	-	-	+/-	+	+	+/-	+/-
Acinic Cell Carcinoma	-	-	-	-	-	+	+	-/+	+	+/-
Pancreatoblastoma	-	-	+	-	+	+	-	-	-	-
Normal Pancreas	+	+	+	-	-	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Pancreas

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Akagi T, et al. Cancer 1981;47:417-424
2. Scully RE, et al. N eng J Med 1983;308:30-37
3. Erlandsen SL. Williams and Wilkins. Baltimore, 1980 pp140-155
4. Friesen SR. N Eng J Med 1982;306:580-590

Guinea Pig Polyclonal

0.1 ml, concentrate.....273A-14
0.5 ml, concentrate.....273A-15
1 ml, concentrate 273A-16
1 ml, prediluted 273A-17
7 ml, prediluted 273A-18
Positive control slides 273S

Guinea Pig Polyclonal

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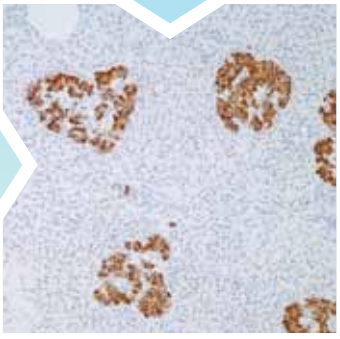

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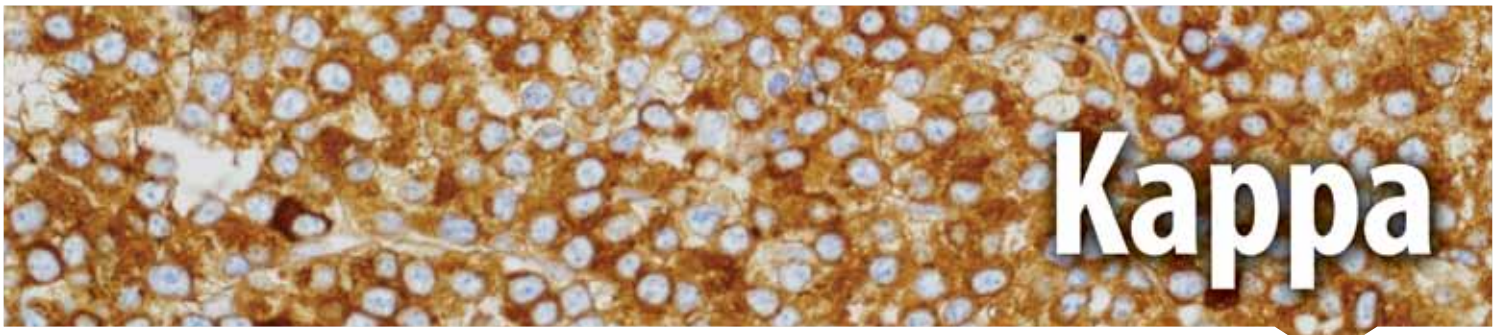

Anti-kappa detects surface immunoglobulin on normal and neoplastic B-cells. In paraffin-embedded tissue, anti-kappa exhibits strong staining of kappa-positive plasma cells and cells that have absorbed exogenous immunoglobulins. When dealing with B-cell neoplasms, the determination of light chain ratios remains the centerpiece. 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 exists. Monoclonality is determined by a kappa-lambda ratio of greater than 3:1 or a lambda-kappa ratio greater than 2:1.

Immunoglobulin, Heavy and Light Chain						
	Kappa	IgA	IgG	IgD	IgM	Lambda
Myeloma	+/-	+	+	-/+	-/+	-/+
Diffuse LBCL	+/-	-	+	-	+	-/+
Marginal Zone Lymphoma	+/-	-	-	-/+	+	-/+
SLL/CLL	+/-	-	-	+	+	-/+

B-cell Lymphomas										
	Kappa	Lambda	CD79a	BCL2	BCL6	CD5	CD10	CD23	Cyclin D1	Annexin A1
Follicular	+/-	-/+	+	+	+	-	+	-	-	-
CLL/SLL	+/-	-/+	+	+	-	+	-	+	-	-
Mantle Cell	+/-	-/+	+	+	-	+	-	-	+	-
Marginal Zone	+/-	-/+	+	+	-	-	-	-	-	-
Lymphoplasmacytic	+/-	-/+	+	+	-	-	-	-	-	-
Diffuse Large Cell	+/-	-/+	+	+	+	-/+	-/+	-	-	-
Burkitt	+/-	-/+	+	-	+	-	+	-	-	-
Hairy Cell Leukemia	+/-	-/+	+	+	-	-	-	-	+(weak)/-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: Protease
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Michie SA, et al. A J Clin Path 1987
2. Hertel BF, et al. Lab Invest 1977;36:12
3. Taylor CL. Arch Pathol Lab Med 1978;12:113-121

Mouse Monoclonal
Clone: L1C1

0.1 ml, concentrate.....274M-94
0.5 ml, concentrate.....274M-95
1 ml, concentrate 274M-96
1 ml, prediluted 274M-97
7 ml, prediluted 274M-98
25 ml, prediluted.....274M-90
Positive control slides 274S

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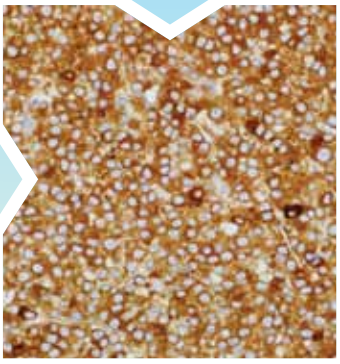

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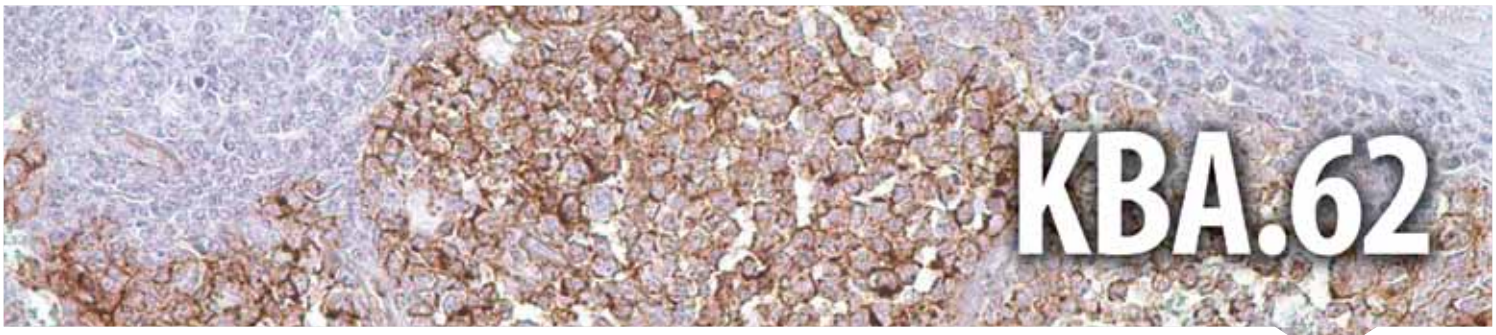

Anti-KBA.62 (Melanoma Associated Antigen) is a novel anti-melanoma antibody. Studies thus far have shown a similar sensitivity to melanocytic proliferations as that seen with S-100 protein staining, which is somewhat higher than that seen with anti-HMB-45. This has been confirmed by one study on a series of 215 sentinel lymph nodes. Moreover, anti-KBA.62 identified 6 patients (3%) who had confirmed sentinel lymph node metastasis but stained negative using anti-HMB-45. In this setting, the resolution appears to be higher than S-100 protein in that the staining pattern (membranous) is quite distinct. Interestingly, most cases of desmoplastic and spindle cell melanomas show strongly positive results with anti-KBA.62, unlike that seen with other melanocyte markers. It should be noted that anti-KBA.62 will label occasional endothelial cells which can serve as an internal positive control. A small percentage of well-differentiated squamous cell carcinomas of the skin (and lung) have also been noted to stain with this antibody; however, the poorly-differentiated forms of carcinoma do not, thus resolving a greater practical problem in differential diagnosis. Anti-KBA.62 is a useful additional marker for melanoma, specifically in desmoplastic/spindle cell cases and in the context of micrometastasis in sentinel lymph node.

	KBA.62	S-100	HMB-45	MART-1	Tyrosinase	MiTF	CD63	Factor XIIIa	WT1	PNL2
Adult Melanocytes	+	+	-	+	+	+	+	-		+
Junctional Nevus	+	+	+	+	+	+	-	-	+/-	+
Interdermal Nevus	+	+	-	+	+	+	-	-	+/-	+
Primary Melanoma	+	+	+	+	+	+	+	-		+
Metastatic Melanoma	+	+	+	+	+	+	+	-	+	+
Spindle Cell Melanoma	+	+	+	+	+	+	+	-	+	+
Angiomyolipoma	-	+	+	+	-	+	+	-		+
Adrenal Cortical Lesions	-	+	-	+	-	-	-	-		-
Intranodal Nevus Cells	+	+	-	+	+	+	-	-		+
Dermatofibroma	-	-	-	-	-	-	-	+		-

Reactivity Paraffin

Visualization Membranous

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kocan P, et al. Cesk Patol. 2004 Apr; 40(2):50-6
2. Cecile Pages, et al. Hum Pathol. 2008; 39; 1136-1142
3. E Cohen-Knafo et al., J Clin Pathol. 1995; 48:826-831

Mouse Monoclonal Clone: KBA.62

0.1 ml, concentrate.....366M-94
0.5 ml, concentrate.....366M-95
1 ml, concentrate 366M-96
1 ml, prediluted 366M-97
7 ml, prediluted 366M-98
Positive control slides 366S

Mouse Monoclonal Clone: KBA.62

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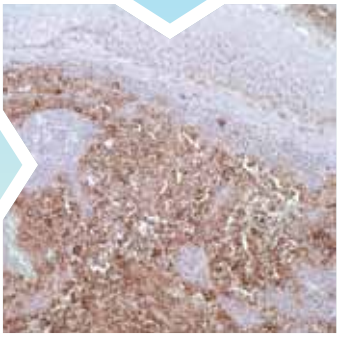

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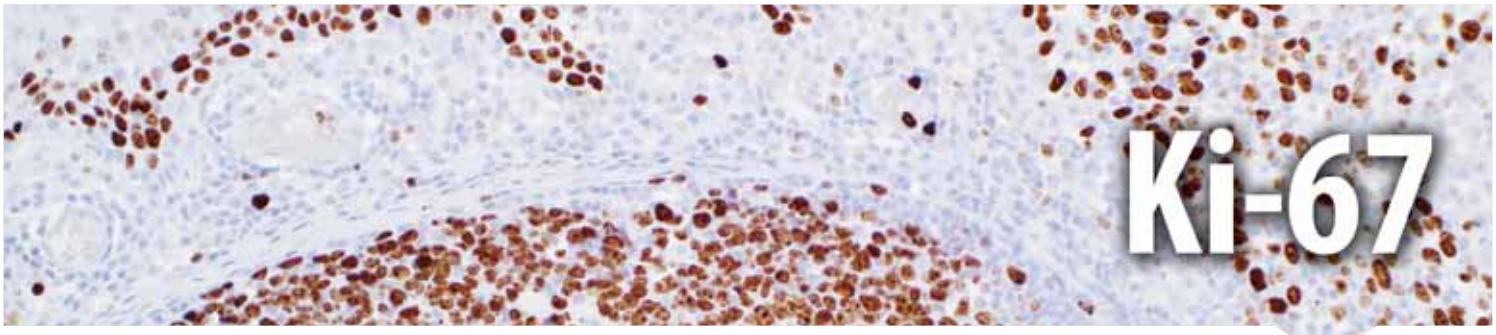

The Ki-67 antigen is a nuclear, non-histone protein that is present in all stages of the cell cycle except G0. In general, Ki-67 is a good marker of proliferating cell populations. Anti-Ki-67 labeling index has been shown to be a good prognostic marker in a number of neoplasms including grade II astrocytoma, oligodendroglioma, colon carcinoma, and breast carcinoma.

Bladder: Dysplasia vs. Reactive				
	Ki-67	CK 20	p53	CD44
Carcinoma-in-situ	+	+	+	-
Reactive Atypia	+	-	-	+ (all cell layers)
Normal Urothelium	-	+ (umbrella cells)	-	+ (umbrella cells)

Cervix			
	Ki-67	BCL2	CK 17
Cervical Intraepithelial Neoplasia	+	-	-
Tubo-Endometrial Metaplasia	-	+	+
Microglandular Hyperplasia	-	-	-

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mckeever P, et al. J Neuropathol Exp Neurol 1998:57:931-936.
2. Coons SW, et al. Neurosurgery. 1997 Oct;41(4):878-84
3. Allegra CJ, et al. J Clin Oncol. 2003 Jan 15;21(2):241-50

Rabbit Monoclonal
Clone: SP6

0.1 ml, concentrate	275R-14
0.5 ml, concentrate	275R-15
1 ml, concentrate	275R-16
1 ml, prediluted	275R-17
7 ml, prediluted	275R-18
Positive control slides	275S

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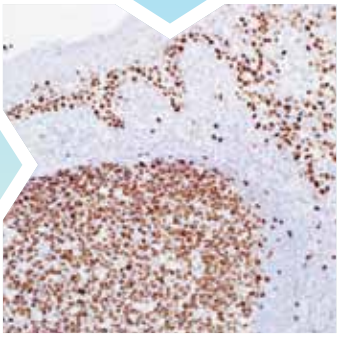

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Ksp-cadherin

Kidney-specific cadherin (Ksp-cadherin or cadherin-16) is a kidney-specific member of the cadherin family of cell adhesion molecules. Within the kidney, Ksp-cadherin is found exclusively in the basolateral membrane of renal tubular epithelial cells and collecting duct cells, and not in glomeruli, renal interstitial cells, or blood vessels. Recent studies have shown that anti-Ksp-cadherin can be used to distinguish chromophobe renal cell carcinoma from oncocytoma with a membranous staining pattern in 96% of chromophobe carcinomas, but in only 6% of oncocytomas. However, other studies report anti-Ksp-cadherin positivity in 100% of chromophobe RCCs, and 95% of oncocytomas.

Kidney: Renal Epithelial Tumors								
	Ksp-cadherin	RCC	CD10	PAX-2	Vimentin	Parvalbumin	CD117	Ep-CAM
Clear Cell RCC	-	+	+	+	+	-	-	-
Chromophobe RCC	+	-/+	-/+	+	-	+	+	+
Oncocytoma	+/-	-	+/-	+	-	+	+	-

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Kidney

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mazal PR, et al. Hum Pathol. 2005 Jan;36(1):22-8.
2. Shen SS, et al. Mod Pathol. 2005 Jul;18(7):933-40.
3. Thedieck C, et al. Br J Cancer. 2005 Jun 6;92(11):2010-7.

Mouse Monoclonal Clone: MRQ-33

0.1 ml, concentrate.....276M-94
0.5 ml, concentrate.....276M-95
1 ml, concentrate 276M-96
1 ml, prediluted 276M-97
7 ml, prediluted 276M-98
Positive control slides 276S

Mouse Monoclonal Clone: MRQ-33

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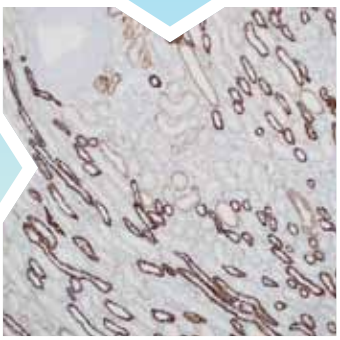

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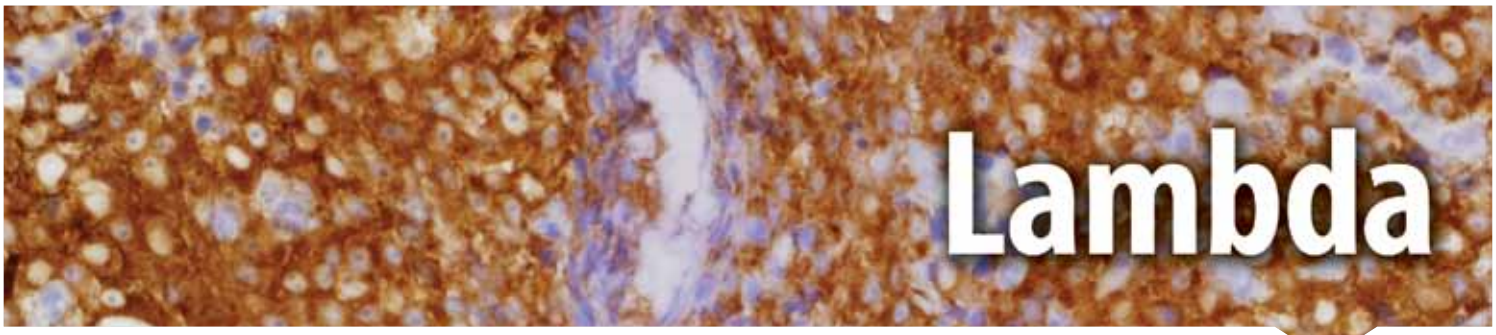

Anti-lambda detects surface immunoglobulin on normal and neoplastic B-cells. Anti-lambda staining is seen in B-cell follicles of human lymphoid tissue. When dealing with B-cell neoplasms, the determination of light chain ratios remains helpful. Most B-cell lymphomas express either kappa or lambda light 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 of greater than 3:1, a lambda-kappa ratio greater than 2:1.

Immunoglobulin, Heavy and Light Chain						
	Lambda	IgA	IgG	IgD	IgM	Kappa
Myeloma	-/+	+	+	-/+	-/+	+/-
Diffuse LBCL	-/+	-	+	-	+	+/-
Marginal Zone Lymphoma	-/+	-	-	-/+	+	+/-
SLL/CLL	-/+	-	-	+	+	+/-

B-cell Lymphomas										
	Lambda	Kappa	CD79a	BCL2	BCL6	CD5	CD10	CD23	Cyclin D1	Annexin A1
Follicular	-/+	+/-	+	+	+	-	+	-	-	-
CLL/SLL	-/+	+/-	+	+	-	+	-	+	-	-
Mantle Cell	-/+	+/-	+	+	-	+	-	-	+	-
Marginal Zone	-/+	+/-	+	+	-	-	-	-	-	-
Lymphoplasmacytic	-/+	+/-	+	+	-	-	-	-	-	-
Diffuse Large Cell	-/+	+/-	+	+	+	-/+	-/+	-	-	-
Burkitt	-/+	+/-	+	-	+	-	+	-	-	-
Hairy Cell Leukemia	-/+	+/-	+	+	-	-	-	-	+(weak)/-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: Protease
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Michie SA, et al. A J Clin Path 1987
2. Hertel BF, et al. Lab Invest 1977;36:12
3. Taylor CL. Arch Pathol Lab Med 1978;12:113-121

Mouse Monoclonal
Clone: Lamb14

0.1 ml, concentrate.....277M-94
0.5 ml, concentrate.....277M-95
1 ml, concentrate 277M-96
1 ml, prediluted 277M-97
7 ml, prediluted 277M-98
25 ml, prediluted.....277M-90
Positive control slides 277S

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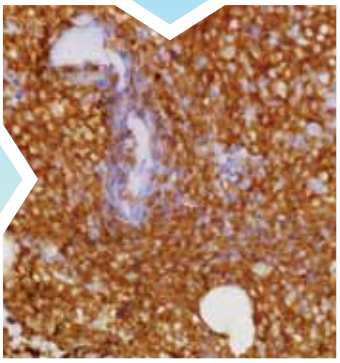

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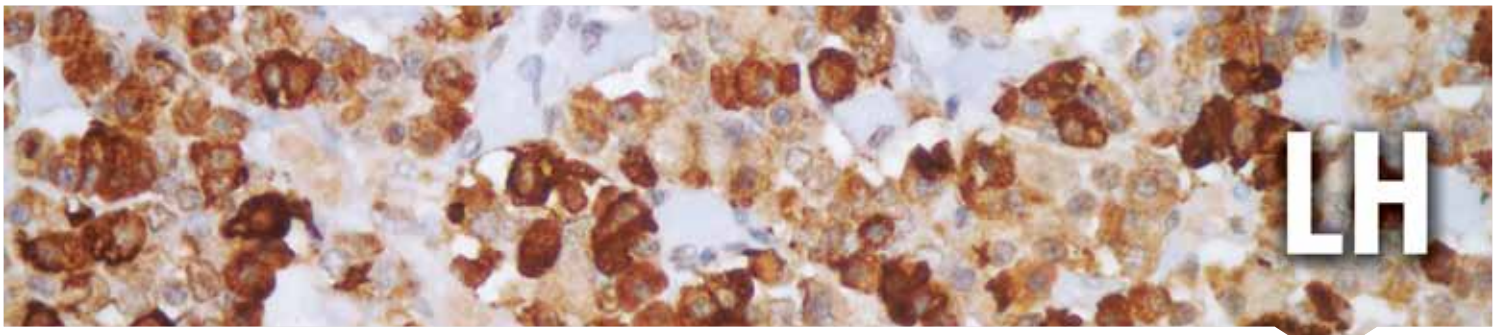

Luteinizing hormone (LH) is a glycoprotein. Each monomeric unit is a sugar-like protein molecule; two of these make the full, functional protein. Its structure is similar to the other glycoproteins, follicle-stimulating hormone (FSH), thyroid-stimulating hormone (TSH), and human chorionic gonadotropin (hCG). The protein dimer contains 2 polypeptide units, labeled alpha and beta subunits that are connected by two bridges. The alpha subunits of LH, FSH, TSH, and hCG are identical, and contain 92 amino acids. The beta subunits vary. LH has a beta subunit of 121 amino acids (LHB) that confers its specific biologic action and is responsible for interaction with the LH receptor. This beta subunit contains the same amino acids in sequence as the beta subunit of hCG and both stimulate the same receptor; however, the hCG beta subunit contains an additional 24 amino acids and the hormones differ in the composition of their sugar moieties. The gene for the alpha subunit is located at chromosome 6q12.21. The luteinizing hormone beta subunit gene is localized in the LHB/CGB gene cluster at chromosome 19q13.32. In contrast to the alpha gene activity, beta LH subunit gene activity is restricted to the pituitary gonadotropic cells. It is regulated by the gonadotropin releasing hormone from the hypothalamus. Inhibin, activin, and sex hormones do not affect genetic activity for the beta subunit production of LH. In both males and females, LH is essential for reproduction. Mutations in this gene are associated with hypogonadism which is characterized by infertility and pseudohermaphroditism.

Anti-LH is a useful marker in classification of pituitary tumors and the study of pituitary disease. It reacts with LH-producing cells (gonadotrophs).

Pituitary Panel						
	LH	ACTH	FSH	GH	Prolactin	TSH
Pituitary	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Pituitary

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. La Rosa S, et al. Virchows Arch. 2000 Sep;437(3):264-9
2. Saccomanno K, et al. J Clin Endocrinol Metab. 1994 May;78(5):1103-7
3. J Neurooncol. 1993 Jun;16(3):227-32
4. Felix I, et al. Hum Pathol. 1991 Jul;22(7):719-21

Rabbit Polyclonal

0.1 ml, concentrate.....209A-14
0.5 ml, concentrate.....209A-15
1 ml, concentrate 209A-16
1 ml, prediluted 209A-17
7 ml, prediluted 209A-18
Positive control slides 209S

Rabbit Polyclonal

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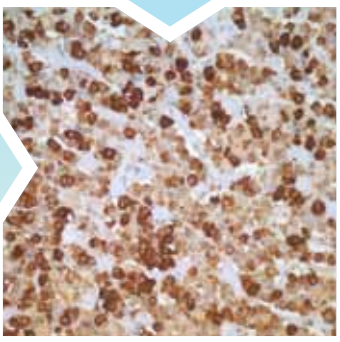

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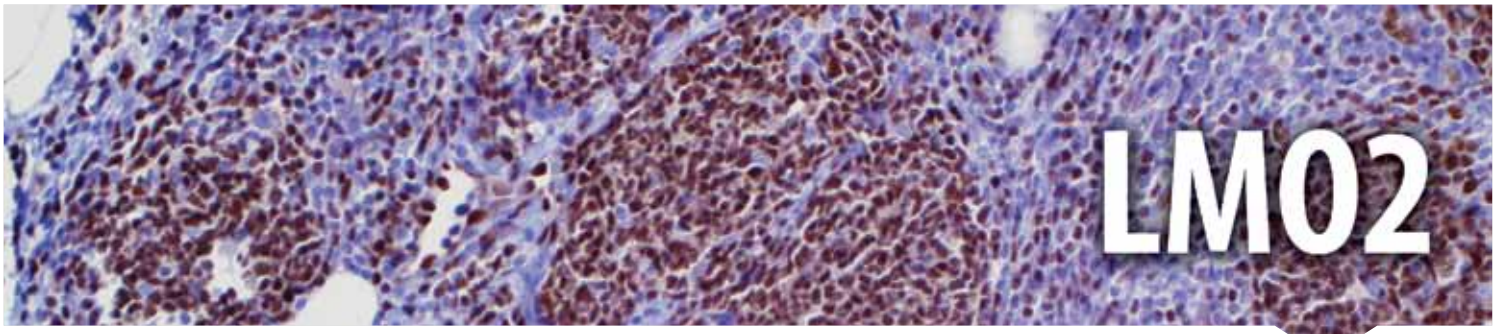

LMO2 is expressed in normal germinal center B-cells and in a subset of lymphomas derived from those cells in addition to bone marrow hematopoietic precursors and endothelial cells. LMO2 protein expression has also been shown to play an important role in the diagnosis of diffuse large B-cell lymphomas, regardless of rituximab treatment. It also plays a role in angiogenesis and hematopoiesis. It is weakly expressed in mantle zone B-cells but not in mantle cell or marginal zone lymphomas. Younes et al. have demonstrated LMO2 expression in 70% of follicular lymphomas. These data suggest that anti-LMO2 is a useful adjunct in the diagnosis of follicular lymphoma (FL). As LMO2 appears not to be down regulated in higher grade FL or the interfollicular and diffuse components of FL, its utility in variant immunoarchitectural patterns of FL and in cases that lack CD10 and BCL2, is similar to that of HGAL. One advantage of anti-LMO2 is its crisp nuclear localization that allows for easier interpretation than the diffuse cytoplasmic staining pattern of anti-HGAL.

Mature B-cell Lymphomas							
	LMO2	HGAL	CD20	CD5	CD23	CD10	BCL2
Follicular Lymphoma	+	+	+	-	-	+/-	+/-
Diffuse Large B-cell Lymphoma	+	+	+	-/+	-	+/-	+
Small Lymphocytic Lymphoma	-	-	+	+	+	-	+
Mantle Cell Lymphoma	-	-	+	+	-	-	+
Marginal Zone Lymphoma	-	-	+	-	-	-	+

Reactivity Paraffin

Visualization Nuclear

Control Follicular Lymphoma, Diffuse Large B-cell Lymphoma, Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Younes, SF et al. Am J Surg Pathol 2010; 34:1266-76.

Rabbit Monoclonal Clone: SP51

0.1 ml, concentrate.....370R-14
0.5 ml, concentrate.....370R-15
1 ml, concentrate 370R-16
1 ml, prediluted 370R-17
7 ml, prediluted 370R-18
Positive control slides 370S

Rabbit Monoclonal Clone: SP51

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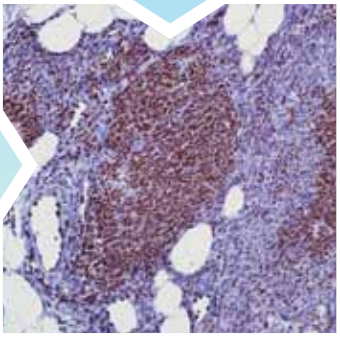

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Cytokeratin 5 & 6 (D5/16B4) + TTF-1 (8G7G3/1)

Anti-cytokeratin 5 & 6 labels greater than 90% of epithelioid mesotheliomas. Anti-cytokeratin 5 & 6 stains the cytoplasm of such cells. Anti-TTF-1 stains the nuclei in the case of lung adenocarcinomas and is negative in nearly all mesotheliomas. When the differential diagnosis seeks to distinguish between mesothelioma and adenocarcinoma of the lung, the nuclear vs. cytoplasmic staining pattern of this cocktail can be of significant value in making the diagnosis.

Reactivity Paraffin

Visualization Cytoplasmic (Cytokeratin 5 & 6), Nuclear (TTF-1)

Control Mesothelioma, Lung Adenocarcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1 & IgG_1 + IgG_1/K

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ordonez NG. Am J Surg Pathol 22(10):1215-1221, 1998
2. Ordonez NG Am J Surg Pathol 22(10):1203-1214

Harmony™ antibody cocktails

Mesothelioma vs. Lung Adenocarcinoma Mouse Cocktail

1 ml, prediluted 902H-07
7 ml, prediluted 902H-08

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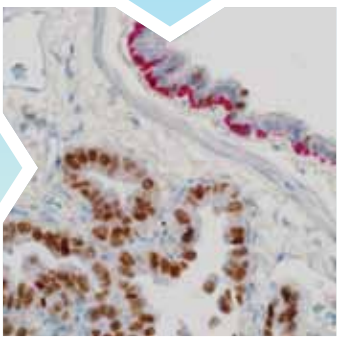

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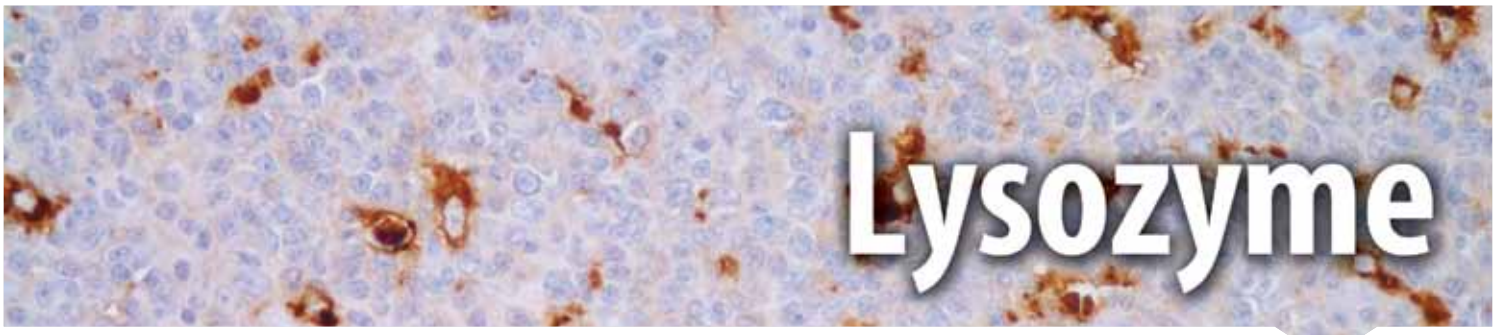

Anti-lysozyme stains myeloid cells, histiocytes, granulocytes, macrophages, and monocytes. It is an important marker that may demonstrate the myeloid or monocytic nature of acute leukemia. The restrictive nature of anti-lysozyme staining suggests that lysozyme may be synthesized predominantly in reactive histiocytes rather than in resting, unstimulated phagocytes. Anti-lysozyme may aid in the identification of histiocytic neoplasias, large lymphocytes, and classifying lymphoproliferative disorders.

Acute Myeloid Leukemia									
	Lysozyme	MPO	CD68	Factor VIII	CD61	BOB.1	Oct-2	Glycophorin A	CD34
Acute Myeloid, M0	+	-	-	-	-	-	-	-	+
Acute Myeloid, M1&2	+	+	+	-	-			-	+
Promyelocytic, M3	-	+	-	-	-	+	+	-	-
Myelomonocytic, M4	+	+	+	-	-	-	+	-	+
Monoblastic, M5	+	+	+	-	-	-	+	-	-/+
Acute Erythroid, M6		+	-	-	-	-	-	+	-/+
Megakaryoblastic, M7		-	-	+	+	+/-	-	-	-

Lymph Node						
	Lysozyme	CD68	S-100	CD1a	CD21/CD35	PD-1
Reactive Histiocytosis	+	+	-	-	-	-
Langerhans Cell Histiocytosis	+	+	+	+	-	-
Sinus Histiocytosis with Massive Lymphadenopathy	+	+	+	-	-	-
Follicular Dendritic Cell Sarcoma	-	-	-	+/-	+	-
Dermatopathic Lymphadenitis	+	-	+	+	-	-

Histiocytic Lesions								
	Lysozyme	CD45	CD4	CD68	CD163	Factor XIIIa	CD20	CD3
Histiocytic Lesions	+	+	+	+	+	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Morsky P. Clin. Chem Acta 1988;178:327-36
2. Krugliak L., et al. A J Hematol 1986;21:99-109
3. Delaflor-Weiss E, et al. Acta Cytol. 1999 Nov-Dec;43(6):1124-30
4. Yuen ST, et al. Histopathology. 1998 Feb;32(2):126-32

Rabbit Polyclonal

0.1 ml, concentrate.....278A-14
0.5 ml, concentrate.....278A-15
1 ml, concentrate 278A-16
1 ml, prediluted 278A-17
7 ml, prediluted 278A-18
Positive control slides 278S

Rabbit Polyclonal

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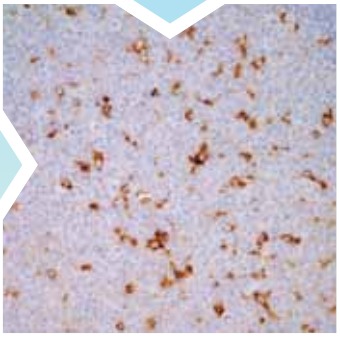

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Macrophage (HAM-56)

Macrophages comprise many forms of mononuclear phagocytes found in tissues. Mononuclear phagocytes arise from hematopoietic stem cells in the bone marrow. After passing through the monoblast and promonocyte states to the monocyte stage, they enter the blood, where they circulate for about 40 hours. They then enter tissues and increase in size, phagocytic activity, and lysosomal enzyme content becoming macrophages. When a monocyte enters damaged tissue through the endothelium of a blood vessel (known as the leukocyte extravasation), it undergoes a series of changes to become a macrophage. Monocytes are attracted to a damaged site by chemical substances through chemotaxis, triggered by a range of stimuli including damaged cells, pathogens, and cytokines released by macrophages already at the site. At some sites such as the testis, macrophages have been shown to populate the organ through proliferation. Unlike short-lived neutrophils, macrophages survive longer in the body up to a maximum of several months.

Anti-HAM-56 reacts with tingible macrophages, interdigitating macrophages of lymph nodes, and tissue macrophages, e.g. Kupffer cells of the liver and alveolar macrophages of the lung. The antibody also stains a subpopulation of endothelial cells, most prominently those of the capillaries and smaller blood vessels. Anti-HAM-56 reacts with monocytes, but is unreactive with B- and T-lymphocytes.

Histiocytic Proliferation							
	HAM-56	S-100	CD68	Vimentin	Lysozyme	CD1a	Factor XIIIa
Juvenile Xanthogranuloma	+	-	+	+	+	-	+
Langerhans Cell Histiocytosis	+	+	+	+	+	+	-
Dermatofibroma	-	-	+	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgM/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gown AM, et al. Am J Pathol 125:191-207
2. Alpers CE, et al. Am J Pathol 92:662-665
3. Bosman C, et al. J Pediatr Hematol Oncol. 1999 Jan-Feb;21(1):31-7

Mouse Monoclonal Clone: HAM-56

0.1 ml, concentrate.....279M-14
0.5 ml, concentrate.....279M-15
1 ml, concentrate 279M-16
1 ml, prediluted 279M-17
7 ml, prediluted 279M-18
Positive control slides 279S

Mouse Monoclonal Clone: HAM-56

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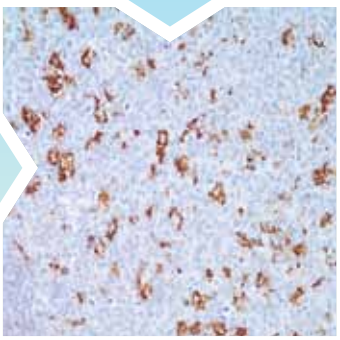

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Mammaglobin is a 10 kDa glycoprotein with unknown function identified in a substantial proportion of primary and metastatic breast carcinomas. Mammaglobin mRNA is present in high levels in human breast cancer cell lines and primary breast cancers. High levels of mRNA have been detected in normal human sweat glands as well, and anti-mammaglobin may label sweat gland tumors. Anti-mammaglobin has been shown to be effective in detecting up to 85% of breast carcinomas via immunohistochemistry on paraffin-embedded tissues. Anti-mammaglobin is higher in sensitivity and lower in specificity for primary and metastatic breast carcinoma, in comparison to anti-GCDFP-15.

Carcinoma: Differential Diagnosis							
	Mammaglobin	Androgen Receptor	BCA-225	GCDFP-15	ER/PR	PSA/PSAP	CD44
Salivary Duct Carcinoma	-	+	+	+	-	-	-
Breast Carcinoma	+	+(apocrine)	+	+	+/-	-	-
Prostate Carcinoma	-	+	-	-	-	+	+

Breast Lesion						
	Mammaglobin	GCDFP-15	β-Catenin	E-cadherin	CK, 34βE12	p120
Lobular	+	+	-	-	+	+(cytoplasmic)
Ductal	+	+	+(membranous)	+	-	+(membranous)

Breast vs. Lung vs. Prostate Carcinoma					
	Mammaglobin	GCDFP-15	PSA	TTF-1	Napsin A
Breast Carcinoma	+	+	-	-	-
Lung Carcinoma	-	-	-	+	+
Prostate Carcinoma	-	-	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Breast Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Leygue E, et al. J Pathol 1999, Sept; 189(1), pp 28-33
2. Watson MA, et al. Cancer Research 1999 Jul; 59, 3028-3031
3. Jae-Ho Han, et al. Arch Pathol Lab Med. 2003:127:1330-1334

Rabbit Monoclonal Clone: 31A5

0.1 ml, concentrate.....280R-14
0.5 ml, concentrate.....280R-15
1 ml, concentrate 280R-16
1 ml, prediluted 280R-17
7 ml, prediluted 280R-18
Positive control slides 280S

Rabbit Monoclonal Clone: 31A5

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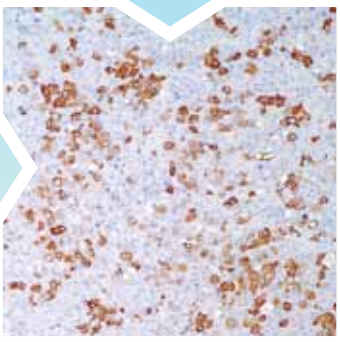

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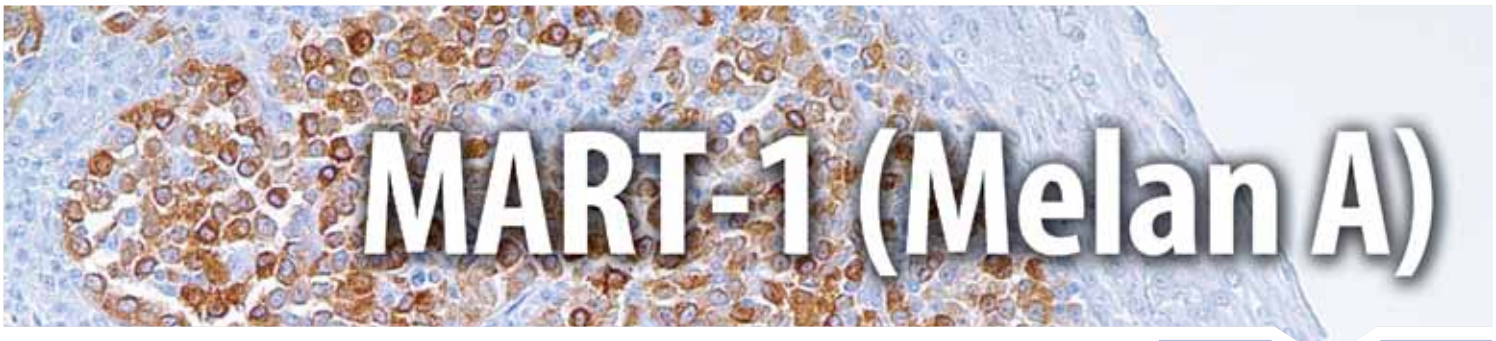

MART-1 (Melan A)

MART-1 (also known as Melan A) is a melanocyte differentiation antigen. It is present in melanocytes of normal skin, retina, nevi, and in more than 85% of melanomas. This antibody is very useful in establishing the diagnosis of metastatic melanomas.

Adrenal Tumors	MART-1	Inhibin	Calretinin	Synaptophysin	Chromogranin A	CD56
Pheochromocytoma	-	-	-	+	+	+
Adrenal Carcinoma	+	+	+	-/+	-	+
Adrenal Adenoma	+	+	+	-/+	-	+

Melanotic Lesions	MART-1	S-100	SOX10	HMB-45	Tyrosinase	MiTF	CD63	Factor XIIIa
Adult Melanocytes	+	+	+	-	+	+	+	-
Junctional Nevus	+	+	+	+	+	+	-	-
Interdermal Nevus	+	+	+	-	+	+	-	-
Primary Melanoma	+	+	+	+	+	+	+	-
Metastatic Melanoma	+	+	+	+	+	+	+	-
Spindle Cell Melanoma	+	+	+	+	+	+	+	-
Angiomyolipoma	+	+	+	+	-	+	+	-
Adrenal Cortical	+	+		-	-	-	-	-
Intranodal Nevus Cells	+	+	+	-	+	+	-	-
Dermatofibroma	-	-	-	-	-	-	-	+

PEComa	MART-1	HMB-45	CD63	S-100	Tyrosinase	SM Actin	Calponin	Caldesmon	Desmin	CD68
Angiomyolipoma	+	+	+	-	-	+	+	+	-	+
Lymphangiomyomatosis	+	+	+	-	-	+	+	+	-	-
Extrapulmonary Clear Cell Tumor	+	+	+	+	-	+	-	-	-	-
Primary Cutaneous PEComa	+	+	+	-	-	-	-	-	-	+/-
Pulmonary Clear Cell Sugar Tumor	+	+	+	+/-	-	-	-	-	-	+/-

Reactivity Paraffin

Visualization Cytoplasmic

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype A103: IgG_1
M2-7C10: IgG_{2b}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kageshita T, et al. J Immunother 1997 Nov;20(6):460-5
2. Fetsch PA, et al. Cancer 1999 Feb 25:87(1):37-42

Mouse Monoclonal Clone: A103

0.1 ml, concentrate.... 281M-84
0.5 ml, concentrate.... 281M-85
1 ml, concentrate 281M-86
1 ml, prediluted 281M-87
7 ml, prediluted 281M-88
Positive control slides . 281S

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Mouse Monoclonal Clone: M2-7C10

0.1 ml, concentrate.... 281M-94
0.5 ml, concentrate.... 281M-95
1 ml, concentrate 281M-96
1 ml, prediluted 281M-97
7 ml, prediluted 281M-98
25 ml, prediluted..... 281M-90
Positive control slides . 281S

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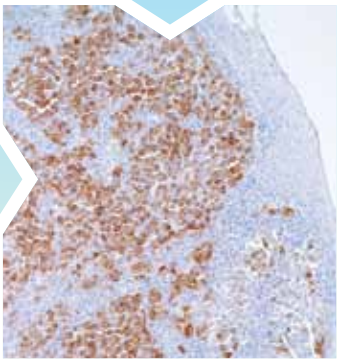

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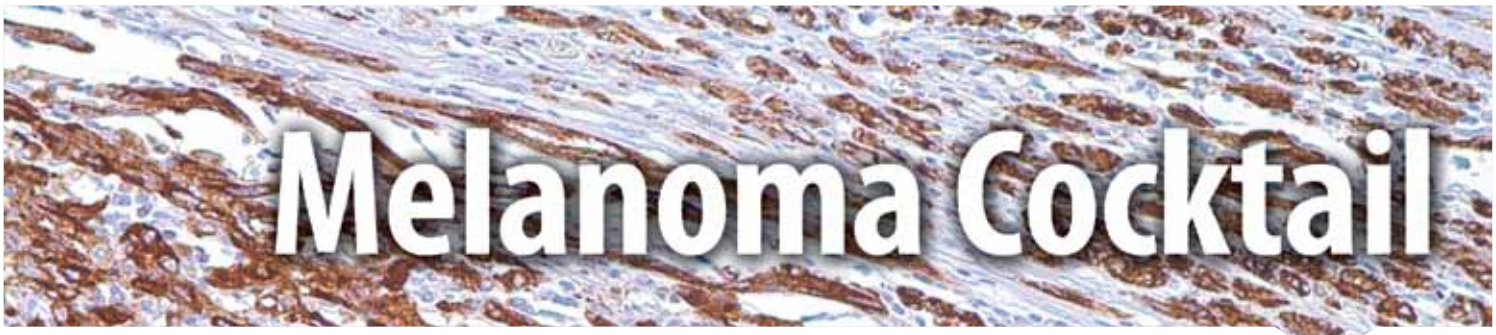

HMB-45 + MART-1 (Melan A) (A103) + Tyrosinase (T311)

Anti-Melanoma (HMB-45) identifies immature melanosomes. MART-1 (also known as Melan A) is a melanocyte differentiation antigen. It is present in melanocytes of normal skin and retina, nevi and in more than 85% of melanomas. Tyrosinase is an enzyme integral in the process of melanin synthesis, and found in 85% to 90% of malignant melanomas. Given these statistics, this cocktail is ideally suited to detection of melanomas and melanocytic lesions.

Reactivity Paraffin

Visualization Cytoplasmic

Control Normal Skin, Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype $IgG_1/k + IgG_{2b}/k + IgG_{2a}$

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Orchard G. Br J Biomed Sci. 2002;59(4):196-202
2. Gupta D, Malpica A, Deavers MT, Silva EG. Am J Surg Pathol. 2002 Nov;26(11):1450-7

Harmony™ antibody cocktails

Melanoma Cocktail
Mouse Cocktail

1 ml, prediluted 904H-07
7 ml, prediluted 904H-08
25 ml, prediluted..... 904H-00

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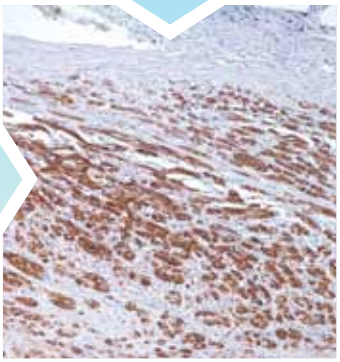

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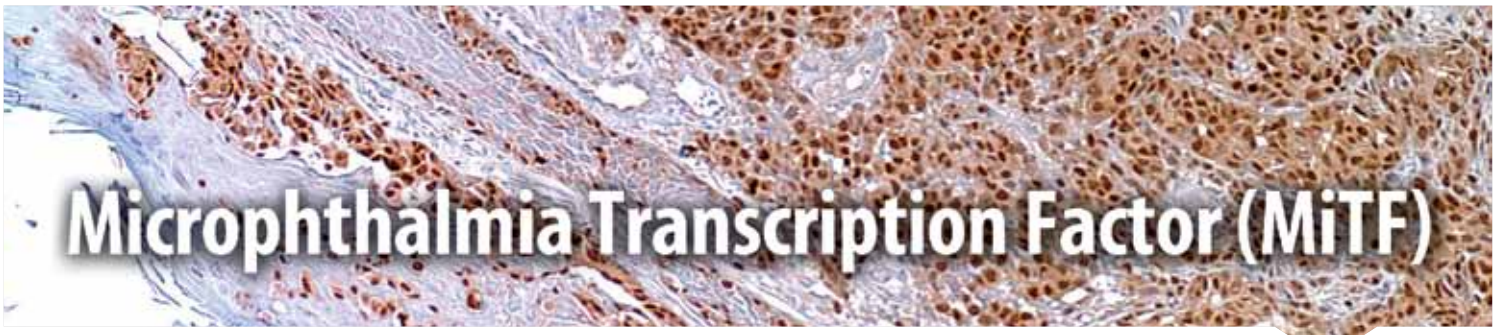

Microphthalmia Transcription Factor (MiTF)

Microphthalmia (MiTF) is a transcription factor implicated in pigmentation, bone development, and in mast cells. Various forms of MiTF exist ranging from 50 -70 kD in size. This antibody targets the 52 - 56 kD range and has been 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%).

Melanotic Lesions								
	MiTF	S-100	SOX10	HMB-45	MART-1	Tyrosinase	CD63	Factor XIIIa
Adult Melanocytes	+	+	+	-	+	+	+	-
Junctional Nevus	+	+	+	+	+	+	-	-
Interdermal Nevus	+	+	+	-	+	+	-	-
Primary Melanoma	+	+	+	+	+	+	+	-
Metastatic Melanoma	+	+	+	+	+	+	+	-
Spindle Cell Melanoma	+	+	+	+	+	+	+	-
Angiomyolipoma	+	+	+	+	+	-	+	-
Adrenal Cortical	-	+		-	+	-	-	-
Intranodal Nevus Cells	+	+	+	-	+	+	-	-
Dermatofibroma	-	-	-	-	-	-	-	+

Reactivity Paraffin

Visualization Nuclear

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1 & IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Liegl B, et al. Am J Surg Pathol. 2008 Apr;32(4):608-14.
2. Righi A, et al. Int J Surg Pathol. 2008 Jan;16(1):16-20.
3. Weinreb I, et al. Virchows Arch. 2007 Apr;450(4):463-70. Epub 2007 Feb 15.

Mouse Monoclonal
Clone: C5/D5

0.1 ml, concentrate..... 284M-94
0.5 ml, concentrate..... 284M-95
1 ml, concentrate 284M-96
1 ml, prediluted 284M-97
7 ml, prediluted 284M-98
Positive control slides 284S

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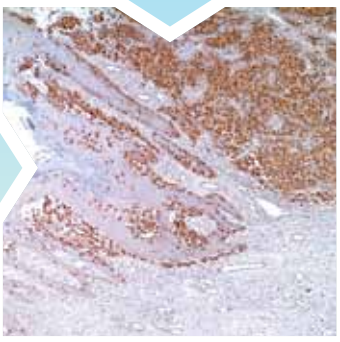

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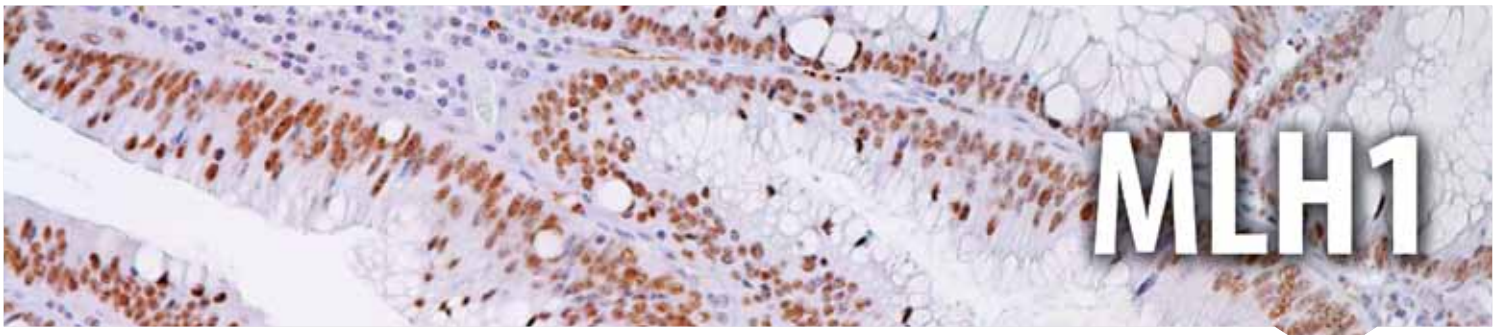

MutL homolog 1, colon cancer, nonpolyposis type 2 (E. coli), also known as MLH1, is a human gene which has been identified as a locus frequently mutated in hereditary nonpolyposis colon cancer (HNPCC). It is a human homolog of the E. coli DNA mismatch repair gene mutL, consistent with the characteristic alterations in microsatellite sequences (RER+ phenotype) found in HNPCC. Microsatellites are repetitive DNA sequences dispersed throughout the genome. The repetition renders them susceptible to slippage mutations. To counter this, there are families of mismatch repair (MMR) genes which correct these errors. These repair genes include MLH1, PMS2, MSH2, and MSH6. Defective MMR genes lead to accumulation of mutations in microsatellite regions, known as microsatellite instability (MSI). Colonic and endometrial carcinomas in HNPCC can be demonstrated to have MSI. MSI can also be found in 17% to 23% of non-familial endometrial carcinomas: this MSI is attributable to silencing of the MLH1 gene by promoter methylation.

HNPCC is characterized by an increased risk of colon cancer and other cancers (e.g., of the endometrium, ovary, stomach, small intestine, hepatobiliary tract, upper urinary tract, brain, and skin). Individuals with HNPCC have an approximately 80% lifetime risk for colon cancer. Women with HNPCC have a 20-60% lifetime risk of endometrial cancer. Among women with HNPCC who develop both colon cancer and endometrial cancer, approximately 50% present first with endometrial cancer. 90% of patients with HNPCC have mutations of either MLH1 or MSH2. Mutations in MSH6 have been reported in approximately 7% - 10% of families with HNPCC. Mutations in PMS2 account for fewer than 5% of mutations in families with HNPCC.

MSI testing can be demonstrated by polymerase chain reaction, a molecular genetic test, and methylation analysis of tumor tissue. However, in routine diagnostic practice, IHC is the most common clinically available method for detection of the proteins encoded by MLH1, MSH2, and MSH6. IHC is more feasible for large scale screening programs as it is more available than MSI testing.

Microsatellite Instability				
	MLH1	MSH2	MSH6	PMS2
Mismatch Repair Mutations	-	+	+	-

Reactivity Paraffin

Visualization Nuclear

Control Colon, Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wright CL, et al. Am J Surg Pathol. 2003;27: 1393-1406
2. Brueckl WM, et al. Anticancer Research 23: 1773-1778 (2003)
3. Rigau V, et al. Arch Pathol Lab Med – 127, June 2003: 694-700

Mouse Monoclonal
Clone: G168-728

0.1 ml, concentrate..... 285M-14
0.5 ml, concentrate..... 285M-15
1 ml, concentrate 285M-16
1 ml, prediluted 285M-17
7 ml, prediluted 285M-18
Positive control slides 285S

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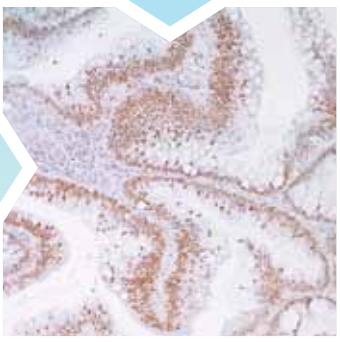

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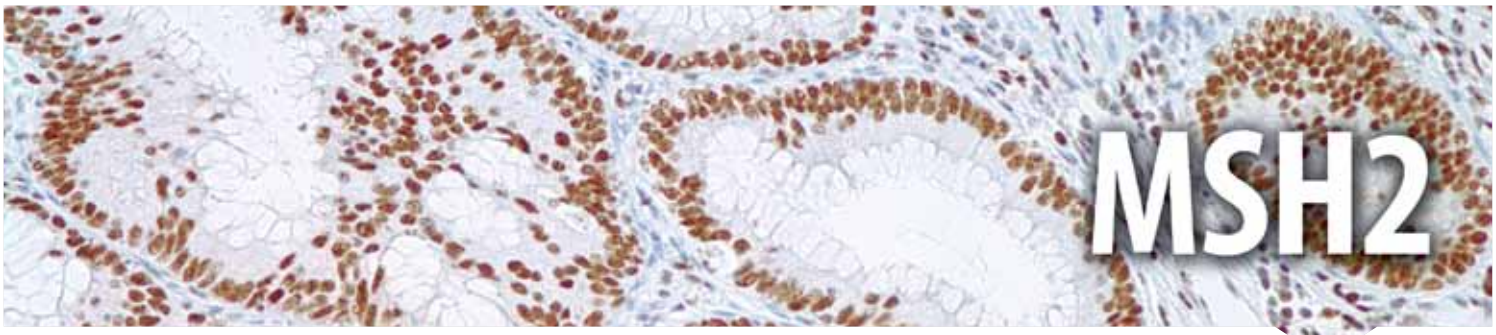

MSH2 is a locus frequently mutated in hereditary nonpolyposis colon cancer (HNPCC). When cloned, it was discovered to be a human homolog of the E. coli mismatch repair gene mutS, consistent with the characteristic alterations in microsatellite sequences (RER+ phenotype) found in HNPCC. Microsatellites are repetitive DNA sequences dispersed throughout the genome. The repetition renders them susceptible to slippage mutations. To counter this, there are families of mismatch repair (MMR) genes which correct these errors. These repair genes include MLH1, PMS2, MSH2, and MSH6. Defective MMR genes lead to accumulation of mutations in microsatellite regions, known as microsatellite instability (MSI). Colonic and endometrial carcinomas in HNPCC can be demonstrated to have MSI. MSI can also be found in 17% to 23% of non-familial endometrial carcinomas; this MSI is attributable to silencing of the MLH1 gene by promoter methylation.

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MSI testing can be demonstrated by polymerase chain reaction, molecular genetic testing, and methylation analysis of tumor tissue. However, in routine diagnostic practice, IHC is the most common clinically available method for detection of the proteins encoded by MLH1, MSH2, and MSH6. IHC is more feasible for large scale screening programs as it is more available than MSI testing.

Microsatellite Instability				
	MSH2	MLH1	MSH6	PMS2
Mismatch Repair Mutations	-	+	-	+

Reactivity Paraffin

Visualization Nuclear

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wright CL, et al. Am J Surg Pathol. 2003;27:1393-1406
2. Brueckl WM, et al. Anticancer Research 23:1773-1778 (2003)
3. Rigau V, et al. Arch Pathol Lab Med – 127, June 2003:694-700

Mouse Monoclonal Clone: G219-1129

0.1 ml, concentrate.....286M-14
0.5 ml, concentrate.....286M-15
1 ml, concentrate 286M-16
1 ml, prediluted 286M-17
7 ml, prediluted 286M-18
Positive control slides 286S

Mouse Monoclonal Clone: G219-1129

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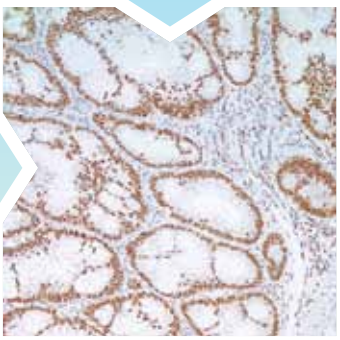

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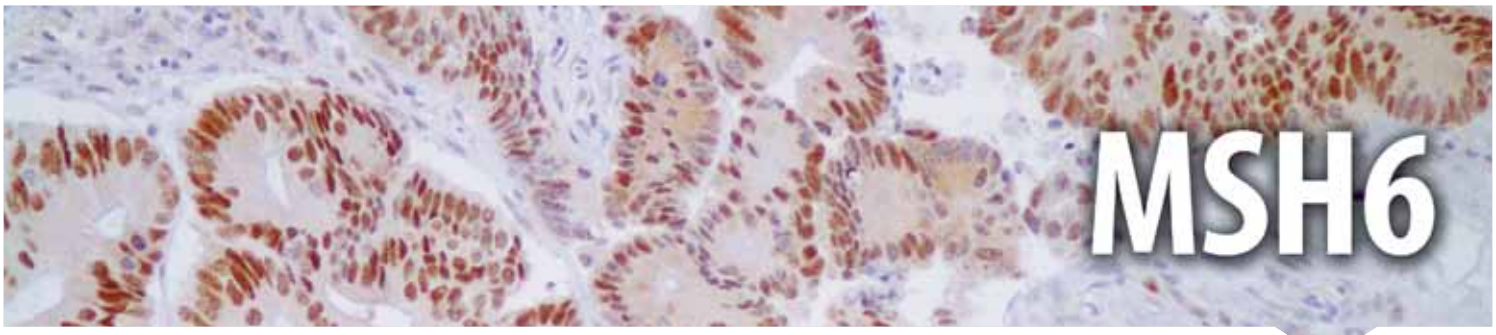

This gene encodes a protein similar to the MutS protein. In E. coli, the MutS protein helps in the recognition of mismatched nucleotides, prior to their repair. A highly conserved region of approximately 150 aa, called the Walker-A adenine nucleotide binding motif, exists in MutS homologs. The encoded protein of this gene combines with MSH2 to form a mismatch recognition complex that functions as a bidirectional molecular switch that exchanges ADP and ATP as DNA mismatches are bound and dissociated. Mutations in this gene have been identified in individuals with hereditary nonpolyposis colon cancer (HNPCC) and endometrial cancer. Microsatellites are repetitive DNA sequences dispersed throughout the genome. The repetition renders them susceptible to slippage mutations. To counter this, there are families of mismatch repair (MMR) genes which correct these errors. These repair genes include MLH1, PMS2, MSH2, and MSH6. Defective MMR genes lead to accumulation of mutations in microsatellite regions, known as microsatellite instability (MSI). Colonic and endometrial carcinomas in HNPCC can be demonstrated to have MSI. MSI can also be found in 17% to 23% of non-familial endometrial carcinomas: this MSI is attributable to silencing of the MLH1 gene by promoter methylation.

HNPCC is characterized by an increased risk of colon cancer and other cancers (e.g., of the endometrium, ovary, stomach, small intestine, hepatobiliary tract, upper urinary tract, brain, and skin). Individuals with HNPCC have an approximately 80% lifetime risk for colon cancer. Women with HNPCC have a 20-60% lifetime risk of endometrial cancer. Among women with HNPCC who develop both colon cancer and endometrial cancer, approximately 50% present first with endometrial cancer. 90% of patients with HNPCC have mutations of either MLH1 or MSH2. Mutations in MSH6 have been reported in approximately 7-10% of families with HNPCC. Mutations in PMS2 account for fewer than 5% of mutations in families with HNPCC.

MSI testing can be demonstrated by polymerase chain reaction, molecular genetic testing, and methylation analysis of tumor tissue. However, in routine diagnostic practice, IHC is the most common clinically available method for detection of the proteins encoded by MLH1, MSH2, and MSH6. IHC is more feasible for large scale screening programs because it is more available than MSI testing.

Microsatellite Instability				
	MSH6	MLH1	MSH2	PMS2
Mismatch Repair Mutations	-	+	+	+

Reactivity Paraffin

Visualization Nuclear

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype SP93: IgG
44: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Lagerstedt Robinson K, et al. J Natl Cancer Inst. 2007 Feb 21;99(4): 291-9
2. Niessen RC, et al. Gut 2006 Dec;55(12):1781-8
3. Hansen Tine Plato, et al. Appl Immunohistochem Mol Morphol.

Rabbit Monoclonal Clone: SP93

0.1 ml, concentrate.... 287R-24
0.5 ml, concentrate.... 287R-25
1 ml, concentrate 287R-26
1 ml, prediluted 287R-27
7 ml, prediluted 287R-28
Positive control slides . 287S

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Mouse Monoclonal Clone: 44

0.1 ml, concentrate.... 287M-14
0.5 ml, concentrate.... 287M-15
1 ml, concentrate 287M-16
1 ml, prediluted 287M-17
7 ml, prediluted 287M-18
Positive control slides . 287S

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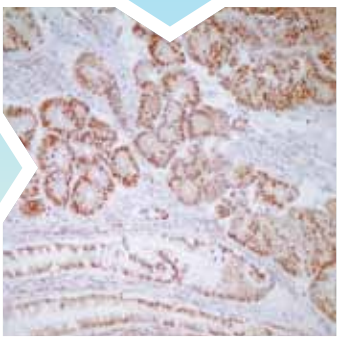

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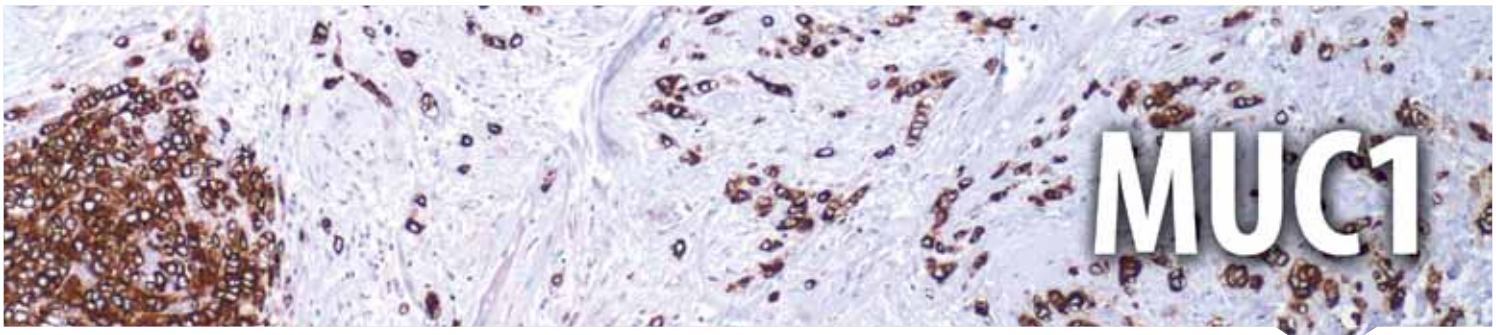

Mucins are high molecular weight glycoproteins which constitute the major component of the mucus layer that protects the gastric epithelium. The heterogeneous pattern of mucin expression, including the expression of the intestinal mucin MUC2, may provide new insights into the differentiation pathways of gastric carcinoma. Pinto-de-Sousa et al. have shown, in a comprehensive study of gastric carcinomas evaluated for expression of several mucins (MUC1, MUC2, MUC5AC, and MUC6), that: (1) 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; and (2) 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.

The following generalities apply to the patterns of MUC1 expression: Apical surfaces of most epithelial cells in breast, GI, respiratory, and GU tracts.

Mucin Expression in Neoplasms				
	MUC1	MUC2	MUC5AC	MUC6
Pancreatic Adenocarcinoma	+	-	+	-
Cervical Adenocarcinoma	+	-	+	-
Paget Extramammary	+	-	+	-
Cholangiocarcinoma	+	-	+/-	-
Breast Carcinoma	+	-	-	-
Endometrial Carcinoma	+	-	-	-
Barrett Esophagus	+	+	+	-
Breast Colloid Carcinoma	+	+	-	+

Mucins Expression in Organs					
	MUC1	MUC2	MUC4	MUC5AC	MUC6
Stomach	+	-	+	+	+
Small Intestine	-	+	-	-	+
Colon	-	+	-	-	
Pancreas	+	-	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chaves P, et al. Dis Esophagus. 2005;18(6):383-7.
2. Leteurtre E, et al. World J Gastroenterol. 2006 Jun 7;12(21):3324-31.
3. Pinto-de-Sousa J. et al. Virchows Arch (2002) 440: 304-310.

Mouse Monoclonal
Clone: MRQ-17

0.1 ml, concentrate..... 290M-14
0.5 ml, concentrate..... 290M-15
1 ml, concentrate 290M-16
1 ml, prediluted 290M-17
7 ml, prediluted 290M-18
Positive control slides 290S

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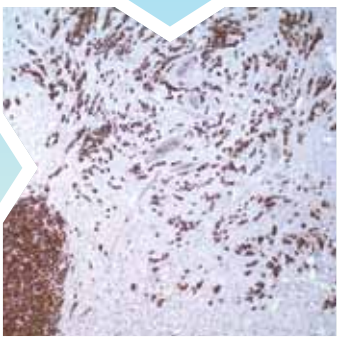

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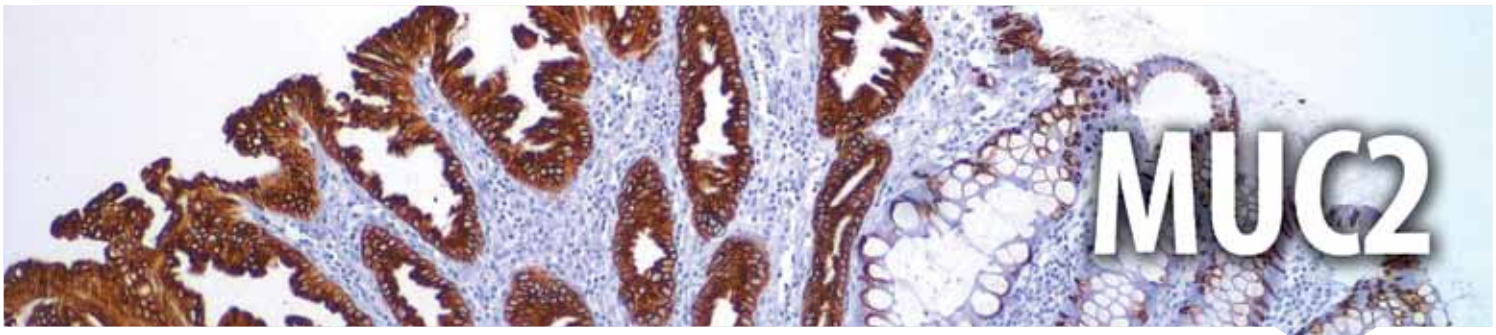

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Mucin Expression in Neoplasms				
	MUC2	MUC1	MUC5AC	MUC6
Salivary Duct ACA	+	-	-	+
Colon Carcinoma, Signet Ring	+	-	-	-
Prostate Carcinoma	+/-	-	-	-
Pan Intraductal Pap Ca	+	-	+	+
Adrenocortical Carcinoma	-	-	-	-
Breast Carcinoma	-	+	-	-
Endometrial Carcinoma	-	+	-	-
Appendiceal Adenocarcinoma	+	-	+	-
Barrett Esophagus	+	+	+	-
Breast Colloid Carcinoma	+	+	-	+

Mucins Expression in Organs					
	MUC2	MUC1	MUC4	MUC5AC	MUC6
Stomach	-	+	+	+	+
Small Intestine	+	-	-	-	+
Colon	+	-	-	-	
Pancreas	-	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chaves P, et al. Dis Esophagus. 2005;18(6):383-7.
2. Leteurtre E, et al. World J Gastroenterol. 2006 Jun 7;12(21):3324-31.
3. Pinto-de-Sousa J. et al. Virchows Arch (2002) 440: 304-310.

Mouse Monoclonal Clone: MRQ-18

0.1 ml, concentrate.....291M-14
0.5 ml, concentrate.....291M-15
1 ml, concentrate 291M-16
1 ml, prediluted 291M-17
7 ml, prediluted 291M-18
Positive control slides 291S

Mouse Monoclonal Clone: MRQ-18

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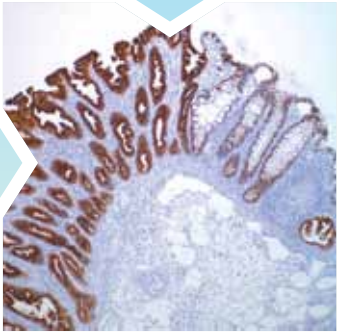

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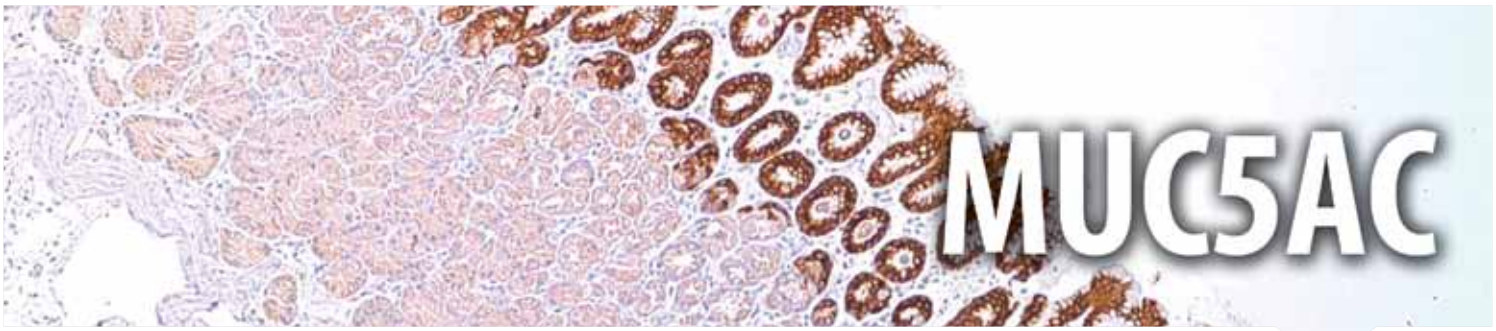

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Mucin Expression in Neoplasms				
	MUC5AC	MUC1	MUC2	MUC6
Pancreatic Adenocarcinoma	+	+	-	-
Cervical Adenocarcinoma	+	+	-	-
Paget Extramammary	+	+	-	-
Cholangiocarcinoma	+/-	+	-	-
Pan Intraductal Pap Ca	+	-	+	+
Appendiceal Adenocarcinoma	+	-	+	-
Barrett Esophagus	+	+	+	-
Panc. Mucinous Cystic	+	-	-	-
Breast Colloid Carcinoma	-	+	+	+

Mucins Expression in Organs					
	MUC5AC	MUC1	MUC2	MUC4	MUC6
Stomach	+	+	-	+	+
Small Intestine	-	-	+	-	+
Colon	-	-	+	-	
Pancreas	-	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Stomach

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chaves P, et al. Dis Esophagus. 2005;18(6):383-7.
2. Leteurtre E, et al. World J Gastroenterol. 2006 Jun 7;12(21):3324-31.
3. Pinto-de-Sousa J. et al. Virchows Arch (2002) 440: 304-310.

Mouse Monoclonal Clone: MRQ-19

0.1 ml, concentrate.....292M-94
0.5 ml, concentrate.....292M-95
1 ml, concentrate 292M-96
1 ml, prediluted 292M-97
7 ml, prediluted 292M-98
Positive control slides 292S

Mouse Monoclonal Clone: MRQ-19

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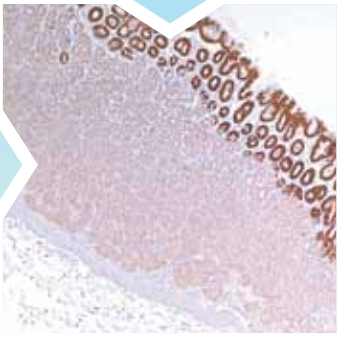

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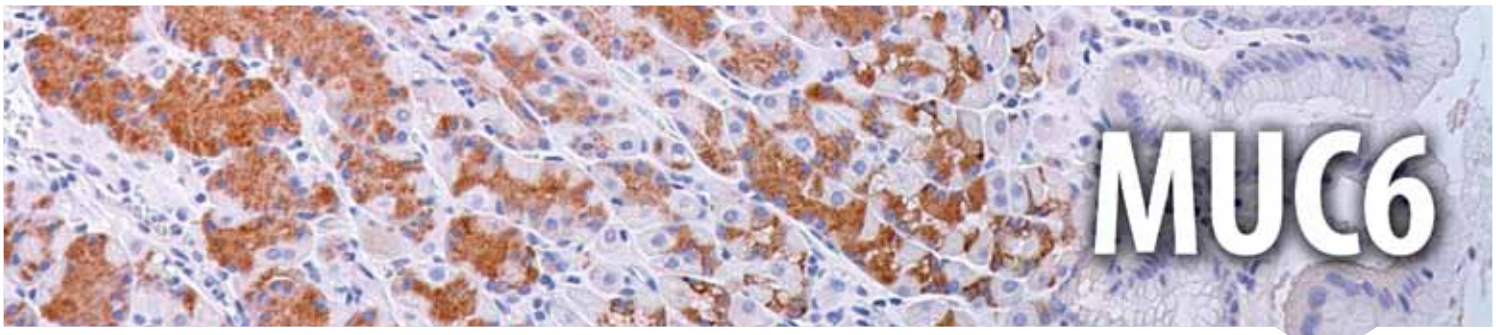

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Mucin Expression in Neoplasms				
	MUC6	MUC1	MUC2	MUC5AC
Pancreatic Adenocarcinoma	-	+	-	+
Cervical Adenocarcinoma	-	+	-	+
Cholangiocarcinoma	-	+	-	+/-
Salivary Duct ACA	+	-	+	-
Colon Carcinoma, Signet Ring	-	-	+	-
Pan Intraductal Pap Ca	+	-	+	+
Breast Carcinoma	-	+	-	-
Endometrial Carcinoma	-	+	-	-
Barrett Esophagus	-	+	+	+
Breast Colloid Carcinoma	+	+	+	-

Mucins Expression in Organs					
	MUC6	MUC1	MUC2	MUC4	MUC5AC
Stomach	+	+	-	+	+
Small Intestine	+	-	+	-	-
Colon		-	+	-	-
Pancreas	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Stomach

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

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2. Leteurtre E, et al. World J Gastroenterol. 2006 Jun 7;12(21):3324-31.
3. Pinto-de-Sousa J. et al. Virchows Arch (2002) 440: 304-310.

Mouse Monoclonal Clone: MRQ-20

0.1 ml, concentrate.....293M-94
0.5 ml, concentrate.....293M-95
1 ml, concentrate 293M-96
1 ml, prediluted 293M-97
7 ml, prediluted 293M-98
Positive control slides 293S

Mouse Monoclonal Clone: MRQ-20

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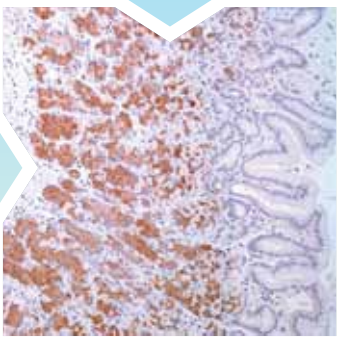

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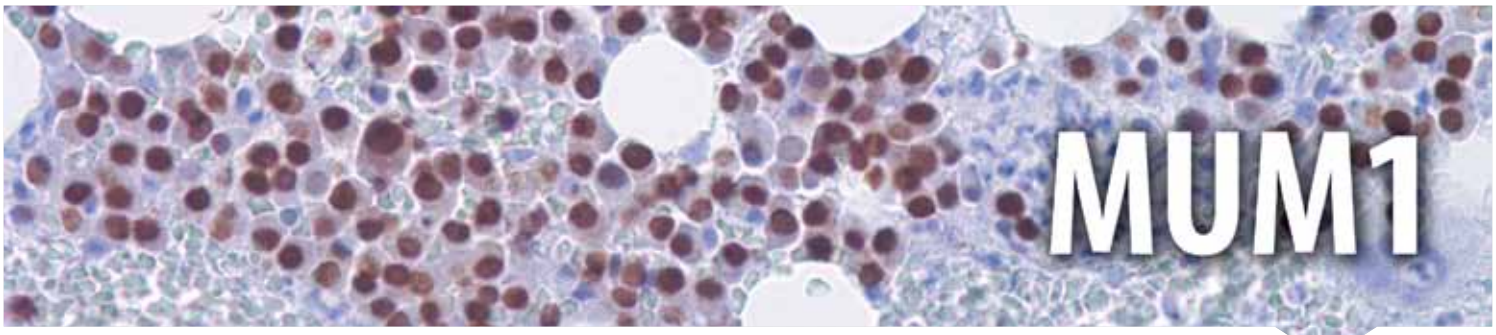

MUM1 (multiple myeloma oncogene-1)/IRF4 (interferon regulatory factor 4) is a 50 kDa protein encoded by MUM1 gene, and a member of the interferon regulatory factor family of transcription factors. MUM1/IRF4 is expressed in the nuclei of plasma cells and a small percentage of germinal center (GC) B-cells located in the "light zone". This antibody stains MUM1 protein, which is expressed in a subset of B-cells in the light zone of the germinal center, plasma cells, activated T-cells, and a wide spectrum of related hematolymphoid neoplasms derived from these cells. Therefore, this antibody is useful for the subclassification of lymphoid malignancies and an excellent marker for Reed-Sternberg cells of classic Hodgkin disease in combination with anti-CD30.

B-cell Lymphomas

	MUM1	CD20	CD5	BCL2	BCL6	TCL1	CD10	CD23	Cyclin D1	PU.1
Follicular	-	+	-	+	+	+	+	-	-	+
CLL/SLL	+	+	+	+	-	+	-	+	-	+
Mantle Cell	-/+	+	+	+	-	+	-	-	+	+
Marginal Zone	+	+	-	+	-	-	-	-	-	+
Lymphoplasmacytic	+	+	-	+	-	+	-	-	-	
Diffuse Large Cell	+	+	-/+	+	+	+	-/+	-	-	+
Burkitt	-	+	-	-	+	+	+	-	-	

Hodgkin vs. Non-Hodgkin Lymphomas

	MUM1	CD79a	CD15	CD30	Fascin	Granzyme B	BCL6	PU.1	ALK-1	EMA
Hodgkin Lymphoma, Classic	+	-	+	+	+	-	-	-	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-/+	+	-	-	-	-	+	+	-	+
T-cell Rich LBCL	+	+	-	-	-	-	+	-	-	-
Anaplastic Large Cell Lymphoma	-	-	-	+	-	+	+/-	-	+	+

Plasma Cells

	MUM1	CD138	CD79a	EMA	CD56	Cyclin D1	CD43	CD20	CD19
Plasma Cell Neoplasm	+	+	+	+	+	-/+	-	-/+	-

Reactivity Paraffin

Visualization Nuclear, Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Alizadeh AA, Eisen MB, et al. Nature 2000;403:403503-11.
2. Falini B, Fizzotti M, et al. Blood. 2000 Mar 15;95(6):2084-92.
3. Gaidano G, Carbone A. Leukemia. 2000 Apr; 14(4):563-6

Rabbit Monoclonal Clone: MRQ-43

0.1 ml, concentrate.....358R-74
0.5 ml, concentrate.....358R-75
1 ml, concentrate 358R-76
1 ml, prediluted 358R-77
7 ml, prediluted 358R-78
Positive control slides 358S

Rabbit Monoclonal Clone: MRQ-43

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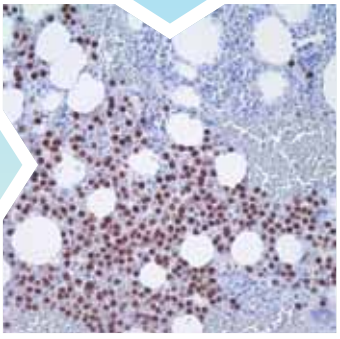

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Myelin Basic Protein

Myelin basic protein (MBP) is a protein believed to be important in the process of myelination of nerves in the central nervous system (CNS). MBP is present in the central and peripheral nervous system. 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; other spindle cell neoplasms do not stain with this antibody. Immunoreactivity for anti-MBP in granular cell tumors strengthens the concept of a Schwann cell derivation of these lesions. Unlike other nervous system proteins, e.g. GFAP and S-100, MBP has not been demonstrated in melanocytes or tumors derived from them.

Neuroid Skin Lesions				
	Myelin BP	S-100	CD57	GFAP
Neuroma	+	+	+	-
Neurotised Nevi	-	+	-	-
Neurofibroma	+	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Brain

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Martenson RE, et al. J Neurochem 1981;36:1543-1560
2. Uyemura K, et al. Adv Exp Med Biol 1977;100:95-11
3. Buss A, et al. Brain. 2004 Jan;127(Pt 1):34-44. Epub 2003 Oct 08
4. Neuen-Jacob E, et al. Int J Legal Med. 1993;105(6):339-50

Rabbit Polyclonal

0.1 ml, concentrate..... 295A-14
0.5 ml, concentrate..... 295A-15
1 ml, concentrate 295A-16
1 ml, prediluted 295A-17
7 ml, prediluted 295A-18
Positive control slides 295S

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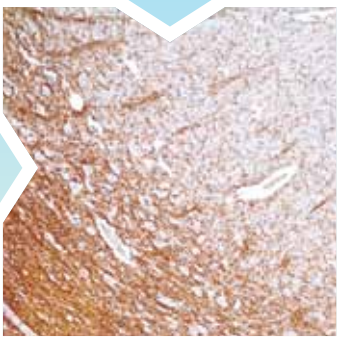

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Anti-myeloperoxidase detects granulocytes and monocytes in blood and precursors of granulocytes in the bone marrow. This antibody can detect myeloid cell populations of the bone marrow as well as in other sites.

Acute Myeloid Leukemia									
	MPO	CD68	Factor VIII	CD61	Lysozyme	BOB.1	Oct-2	Glycophorin A	CD34
Acute Myeloid, M0	-	-	-	-	+	-	-	-	+
Acute Myeloid, M1&2	+	+	-	-	+			-	+
Promyelocytic, M3	+	-	-	-	-	+	+	-	-
Myelomonocytic, M4	+	+	-	-	+	-	+	-	+
Monoblastic, M5	+	+	-	-	+	-	+	-	-/+
Acute Erythroid, M6	+	-	-	-		-	-	+	-/+
Megakaryoblastic, M7	-	-	+	+		+/-	-	-	-

Histiocytic Lesions									
	MPO	CD45	CD4	CD68	Lysozyme	CD163	Factor XIIIa	CD20	CD3
Histiocytic Lesions	+	+	+	+	+	+	+	-	-

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Bone Marrow

Stability
Up to 36 mo. at 2-8°C

Isotype
SP72: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Pinkus GS, Pinkus JL. Mod Pathol 1991 Nov; 4(6): 733-41
2. Hudock J, et al. Am J Clin Pathol. 1994 Jul; 102(1): 55-60
3. Hamoudi WH, et al. Arch Pathol Lab Med. 2000 Feb;124(2):315-8

Rabbit Polyclonal

0.1 ml, concentrate.....289A-74
0.5 ml, concentrate.....289A-75
1 ml, concentrate 289A-76
1 ml, prediluted 289A-77
7 ml, prediluted 289A-78
Positive control slides 289S

Rabbit Polyclonal

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Rabbit Monoclonal Clone: SP72

0.1 ml, concentrate.....289R-14
0.5 ml, concentrate.....289R-15
1 ml, concentrate 289R-16
1 ml, prediluted 289R-17
7 ml, prediluted 289R-18
Positive control slides 289S

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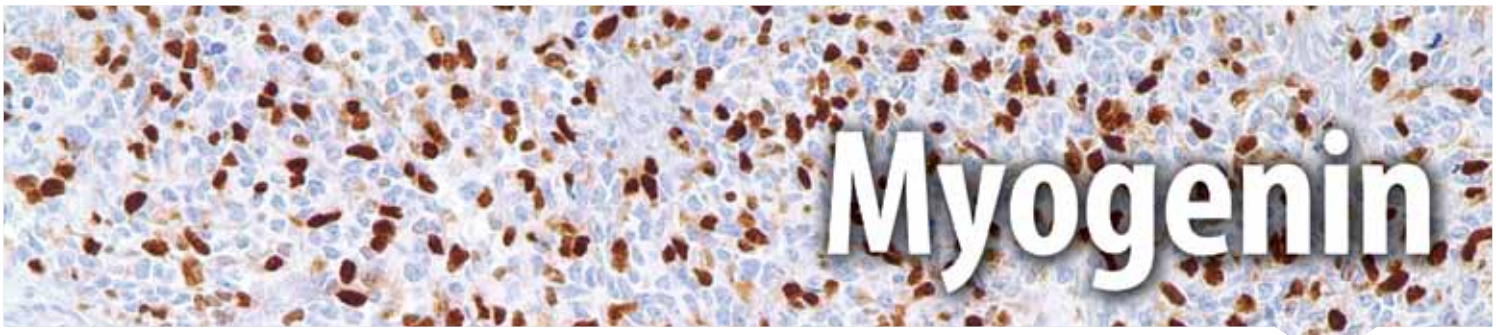

Anti-myogenin labels the nuclei of myoblasts in developing muscle tissue, and is expressed in tumor cell nuclei of rhabdomyosarcoma and some leiomyosarcomas. Positive nuclear staining may occur in Wilms' tumor.

Small, Round Blue Cell Tumors	Myogenin	MS Actin	SM Actin	CD45	CK Cocktail	CD99	PGP 9.5	FLI-1	Vimentin	CD57
Lymphoblastic Lymphoma	-	-	-	+	-	-		+	+	-
Leiomyosarcoma	-	+	+	-	-/+	-	-	-	+	+/-
Rhabdomyosarcoma	+	+	-	-	-	-	+	-	+	-
Neuroblastoma	-	-	-	-	-	-	+	-	+	+
Embryonal Carcinoma	-	-	-	-	+	-	+	-	-	+
PNET/ES	-	-	-	-	-/+	+	+	+	+	+
DSRCT	-	-	-	-	+	-	-	+	+	+/-
Medulloblastoma	-	-	-	-	-	-		-	-	+

Spindle Cell Tumors	Myogenin	β-Catenin	PGP 9.5	CD117	ALK	CD34	CK Cocktail	Calponin	MS Actin	CD56
Myofibroblastic Tumor	-	-	-	-	+	-	-	+	+	+
Spindle Cell Carcinoma	-	+/-	+	-	-	-	+	-	-	-
Neurofibroma	-	-	+	-	-	-	-	-	-	+
Rhabdomyosarcoma	+	-	-	+	-	-	-	-	+	-
Endometrial Stromal Tumor	-	+/-	+	-	-	-	-	+	+	-
Smooth Muscle	-	-	-	-	-	-	-	+	+	-
Fibromatosis	-	+	+	-	-	-	-	-	-	-
GIST	-	-	-	+	-	+	-	-	-	-
Schwannoma	-	-	-	-	-	-	-	-	-	+
Leiomyosarcoma	+/-	-	-	-	-	-	-/+	+	+	+

Reactivity Paraffin

Visualization Nuclear

Control Rhabdomyosarcoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Miller JB. J Cell Biol 190 Sep;111(3):1149-59
2. Wang NP, et al. Am J Pathol 1995 Dec;147(6):1799-810
3. Cui S, et al. Pathol Int 1999 Jan;49(1):62-8

Mouse Monoclonal Clone: F5D

0.1 ml, concentrate.....296M-14
0.5 ml, concentrate.....296M-15
1 ml, concentrate 296M-16
1 ml, prediluted 296M-17
7 ml, prediluted 296M-18
Positive control slides 296S

Mouse Monoclonal Clone: F5D

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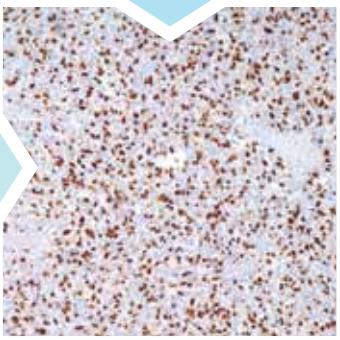

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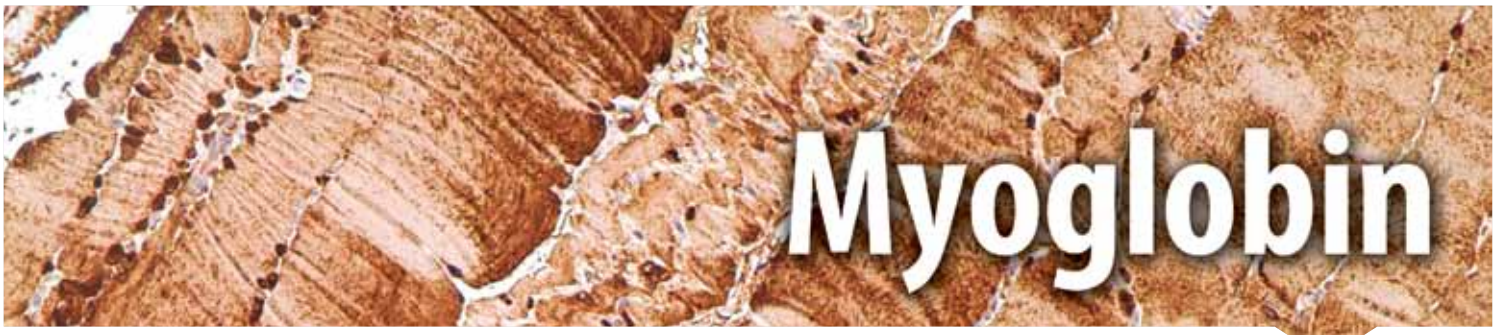

Immunostaining with anti-myoglobin provides a specific, sensitive, and practical procedure for the identification of tumors of muscle origin. Since myoglobin is found exclusively in skeletal and cardiac muscle and is not present in any other cells of the human body, it may be used to distinguish rhabdomyosarcoma from other soft tissue tumors. Anti-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.

Small, Round Blue Cell Tumors										
	Myoglobin	MS Actin	SM Actin	Myogenin	CK Cocktail	CD99	FLI-1	INI-1	CD57	PGP 9.5
Lymphoblastic Lymphoma	-	-	-	-	-	+	+	+	-	
Rhabdomyosarcoma	+	-/+	-/+	+	-	-	-	+	-	+
Neuroblastoma	-	-	-	-	-	-	-	+	+	+
Embryonal Carcinoma	-	-	-	-	+	-	-	+	+	+
PNET/ES	-	-	-	-	-/+	+	+	+	+	+
DSRCT	-	-	-	-	+	-	+	+	+/-	-
Medulloblastoma		-	-	-	-	-	-	+	+	

Reactivity Paraffin

Visualization Cytoplasmic

Control Skeletal Muscle

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mukai K, et al. Am J Surg Pathol 1979;3:373-376
2. Corson JM, et al. Am J Pathol 1981;103:384-389
3. Kindblom LG, et al. Acta Pathol Miro 1982 Scand C90(Sec A):167-174
4. Brooks JJ. Cancer 1982;50:1757-1763

Rabbit Polyclonal

0.1 ml, concentrate.....297A-74
0.5 ml, concentrate.....297A-75
1 ml, concentrate 297A-76
1 ml, prediluted 297A-77
7 ml, prediluted 297A-78
Positive control slides 297S

Rabbit Polyclonal

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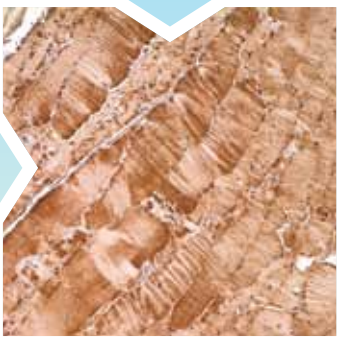

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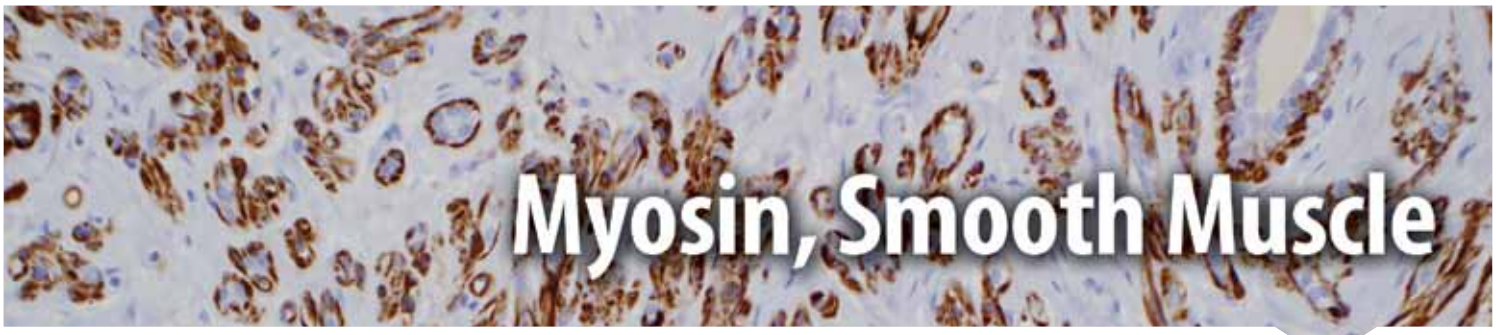

Myosin, Smooth Muscle

Smooth Muscle Myosin, heavy chain (SMMS-1) is a cytoplasmic structural protein that is a major component of the contractile apparatus of the smooth muscle cells. SMMS-1 is also a myoepithelium-associated protein. Anti-SMMS-1 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.

Breast Carcinoma in-situ vs. Infiltrating Breast Carcinoma			
	SM Myosin	Calponin	p63
Breast Carcinoma in-situ (Myoepithelial Cells)	+	+	+
Infiltrating Breast Carcinoma	-	-	-

Spindle Cell Tumors										
	SM Myosin	β-Catenin	PGP 9.5	DOG1	CD34	CK Cocktail	Calponin	ALK	MS Actin	CD56
Myofibroblastic Tumor	-	-	-	-	-	-	+	+	+	+
Spindle Cell Carcinoma	-	+/-	+	-	-	+	-	-	-	-
Neurofibroma	-	-	+	-	-	-	-	-	-	+
Rhabdomyosarcoma	-	-	-	-	-	-	-	-	+	-
Endometrial Stromal Tumor	-	+/-	+	-	-	-	+	-	+	-
Smooth Muscle	-	-	-	-	-	-	+	-	+	-
Fibromatosis	-	+	+	-	-	-	-	-	-	-
GIST	-	-	-	+	+	-	-	-	-	-
Schwannoma	-	-	-	-	-	-	-	-	-	+
Leiomyosarcoma	+	-	-	-	-	-/+	+	-	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Breast

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Nan Ping Wang, et al. Appl Immunohistochem 5(3):141-151
2. Werling RW, et al. Am J Surg Pathol. 2003 Jan;27(1):82-90
3. Dabbs DJ, Gown AM. Diagn Cytopathol. 1999 Apr;20(4):203-7

Mouse Monoclonal Clone: SMMS-1

0.1 ml, concentrate.....298M-14
0.5 ml, concentrate.....298M-15
1 ml, concentrate 298M-16
1 ml, prediluted 298M-17
7 ml, prediluted 298M-18
Positive control slides 298S

Mouse Monoclonal Clone: SMMS-1

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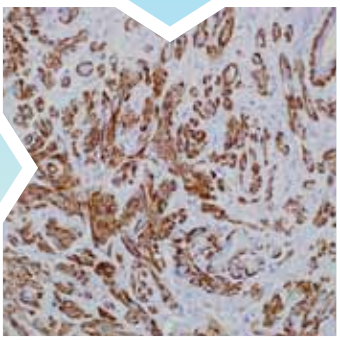

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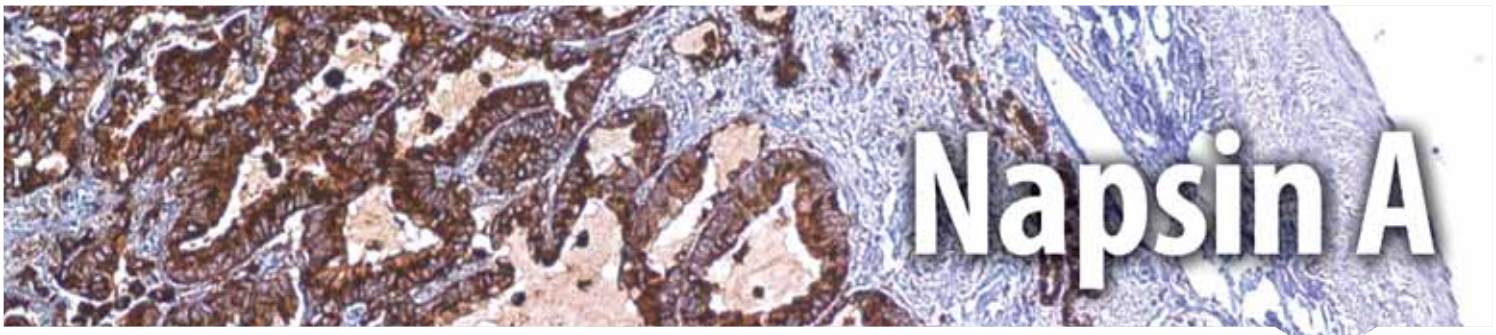

Napsin is a pepsin-like aspartic proteinase, in the A1 clan of the AA clade of proteinases. There are two closely related napsins, napsin A and napsin B. Napsin A is expressed as a single chain protein with the molecular weight of approximately 38 kDa. Immunohistochemical studies revealed high expression levels of napsin A in human lung and kidney but low expression in spleen. Napsin A is expressed in type II pneumocytes and in adenocarcinomas of lung. The high specificity expression of napsin A in adenocarcinomas of lung is useful to distinguish primary lung adenocarcinomas from adenocarcinomas of other organs.

Breast vs. Lung vs. Prostate Carcinoma					
	Napsin A	GCDFP-15	Mammaglobin	PSA	TTF-1
Breast Carcinoma	-	+	+	-	-
Lung Carcinoma	+	-	-	-	+
Prostate Carcinoma	-	-	-	+	-

Pleura: Adenocarcinoma vs. Mesothelioma										
	Napsin A	Calretinin	CK 5&6	HBME-1	WT1	Caldesmon	Ep-CAM	TTF-1	TAG-72	CEA
Adenocarcinoma	+	-	-	-	-	-	+	+	+	+
Mesothelioma	-	+	+	+	+	+	-	-	-	-

Lung Squamous Cell Carcinoma vs. Adenocarcinoma						
	Napsin A	TTF-1	p63	CK 5&6	SOX2	Desmocollin3
Lung Squamous Cell Carcinoma	-	-	+	+	+	+
Adenocarcinoma	+	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Lung Adenocarcinoma, Kidney

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Tatnell PJ, Powell DJ, et al. FEBS Lett.1998.441:43-48.
2. Schauer-Vukasinovic V, Bur D, et al. FEBS Lett. 1999 Nov 26; 462(1-2): 135-9.
3. Takashi Hirano, Gert Auer, et al. Jpn. J. Cancer Res. 2000 Oct.91,1015-1021

Rabbit Polyclonal

0.1 ml, concentrate.....352A-74
0.5 ml, concentrate.....352A-75
1 ml, concentrate 352A-76
1 ml, prediluted 352A-77
7 ml, prediluted 352A-78
Positive control slides 352S

Rabbit Polyclonal

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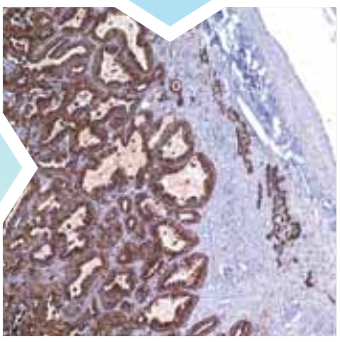

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Nerve Growth Factor Receptor (NGFR)

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). Anti-NGFR has been shown to be a reliable marker for desmoplastic and neurotropic melanoma. All reported cases of desmoplastic melanomas are positive with this antibody. This staining property of desmoplastic melanoma cells can be useful in diagnosing challenging cases. It is now apparent that expression of NGFR is ubiquitous and not limited to the nervous system, being expressed in mature nonneural cells such as perivascular cells, dental pulp cells, lymphoidal follicular dendritic cells, basal epithelium of oral mucosa and hair follicles, prostate basal cells, and myoepithelial cells. Anti-NGFR labels the myoepithelial cells of breast ducts and intralobular fibroblasts of breast ducts and thus is an aid in the diagnosis of malignancy in the breast.

Skin: Spindle Cell Tumors

	NGFR	FLI-1	Collagen IV	S-100	CD10	Factor XIIIa	CD34	D2-40
Spindle Cell Melanoma	+	+	-	+	-	-	-	+
Dermatofibrosarcoma Protuberans	+	-	-	-	+/-	-	+	-
Dermatofibroma Fibrous Histiocytoma	-	-	-	-	+	+	-	-
PNST	+		+	+				

CNS Tumors

	NGFR	GFAP	Neuro-filament	Synapto-physin	S-100	CK Cocktail	PR	EMA	Vimentin	INI-1
Astrocytoma	+	+	-	-	+	-	-	-	+	+
Ependymoma	+	+	-	-	+	-	-	-	-/+	+
Choroid Plexus Carcinoma	-	-/+	-	+	+	+	-	-		+
Central Neurocytoma	+	-	-	+	-	-	-	-	-	+
Neuroblastoma	+	+/-	+	+	+/-	-	-	-	+	+
Pineocytoma	-	-	-	+	-	-	-	-		+
Meningioma	-	-	-	-	-	-	+	+	+	+
Schwannoma	+	+	-	-	+	-	-	-	+	+
Metastatic Carcinoma	-	-	-	-	-	+	-/+	+	-/+	+

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Breast

Stability
Up to 36 mo. at 2-8°C

Isotype
IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Laskin WB, et al. Hum Pathol. 2000 Oct;31(10):1230-41.
2. Lewis Kelso R, et al. Dermatol Surg. 2006 Feb;32(2):177-83.
3. Liang Y, et al. 1998 Jul;111(1):114-8.
4. Liang Y, et al. J Cutan Pathol. 1998 Apr;25(4):189-98.

Mouse Monoclonal Clone: MRQ-21

0.1 ml, concentrate.....304M-14
0.5 ml, concentrate.....304M-15
1 ml, concentrate 304M-16
1 ml, prediluted 304M-17
7 ml, prediluted 304M-18
Positive control slides 304S

Mouse Monoclonal Clone: MRQ-21

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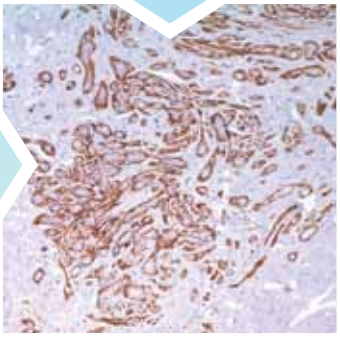

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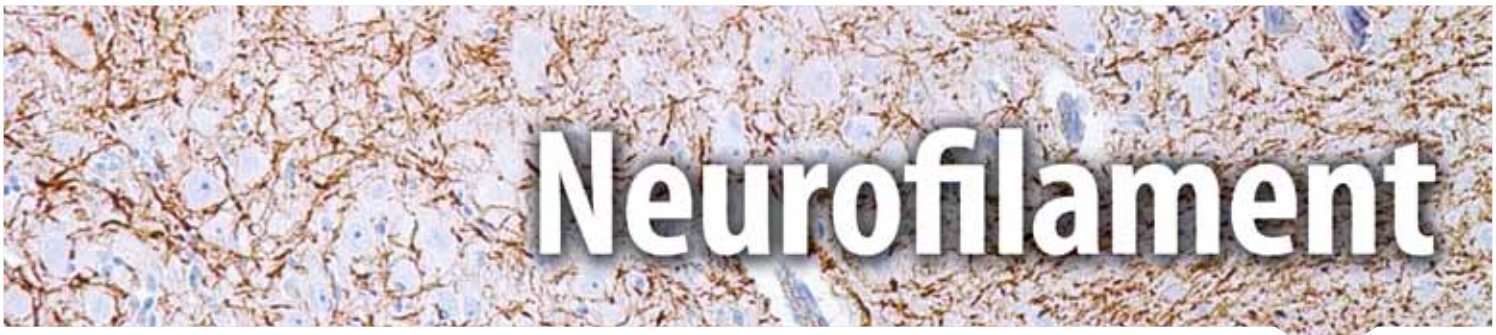

Neurofilament

Anti-neurofilament stains an antigen localized in a number of neural, neuroendocrine, and endocrine tumors. Neuromas, ganglioneuromas, gangliogliomas, ganglioneuroblastomas, and neuroblastomas stain positively for anti-neurofilament. Neurofilaments are also present in paragangliomas as well as adrenal and extra-adrenal pheochromocytomas. Carcinoids, neuroendocrine carcinomas of the skin, and oat cell carcinomas of the lung also express neurofilament.

Retroperitoneal Lesions

	Neurofilament	NSE	Synaptophysin	Chromogranin A	PGP 9.5	S-100	GFAP	CD99
Neuroblastoma	+	+	+	+	+	-	+/-	-
Ganglioneuroblastoma	+	+	+	+	+	+	+	-
Ganglioneuroma	+	+	+	+	+	+	+	-

Small Cell Carcinoma vs. Merkel Cell Carcinoma

	Neurofilament	TTF-1	CEA	CK 20	Chromogranin A	E-cadherin	CD117	Synaptophysin
Merkel Cell Carcinoma	+	-	-	+	+	+(nuclear)	+	+
Small Cell Carcinoma	-	+	-	-	-	-	+/-	+

CNS Tumors

	Neuro-filament	GFAP	Synapto-physin	S-100	CK Cocktail	PR	EMA	Vimentin	NGFR	INI-1
Astrocytoma	-	+	-	+	-	-	-	+	+	+
Glioblastoma	-	+	-	+	-	-	-	+	-	+
Oligodendriglioma	-	-	-	+	-	-	-	+	-	+
Ependymoma	-	+	-	+	-	-	-	-/+	+	+
Choroid Plexus Carcinoma	-	-/+	+	+	+	-	-		-	+
Central Neurocytoma	-	-	+	-	-	-	-	-	+	+
Neuroblastoma	+	+/-	+	+/-	-	-	-	+	+	+
Pineocytoma	-	-	+	-	-	-	-		-	+
Meningioma	-	-	-	-	-	+	+	+	-	+
Schwannoma	-	+	-	+	-	-	-	+	+	+
Rhabdoid Tumors	+/-	-		+/-	+		+	+		-
Metastatic Carcinoma	-	-	-	-	+	-/+	+	-/+	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Brain

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wood JN, et al. Biosci Rep 1981;1:263-1
2. Anderton BH, et al. Nature 1982;298:84
3. Miettinen M, et al. Lab Invest 1985;52:429-436

Mouse Monoclonal Clone: 2F11

0.1 ml, concentrate.....302M-14
0.5 ml, concentrate.....302M-15
1 ml, concentrate 302M-16
1 ml, prediluted 302M-17
7 ml, prediluted 302M-18
Positive control slides 302S

Mouse Monoclonal Clone: 2F11

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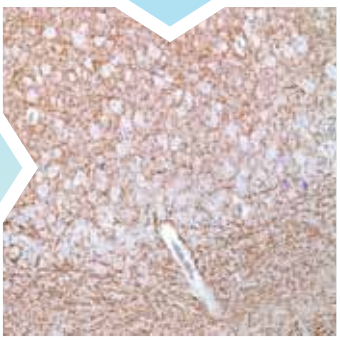

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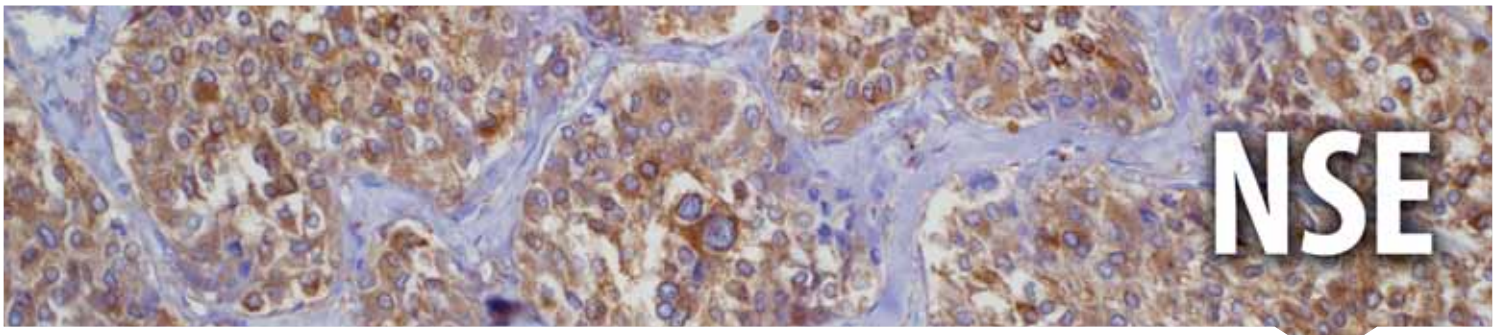

Neuron-specific enolase (NSE) is the glycolytic isoenzyme of the enolase gamma-gamma dimer specifically detected in neurons of neuroendocrine cells, and their corresponding tumors. In addition, NSE has been demonstrated immunohistochemically in the non-neoplastic cells of the pituitary, peptide secreting tissues, pineolocytes, neuroendocrine cells of the lung, thyroid, parafollicular cells, adrenal medulla, islets of Langerhans, Merkel cells of the skin, and melanocytes. Anti-NSE immunostaining is also positive in normal striated muscle, hepatocytes and, to a lesser extent, smooth muscle. Anti-NSE is a useful marker to identify peripheral nerves. When used for the identification of neuroendocrine differentiation, it is necessary that it be employed in a panel with more specific markers such as anti-synaptophysin, anti-chromogranin, and anti-neurofilament.

Retroperitoneal Lesions								
	NSE	Synaptophysin	Chromogranin A	Neurofilament	PGP 9.5	S-100	GFAP	CD99
Neuroblastoma	+	+	+	+	+	-	-	-
Ganglioneuroblastoma	+	+	+	+	+	+	+	-
Ganglioneuroma	+	+	+	+	+	+	+	-
Leiomyosarcoma	-/+	-	-	-	-/+	-	-	-
Rhabdomyosarcoma	-	-	-	-	+	-	-	-
Synovial Sarcoma	-	-	-	-		-/+	-	+/-

Reactivity Paraffin

Visualization Cytoplasmic

Control Pancreas, Carcinoid Tumor

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wick, MR et al. American Journal of Clinical Pathology 1983; 29:703-7.
2. Venores, SA et al. Archives of Pathology and Laboratory Medicine 1984; 108:536-40.
3. Leong, AS-Y et al. Pathology 1986; 18:393-9.

Mouse Monoclonal
Clone: MRQ-55

0.1 ml, concentrate.....306M-24
0.5 ml, concentrate.....306M-25
1 ml, concentrate 306M-26
1 ml, prediluted 306M-27
7 ml, prediluted 306M-28
Positive control slides 306S

Mouse Monoclonal
Clone: MRQ-55

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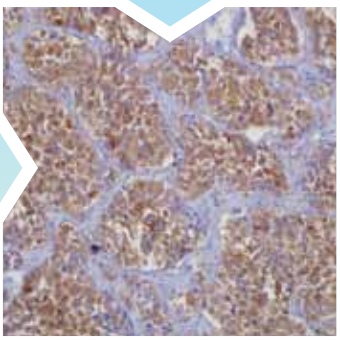

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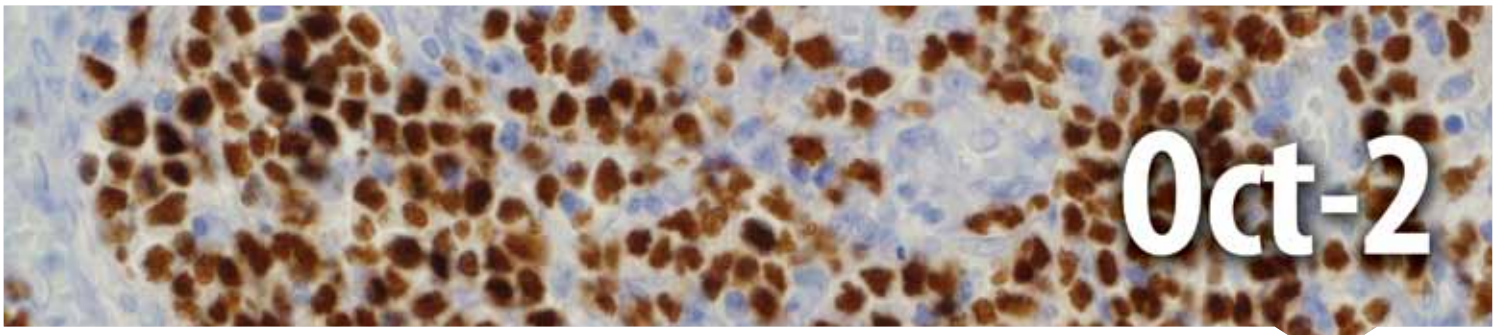

Oct-2 is a transcription factor of the POU homeo-domain family that regulates B-cell-specific genes. It has been shown that this factor participates in transcriptional regulation during T-cell activation. The following show high levels of Oct-2 expression: Germinal center B-cells, mantle B-cells, monocytoid B-cells, and plasma cells. Various lymphomas are also positive for this marker including the following: B-chronic lymphocytic leukemia, mantle cell lymphoma, follicular lymphoma, marginal zone lymphoma, plasmacytoma, Burkitt lymphoma, diffuse large B-cell lymphoma, T-cell rich B-cell lymphoma, and nodular lymphocyte predominant Hodgkin lymphoma.

B-cell Lymphomas										
	Oct-2	CD20	CD79a	TCL1	BCL6	CD5	CD10	CD23	Cyclin D1	PU.1
Follicular	+	+	+	+	+	-	+	-	-	+
CLL/SLL	+	+	+	+	-	+	-	+	-	+
Mantle Cell	+	+	+	+	-	+	-	-	+	+
Marginal Zone	+	+	+	-	-	-	-	-	-	+
Diffuse Large Cell	+	+	+	+	+	-/+	-/+	-	-	+

Hodgkin vs. Non-Hodgkin Lymphomas										
	Oct-2	MUM1	EMA	CD79a	CD15	CD30	Fascin	Granzyme B	BCL6	PU.1
Hodgkin Lymphoma, Classic	-	+	-	-	+	+	+	-	-	-
Hodgkin Lymphoma, Lymphocyte Predominant	+	-/+	+	+	-	-	-	-	+	+
T-cell Rich BCL	+	+	-	+	-	-	-	-	+	-
Non-Hodgkin BCL	+	+	-	+	-	-	-	-	+	+

Acute Myeloid Leukemia										
	Oct-2	MPO	CD68	CD34	CD43	Lysozyme	BOB.1	CD74	CD45	CD138
Acute Myeloid, M0	-	-	-	+	+	+	-	+	+	+
Promyelocytic, M3	+	+	-	-	+	-	+		-	
Myelomonocytic, M4	+	+	+	+	+	+	-	+	+	
Monoblastic, M5	+	+	+	-/+	+	+	-	+	+	

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Baker PM, Oliva E. Int J Gynecol Pathol. 2005 Jan;24(1):39-55. Review.
2. Browne P, et al. Am J Clin Pathol. 2003 Nov;120(5):767-77.
3. García-Cosío M, et al. Mod Pathol. 2004 Dec;17(12):1531-8.

Mouse Monoclonal Clone: MRQ-2

0.1 ml, concentrate.....308M-14
0.5 ml, concentrate.....308M-15
1 ml, concentrate 308M-16
1 ml, prediluted 308M-17
7 ml, prediluted 308M-18
Positive control slides 308S

Mouse Monoclonal Clone: MRQ-2

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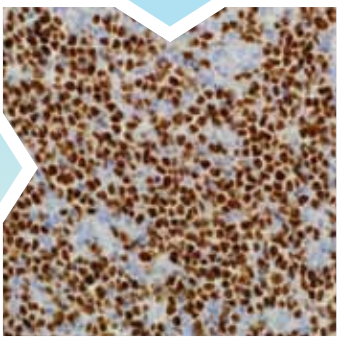

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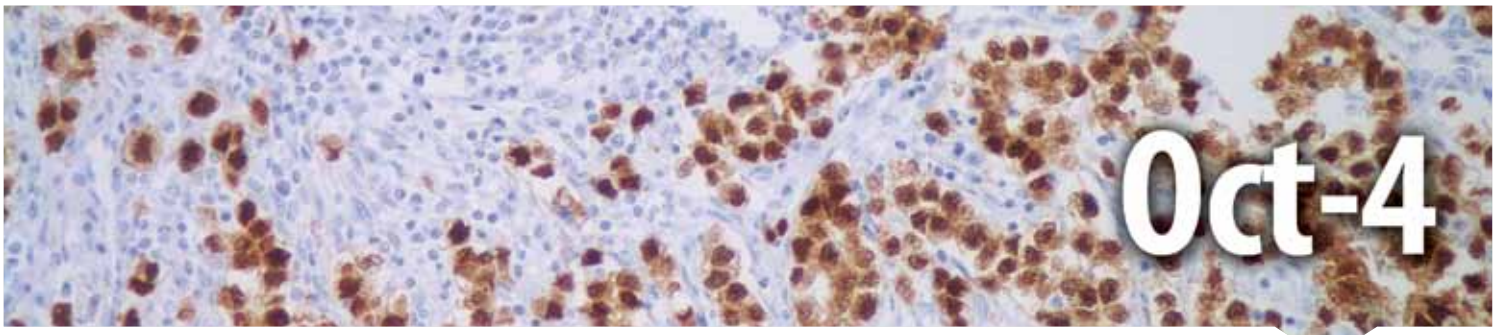

Oct-4 is a transcription factor that maintains and regulates pluripotency in embryonic stem and germ cells. Anti-Oct-4 has shown a very high sensitivity and specificity in seminoma/dysgerminoma, embryonal carcinoma, and the germ cell component of gonadoblastoma by nuclear immunostaining. Clear cell carcinoma 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). In one study that looked at anti-Oct-4 staining in clear cell carcinomas, 4 of 14 tumors were found to be focally positive. In another study, 49 endometrioid carcinomas were Oct-4 negative. Rarely dysgerminoma may have a morphologic appearance that overlaps with sex cord-stromal tumors, especially poorly differentiated Sertoli cell tumors. In two studies however, all sex cord-stromal tumors of the testis and granulosa cell tumors of the ovary were Oct-4 negative.

Germ Cell Tumors										
	Oct-4	AFP	Vimentin	EMA	Inhibin	hPL	CD30	Glypican-3	CD117	PLAP
Seminoma	+	-	+	-	-	-	-	-	+	+
Embryonal Carcinoma	+	-	-	-	-	-	+	-	-	+
Choriocarcinoma	-	-	-/+	+	-	+	-	+	-	+
Yolk Sac Tumor	-	+	-	-	-	-	-	+	-	+
Granulosa Cell Tumor	-	-	+	-	+	-	-	-	-	-
Hypercalcaemic Small Cell Carcinoma	-	-	-	+	-	-	-	-	-	-

Reactivity Paraffin

Visualization Nuclear

Control Seminoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Baker PM, Oliva E. Int J Gynecol Pathol. 2005 Jan;24(1):39-55. Review.
2. Biermann K, et al. Histopathology. 2006 Sep;49(3):290-7.
3. Cheng CJ, et al. J Biomed Sci. 2007 Nov;14(6):797-807. Epub 2007 Aug 8.

Mouse Monoclonal Clone: MRQ-10

0.1 ml, concentrate.....309M-14
0.5 ml, concentrate.....309M-15
1 ml, concentrate 309M-16
1 ml, prediluted 309M-17
7 ml, prediluted 309M-18
Positive control slides 309S

Mouse Monoclonal Clone: MRQ-10

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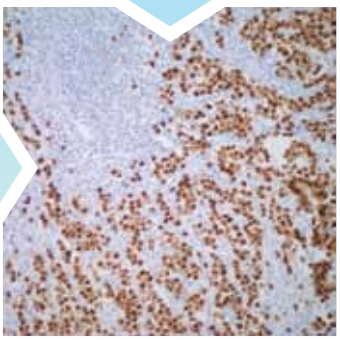

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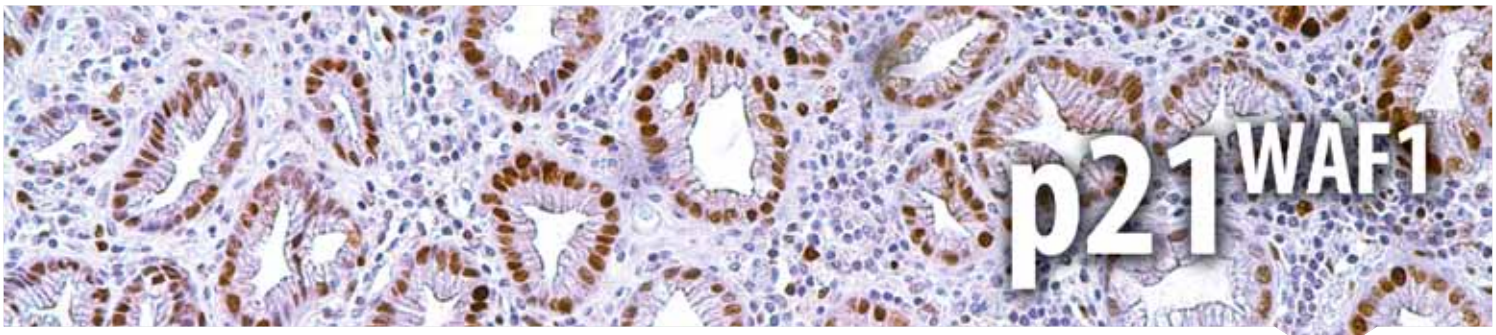

p21 is a nuclear 21 kD protein, a product of the WAF1/CIP1 gene. It is a cyclin-dependent kinase inhibitor 1A (p21, Cip1), also known as CDKN1A, which in humans is encoded by the CDKN1A gene located on chromosome (6p21.2). It is a constituent of a large complex of nuclear proteins, including cyclins, cyclin dependent kinases, and PCNA. Cell cycle progression is regulated by cyclins and their cognate Cdks. p21 inhibits the activity of each member of the cyclin/Cdk family. The expression of this gene acts as an inhibitor of the cell cycle during G1 phase and is tightly controlled by the tumor suppressor protein p53. Normal cells generally display a rather intense nuclear p21 expression. Loss of p21 expression has been reported in many carcinomas (gastric carcinoma, non-small cell lung carcinoma, thyroid carcinoma).

Reactivity Paraffin

Visualization Nuclear

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. DiGiuseppe JA,et al. Am J Pathol 1995;147:884-8.
2. Yoshitito Gomyo, et al. Cancer 1997; 79: 2067-2072.
3. Ikeguchi M, et al. Dig Dis Sci 1998;43:964-70

Mouse Monoclonal
Clone: DCS-60.2

0.1 ml, concentrate.....421M-14
0.5 ml, concentrate.....421M-15
1 ml, concentrate 421M-16
1 ml, prediluted 421M-17
7 ml, prediluted 421M-18
Positive control slides 421S

Mouse Monoclonal
Clone: DCS-60.2

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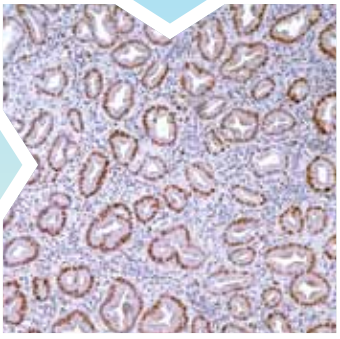

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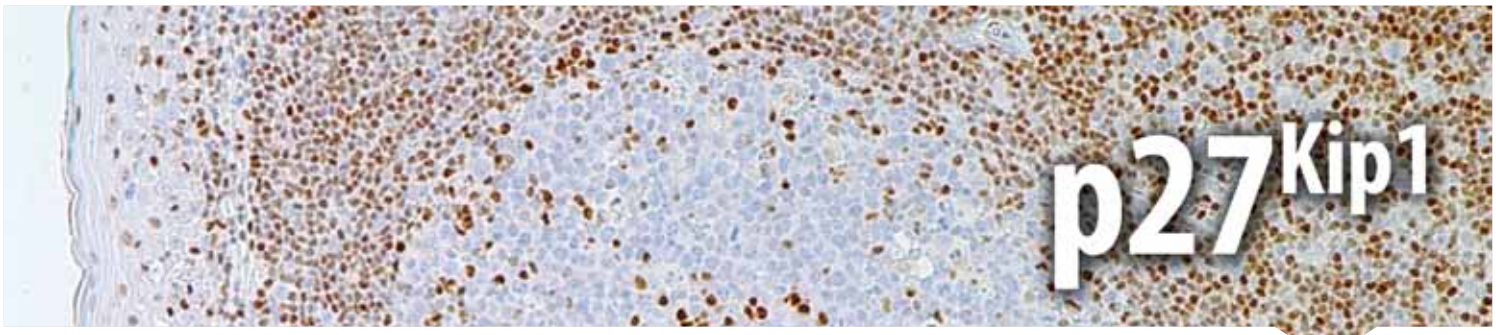

Cyclin-dependent kinase inhibitor 1B (p27, Kip1), also known as CDKN1B, is a human gene, which encodes a protein belonging to the Cip/Kip family of cyclin dependent kinase (Cdk) inhibitors. The encoded protein binds to and prevents the activation of cyclin E-CDK2 or cyclin D-CDK4 complexes and thus controls the cell cycle progression at G1. It is often referred to as a cell cycle inhibitor protein because its major function is to stop or slow down the cell division cycle.

Studies have shown that 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, and lymph node metastases in papillary carcinoma of the thyroid, as well as a more aggressive phenotype in carcinoma of the cervix.

Thyroid: Malignant vs. Benign							
	p27	Thyroglobulin	Calcitonin	CK 19	Galectin-3	TTF-1	HBME-1
Papillary Carcinoma	-/+	+	-	+	+	+	+
Follicular Carcinoma	-	+	-	-	+	+	+/-
Medullary Carcinoma	+/-	-	+	+	-	+	+
Benign Thyroid	+	+	-	-	-	+	-

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Lloyd RV, et al. Am J Pathol 1999, 154: 313-323
2. Migita T, et al. Cancer 2002; 94; 973-9
3. Haitel A, et al. Urology 58: 477-481, 2001
4. Tan P, et al. Cancer Research 57, 1259-1263, April 1, 1997

Mouse Monoclonal Clone: SX53G8

0.1 ml, concentrate.....427M-94
0.5 ml, concentrate.....427M-95
1 ml, concentrate 427M-96
1 ml, prediluted 427M-97
7 ml, prediluted 427M-98
Positive control slides 427S

Mouse Monoclonal Clone: SX53G8

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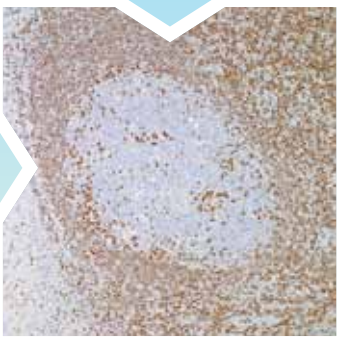

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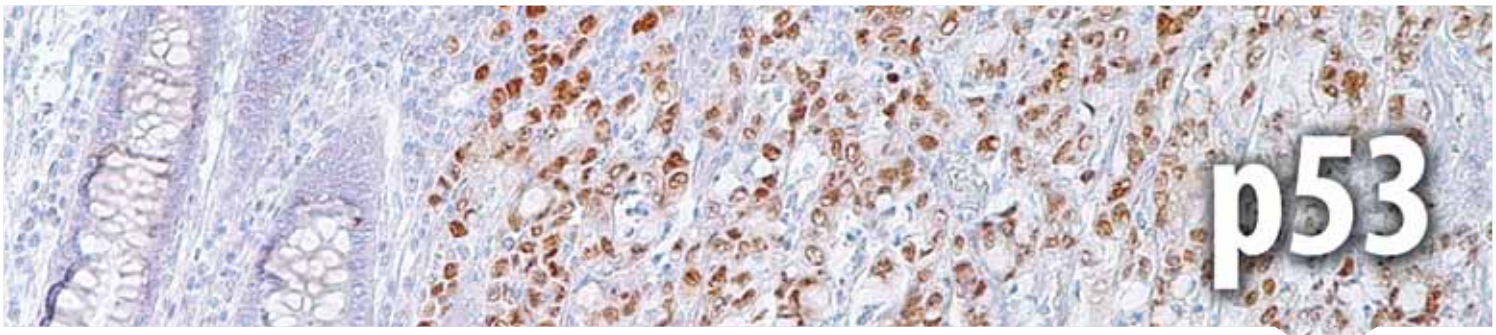

Anti-p53 tumor suppressor protein recognizes a 53 kDa phosphoprotein, identified as a p53 suppressor gene product. It reacts with the mutant as well as wild form of p53. Positive nuclear staining with this antibody has been shown to be a negative prognostic factor in breast carcinoma, lung carcinoma, colorectal, and urothelial carcinoma. Anti-p53 positivity has also been used to differentiate uterine serous carcinoma from endometrioid carcinoma as well as to detect intratubular germ cell neoplasia.

Bladder: Dysplasia vs. Reactive				
	p53	CK 20	CD44	Ki-67
Carcinoma in-situ	+	+	-	+
Reactive Atypia	-	-	+ (all cell layers)	+
Normal Urothelium	-	+ (umbrella cells)	+ (umbrella cells)	-

Liver: Malignant vs. Benign									
	p53	Hep-Par1	Glypican-3	CD34	AFP	A1AT	pCEA	mCEA	TTF-1
Hepatocellular Carcinoma	+	+	+	+	-/+	-/+	+	-	+(cytoplasmic)
Hepatoblastoma	+	+	+	-	+	+	+	-	-
Benign Liver Nodules	-	+	-	-	-	+/-	-	-	+(cytoplasmic)

Mesothelial Cells: Malignant vs. Benign				
	p53	GLUT1	Mesothelin	Calretinin
Malignant	+	+	+	+
Reactive Benign	-	-	+	+

Reactivity Paraffin

Visualization Nuclear

Control Colon Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype SP5: IgG_1
DO7: IgG_{2b}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Moore BE, et al. Applied Immunohistochemistry and Molecular Morphology 9(3): 203 –206, 2001
2. Mauri FA, et al. Int J Oncol 1999 Dec;15(6):1137-47

Rabbit Monoclonal Clone: SP5

0.1 ml, concentrate.... 453R-14
0.5 ml, concentrate.... 453R-15
1 ml, concentrate 453R-16
1 ml, prediluted 453R-17
7 ml, prediluted 453R-18
Positive control slides . 453S

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Mouse Monoclonal Clone: DO7

0.1 ml, concentrate.... 453M-94
0.5 ml, concentrate.... 453M-95
1 ml, concentrate 453M-96
1 ml, prediluted 453M-97
7 ml, prediluted 453M-98
Positive control slides . 453S

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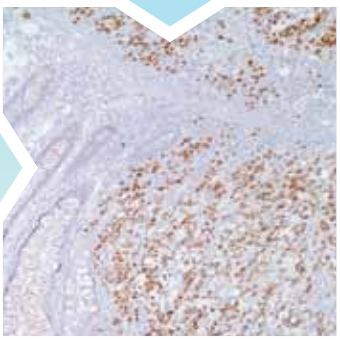
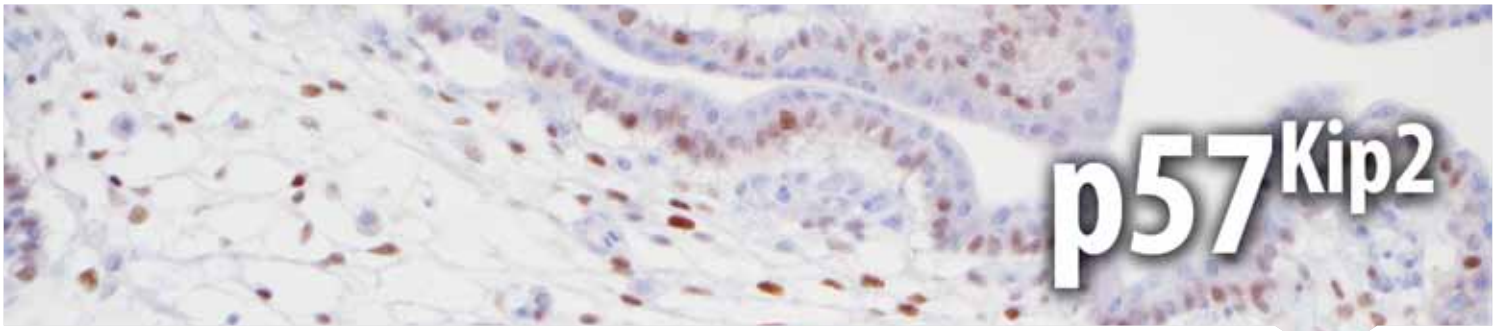


* *ultraView is a trademark of Roche.*



p57^{KIP2} is a cyclin-dependent kinase inhibitor, cell cycle inhibitor and tumor suppressor gene, located at 11p15.5. p57^{KIP2} shows strong paternal genomic imprinting, resulting in expression predominantly from the maternal allele.

Anti-p57 has been used as an aide in identification of complete hydatidiform mole (CHM) (no nuclear labeling of cytotrophoblasts and stromal cells) from partial hydatidiform mole (PHM) in which both cytotrophoblasts and stromal cells stain. The histological differentiation of complete mole, partial mole, and hydropic spontaneous abortion is problematic. Most complete hydatidiform moles are diploid, whereas most partial moles are triploid. Ploidy studies will identify partial moles, but will not differentiate complete moles from non-molar gestations. Complete moles carry a high risk of persistent disease and choriocarcinoma, while partial moles have a very low risk. In normal placenta, many cytotrophoblast nuclei and stromal cells are labeled 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. Other markers which may be useful in a panel for differentiating the various forms of gestational trophoblastic disease are anti-hCG, anti-placental alkaline phosphatase, and anti-hPL.

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

Reactivity Paraffin

Visualization Nuclear

Control Placenta

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kihara M, et al. J Reprod Med. 2005 May;50(5):307-12.
2. Romaguera RL, et al. Fetal Pediatr Pathol. 2004 Mar-Jun;23(2-3):181-90.
3. Marjoniemi VM. Pathology. 2004 Apr;36(2):109-19. Review.

Mouse Monoclonal Clone: Kp10

0.1 ml, concentrate.....457M-94
0.5 ml, concentrate.....457M-95
1 ml, concentrate 457M-96
1 ml, prediluted 457M-97
7 ml, prediluted 457M-98
Positive control slides 457S

Mouse Monoclonal Clone: Kp10

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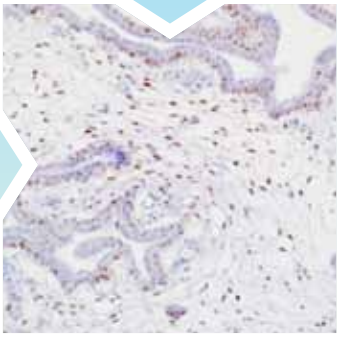

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p120 catenin is encoded on chromosome 11q11. Alpha-catenin and beta-catenin bind to the intracellular domain of E-cadherin while p120 catenin binds E-cadherin at a juxta-membrane site. The complex stabilizes tight junctions. In the cell, p120 catenin localized to the E-cadherin/catenins cell adhesion complex, directly associates with cytoplasmic C-terminus of E-cadherin and may similarly interact with other cadherins. A deficiency of E-cadherin results in the intracytoplasmic accumulation of p120 catenin. Lobular carcinoma of the breast shows intracytoplasmic accumulation of p120 catenin while ductal carcinoma shows reduced membrane p120 catenin without cytoplasmic accumulation. In gastric and colonic carcinoma, strong cytoplasmic p120 catenin is associated with discohesive infiltrative morphology.

Breast Lesion						
	p120	GCDFP-15	Mammaglobin	β-Catenin	E-cadherin	CK, 34βE12
Lobular	+(cytoplasmic)	+	+	-	-	+
Ductal	+(membranous)	+	+	+(membranous)	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Lobular Breast Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Reynolds AB, Herbert L, et al. Oncogene 1992;7: 2439-2445.
2. Thoreson MA, Anastasiadis PZ, et al. Mol Cell Biol. 1994;14: 8333-8342.
3. Juliet M, Daniel, et al. Hybridoma, 2001 May;20:159-165

Mouse Monoclonal
Clone: MRQ-5

0.1 ml, concentrate..... 420M-14
0.5 ml, concentrate..... 420M-15
1 ml, concentrate 420M-16
1 ml, prediluted 420M-17
7 ml, prediluted 420M-18
Positive control slides 420S

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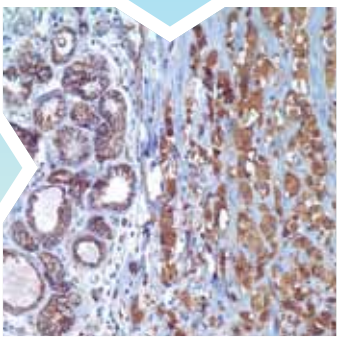

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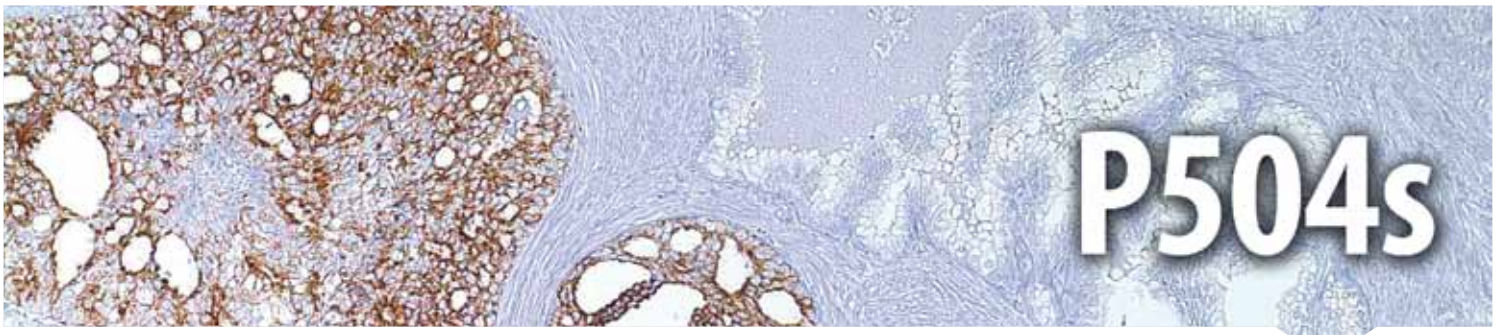

Alpha-Methylacyl-CoA Racemase (also known as AMACR or P504s) is an essential enzyme in the β-oxidation of branched-chain fatty acids. AMACR over-expression has been demonstrated in several cancers including colorectal, prostate, bladder, renal cell carcinomas, and lymphoma. Staining with the antibody to this enzyme has been useful in identifying prostate carcinoma and prostatic intraepithelial neoplasia, as well as atypical adenomatous hyperplasia in formalin-fixed, paraffinized tissue in morphologically difficult cases.

Prostate: Malignant vs. Benign

	P504s	PSA/PSAP	Androgen Receptor	CK, 34βE12	p63	CK 5	CK 14
Prostate Carcinoma	+	+	+	-	-	-	-
Benign Prostate	-/+	+	+	+	+	+	+

Prostate Lesions

	P504s	PSA/PSAP	CK, 34βE12	p63	CK 7	Thrombo-modulin	Uroplakin III	PAX-2
Prostate Carcinoma	+	+	-	-	-	-	-	-
Urothelial Carcinoma	-	-	+	+	+	+	+	-
Nephrogenic Adenoma	+	-	+/-	-	+	-	-	+

Colon vs. Prostate Adenocarcinoma

	P504s	CDX-2	CK 20	CEA	CA19-9	PSA
Colon Adenocarcinoma	+	+	+	+	+	-
Prostate Adenocarcinoma	+	-	-	-	-	+

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Browne TJ, et al. Hum Pathol. 2004 Dec;35(12):1462-8
2. Wu CL, et al. Hum Pathol. 2004 Aug;35(8):1008-13
3. Evans AJ. J Clin Pthol. 2003 Dec;56(12):892-7

Rabbit Monoclonal
Clone: 13H4

0.1 ml, concentrate.....504R-14 (ASR)
0.5 ml, concentrate.....504R-15 (ASR)
1 ml, concentrate .....504R-16 (ASR)
1 ml, prediluted .....504R-17 (ASR)
7 ml, prediluted .....504R-18 (ASR)
25 ml, prediluted.....504R-10 (ASR)
Positive control slides 504S

ASR†
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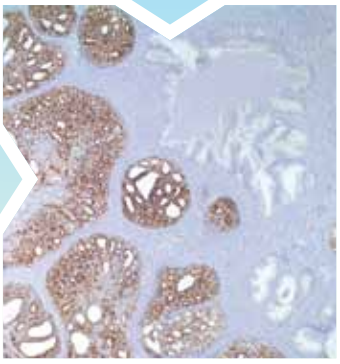

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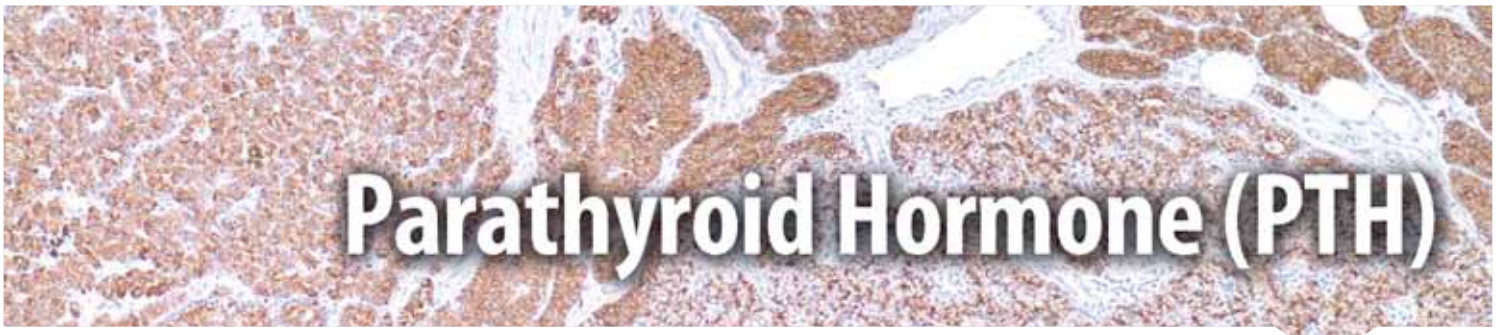

Parathyroid Hormone (PTH)

Surgical pathologists are familiar with the ability of parathyroid proliferations to assume a variety of histological guises, posing difficulty to categorize any given lesion as hyperplastic, adenomatous, or carcinomatous in nature. This is usually resolved with macroscopic appearance of the remaining parathyroid glands as assessed by the surgeon. The role of the surgical pathologist is to identify the lesion as parathyroid in nature and to assess whether it is normocellular or hypercellular. Although easily accomplished in the majority of instances, rare examples of parathyroid hyperplasia/adenoma showing a follicular/trabecular arrangement may cause concern over the alternative diagnosis of a thyroid adenoma. This becomes more pertinent when the parathyroid lesion abuts into the thyroid gland or lies within the thyroid capsule. Immunostaining for thyroglobulin and parathyroid hormone (PTH) is especially useful to resolve the problem.

Anti-PTH antibody is also useful to distinguish parathyroid hyperplasia/neoplasms from thyroid and metastatic neoplasms although the pathologist is typically aware of the preoperative hypercalcemic status. Occasionally when the surgeon does not supply this information, PTH immunohistochemistry is essential. Even more problematic are situations in which clear cell parathyroid carcinomas are nonsecretory without an abnormality in mineral metabolism. In such situations, metastatic renal cell carcinoma or metastatic clear cell carcinoma of the lung is evident warranting PTH immunohistochemistry to arrive at the correct diagnosis. The other instance in which PTH antibodies are useful is in the consideration of parathyroid carcinomas located primarily in the anterior mediastinum (intrathymically). In this situation, distinction from primary thymic metastatic carcinomas, non-Hodgkin lymphoma, and germ cell tumors is necessary.

Differential Diagnosis of Parathyroid Tumors						
	PTH	Chromogranin A	Synaptophysin	S-100	TTF-1	Calcitonin
Parathyroid Tumors	+	+	+	-	-	-
Follicular Cell Tumors	-	-	-	+/-	+	-
Medullary Thyroid Carcinoma	-	+	+	-	+	+

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Parathyroid Tissue

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wick MR, et al. Seminars in Diagnostic Pathology; 1997; 14:183-202.
2. Brown EM. Mineral Electrolyte Metal 1982; 8:130-50.

Mouse Monoclonal Clone: MRQ-31

0.1 ml, concentrate.....310M-24
0.5 ml, concentrate.....310M-25
1 ml, concentrate 310M-26
1 ml, prediluted 310M-27
7 ml, prediluted 310M-28
Positive control slides 310S

Mouse Monoclonal Clone: MRQ-31

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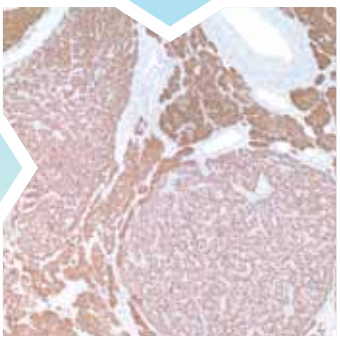

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Anti-parvovirus targets the capsid proteins VP1 and VP2 on human parvovirus. Parvovirus B19 infection has been implicated as a cause in spontaneous abortion in humans. Parvovirus B19 is also associated with erythema infectiosum (fifth disease) in children and acute arthritis in adults, as well as chronic hemolytic anemia, with some patients experiencing aplastic crisis.

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Parvovirus-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Loughrey AC, et al. J Med Vir 39:97-100 (1993)
2. Moore L, et al. Med J Australia 159:344-345 (1993)
3. Morey AL, et al. J Path 166:105-108 (1992)

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For IVD product, please remove the "ASR" suffix from the end of the catalog number when ordering.

For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Mouse Monoclonal
Clone: R92F6

0.1 ml, concentrate	218M-14 (ASR)
0.5 ml, concentrate	218M-15 (ASR)
1 ml, concentrate	218M-16 (ASR)
1 ml, prediluted	218M-17 (ASR)
7 ml, prediluted	218M-18 (ASR)
Positive control slides	218S

ASR†

IVD

IVD

RUO

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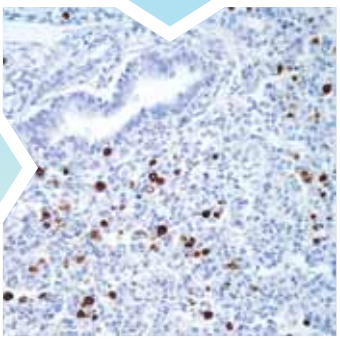
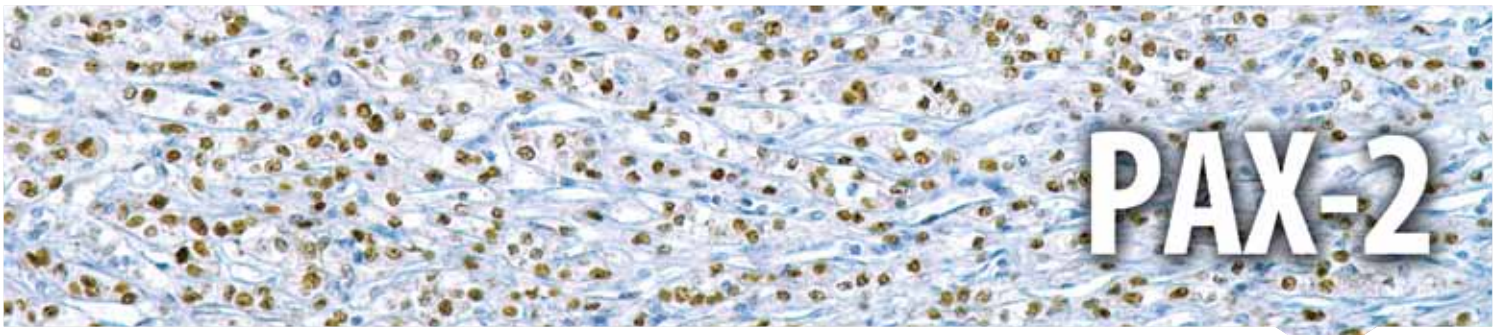


* *ultraView is a trademark of Roche.*



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. The oncogenic potential of the PAX gene family has been reported *in vitro* with transformation of cell cultures and *in vivo* with cell injections in nude mice. Gnarra et al. showed PAX-2 expression in renal carcinoma cell lines and underlined its potential role in cell proliferation in these lines. Mazal et al. demonstrated anti-PAX-2 nuclear expression in 88% of clear cell renal cell carcinomas as well as 18% of papillary renal cell carcinoma, and 13% of chromophobe renal cell carcinomas. More recently, O'Connor et al. demonstrated utility in distinguishing ovarian serous papillary carcinoma (anti-PAX-2 positive) from primary breast carcinoma (anti-PAX-2 negative). Anti-PAX-2 has also been used to distinguish hepatocellular carcinoma (anti-PAX-2 negative) from clear cell renal cell carcinoma.

Prostate Lesions								
	PAX-2	PSA/PSAP	P504s	CK, 34βE12	p63	CK 7	Thrombo-modulin	Uroplakin III
Prostate Carcinoma	-	+	+	-	-	-	-	-
Urothelial Carcinoma	-	-	-	+	+	+	+	+
Nephrogenic Adenoma	+	-	+	+/-	-	+	-	-

Kidney: Renal Epithelial Tumors								
	PAX-2	RCC	CD10	Vimentin	Ksp-cadherin	Parvalbumin	CD117	Ep-CAM
Clear Cell RCC	+	+	+	+	-	-	-	-
Chromophobe RCC	+	-/+	-/+	-	+	+	+	+
Oncocytoma	+	-	+/-	-	+/-	+	+	-

Reactivity Paraffin

Visualization Nuclear

Control Renal Cell Carcinoma

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Browne LW, et al. Poster #229 at 2008 USCAP meeting; 3-05-08
2. Ozcan A, et al. Am J Pthol. 2009;131:399-404.
3. Mazal PR, et al. Mod Pathol. 2005 Apr;18(4):535-40.
4. Zhai, et al. Appl Immunohistochem Mol Morphol. 2010;18:323-332.

Rabbit Polyclonal

0.1 ml, concentrate..... 311A-14
0.5 ml, concentrate..... 311A-15
1 ml, concentrate 311A-16
1 ml, prediluted 311A-17
7 ml, prediluted 311A-18
Positive control slides 311S

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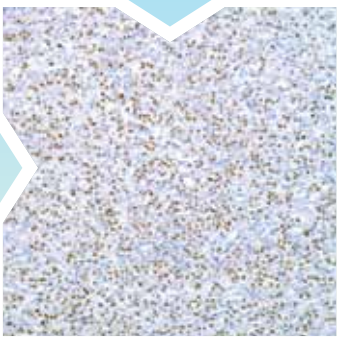

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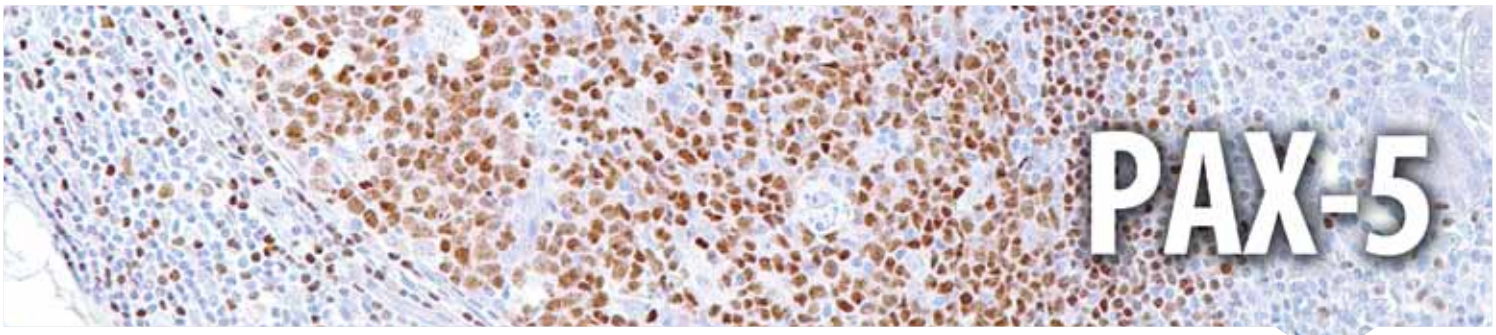

PAX-5 encodes for B-cell-specific activator protein (BSAP), a marker for B-cells, including B-lymphoblastic neoplasms and maturation stage. It is found in most cases of mature and precursor B-cell non-Hodgkin lymphomas/leukemias. In approximately 97% of cases of classic Hodgkin lymphoma, Reed-Sternberg cells express PAX-5. 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, save for those with terminal B-cell differentiation. T-cell neoplasms do not stain with anti-PAX-5. There is a strong association with CD20 expression.

B-cell Lymphomas										
	PAX-5	p27	CD20	CD79a	BCL2	BCL6	TCL1	Annexin A1	CD23	Cyclin D1
Follicular	+	+	+	+	+	+	+	-	-	-
CLL/SLL	+	+	+	+	+	-	+	-	+	-
Mantle Cell	+	+	+	+	+	-	+	-	-	+
Marginal Zone BCL	+	+	+	+	+	-	-	-	-	-
Lymphoplasmacytic	+	+	+	+	+	-	+	-	-	-
Diffuse Large Cell Lymphoma	+	-	+	+	+	+	-/+		-	-
Burkitt Lymphoma	+	-	+	+	-	+	+		-	-
Hairy Cell Leukemia	+	-	+	+	+	-	+	+	-	+(weak)/-

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	PAX-5	TdT	CD10	CD20	CD19	CD3	CD5	CD7	CD117	CD1a
B-cell	+	+	+	+/-	+	-	-	-	-	+
T-cell	-	+	+/-	-	-	+	+/-	+/-	-/+	+/-

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP34: IgG
24: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Torlakovic E, et al. Am J Surg Pathol 2002 Oct;26(10):1343-50
2. Willenbrock K, et al. Lab Invest 2002 Sep;82(9):1103-9
3. Falini B, et al. Blood 2002 Jan 15;99(2):409-26

Rabbit Monoclonal Clone: SP34

0.1 ml, concentrate.... 312R-14
0.5 ml, concentrate.... 312R-15
1 ml, concentrate 312R-16
1 ml, prediluted 312R-17
7 ml, prediluted 312R-18
Positive control slides . 312S

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Mouse Monoclonal Clone: 24

1 ml, prediluted 312M-17
7 ml, prediluted 312M-18
Positive control slides . 312S

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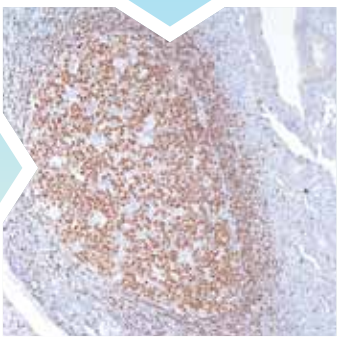

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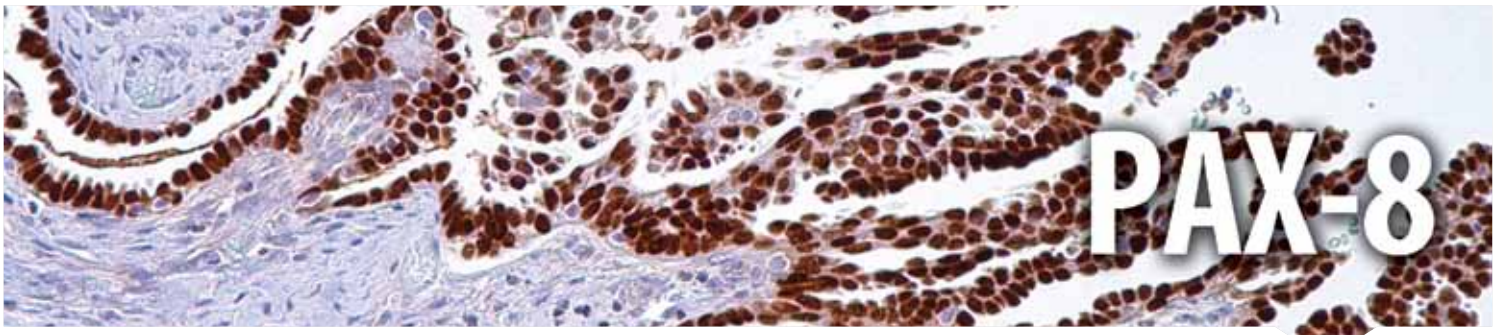

This protein is a member of the paired box (PAX) family of transcription factors. Members of this gene family typically encode proteins which contain a paired box domain, an octapeptide, and a paired-type homeodomain. This nuclear protein is involved in thyroid follicular cell development and expression of thyroid-specific genes. Mutations in this gene have been associated with thyroid dysgenesis, thyroid follicular carcinomas and atypical thyroid adenomas.

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 expression in renal tubules as well as renal carcinoma, nephroblastoma, and seminoma. Studies have shown that 98% of clear cell RCCs, 90% of papillary RCCs, and 95% of oncocytomas are positive for anti-PAX-8, frequencies which are similar to or better than those for anti-PAX-2. Therefore, anti-PAX-8 can be used as an additional immunohistochemical marker for renal epithelial tumors. Normal lung and lung carcinomas do not express PAX-8. Anti-PAX-8, combined with organ system-specific markers such as anti-uroplakin, anti-mammaglobin, and anti-TTF-1 can be a very useful panel to determine the primary site of invasive micropapillary carcinomas from ovary (positive staining) or from bladder, lung, and breast (negative staining). Anti-PAX-8 is also useful in distinguishing ovarian serous carcinoma from malignant mesothelioma of peritoneum.

Ovarian Carcinomas				
	PAX-8	WT1	CA-125	CEA
Ovarian CA, Serous	+	+	+	+
Ovarain CA, Mucinous	-	-	-	-
Ovarian CA, Endometrioid	+	-	+	-
Ovarian CA, Clear Cell	+	-	+	-

Micropapillary Carcinomas										
	PAX-8	Uroplakin III	CK 20	CK 7	CK, HMW	ER	Mamma-globin	WT1	TTF-1	EMA
Bladder	-	+	+	+	-	-	-	-	-	-
Breast	-	-	-	+	-	+	+	-	-	+
Lung	-	-	-	+	-	-	-	-	+	+
Ovary	+	-	-	+	+	+	-	+	-	-

Reactivity Paraffin

Visualization Nuclear

Control Ovarian Carcinoma (non-mucinous carcinoma), Thyroid Carcinomas, Renal Cell Carcinoma

Isotype MRQ-50: IgG

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Lotan TL, et al. Am J Surg Pathol. 2009; 33:1037-41.
2. Tong GX, et al. Mod. Pathol. 2009;22: 148-27

Mouse Monoclonal Clone: MRQ-50

0.1 ml, concentrate.....363M-14
0.5 ml, concentrate.....363M-15
1 ml, concentrate 363M-16
1 ml, prediluted 363M-17
7 ml, prediluted 363M-18
Positive control slides 363S

Mouse Monoclonal Clone: MRQ-50

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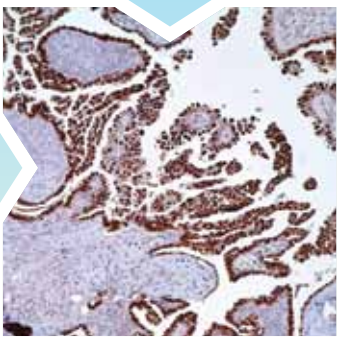
Rabbit Polyclonal

0.1 ml, concentrate.....363A-14
0.5 ml, concentrate.....363A-15
1 ml, prediluted 363A-17
7 ml, prediluted 363A-18
Positive control slides 363S



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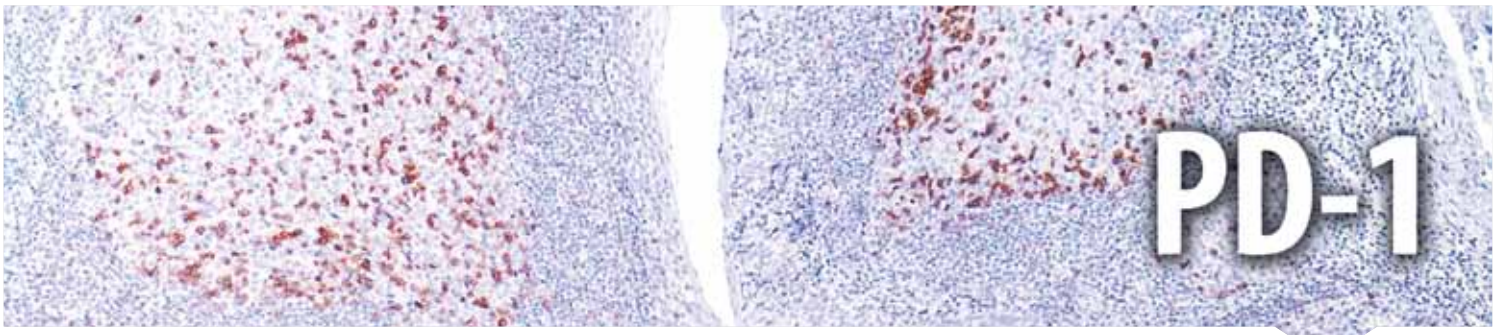

Programmed death-1 (PD-1) is expressed on activated T-cells, B-cells, and myeloid cells. Anti-PD-1 is a marker of angioimmunoblastic lymphoma and suggests a unique cell of origin for this neoplasm. Unlike CD10 and BCL6, PD-1 is expressed by few B-cells, so anti-PD-1 may be a more specific and useful diagnostic marker in angioimmunoblastic lymphoma. In addition, PD-1 expression provides evidence that angioimmunoblastic lymphoma is a neoplasm derived from germinal center-associated T-cells. PD-1 expression in angioimmunoblastic lymphoma lends further support to this model of T-cell oncogenesis, in which specific subtypes of T-cells may undergo neoplastic transformation and result in specific distinct histologic, immunophenotypic, and clinical subtypes of T-cell neoplasia.

T-cell Lymphomas										
	PD-1	CD45	CD2	CD3	CD4	CD5	CD7	CD8	CD25	CD45RO
Angioimmunoblastic	+	+	+	+	+	+	+	-	+	+
Lymphoblastic	-	+	+/-	+	+/-	+	+	+/-	+	+
Subcutaneous Panniculitis-Like	-	+	+	+	-	+	+	+/-	-	+
NK	-	+	+	+	-	-	-/+	-	+	+
Cutaneous	-/+	+	+	+	+	-	+	-	-	-
Peripheral, NOS	-	+	+	+	+/-	+/-	+/-	-/+	+	+
Mycosis Fungoides	-	+	+	+	+	+	-	-	+	+

Lymph Node					
	PD-1	S-100	CD1a	Lysozyme	CD21/CD35
Follicular Dendritic Cell Sarcoma	-	-	+/-	-	+
Dermatopathic Lymphadenitis	-	+	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bolstad AI, et al. Arthritis Rheum. 2003 Jan;48(1):174-85.
2. Dorfman DM, et al. Am J Surg Pathol. 2006 Jul;30(7):802-10
3. Hamanishi J, et al. Proc Natl Acad Sci U S A. 2007 Feb 27;104(9):3360-5. Epub 2007 Feb 21.

Mouse Monoclonal
Clone: MRQ-22 (also known as NAT)

0.1 ml, concentrate.....315M-94
0.5 ml, concentrate.....315M-95
1 ml, concentrate 315M-96
1 ml, prediluted 315M-97
7 ml, prediluted 315M-98
Positive control slides 315S

Mouse Monoclonal
Clone: MRQ-22 (a.k.a. NAT)

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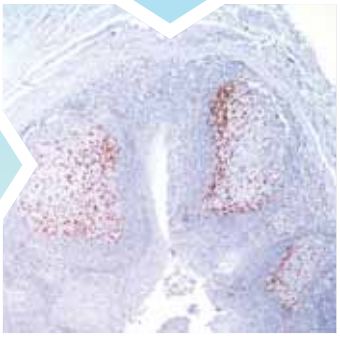

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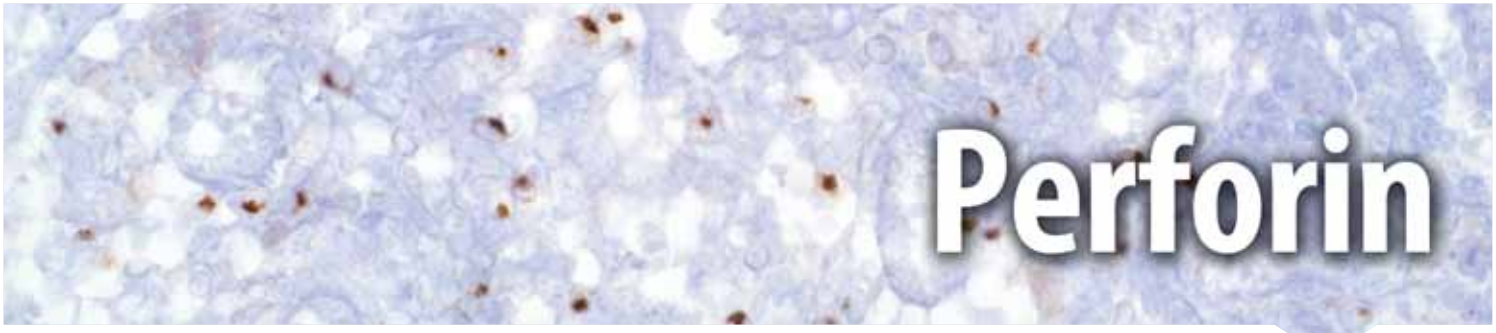

Perforin is a pore-forming protein that leads to osmotic lysis of the target cells and subsequently enables granzymes to enter the target cells and activate apoptosis, the cell death program. The expression of perforin is upregulated in activated CD8+ T-cells, but in NK cells the expression is constitutively very high and stable. Perforin expression can also be stimulated in some activated CD4+ T-cells.

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.

T-cell Lymphomas										
	Perforin	CD2	CD3	CD4	CD5	CD7	CD8	CD25	CD45RO	PD-1
Angioimmunoblastic		+	+	+	+	+	-	+	+	+
Lymphoblastic		+/-	+	+/-	+	+	+/-	+	+	-
Subcutaneous Panniculitis-Like	+	+	+	-	+	+	+/-	-	+	-
NK	+	+	+	-	-	-/+	-	+	+	-
Cutaneous	+	+	+	+	-	+	-	-	-	-/+
Peripheral, NOS	-/+	+	+	+/-	+/-	+/-	-/+	+	+	-
Mycosis Fungoides	-	+	+	+	+	-	-	+	+	-

Reactivity Paraffin

Visualization Perinuclear Cytoplasmic

Control Spleen

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Chu PG, et al. Ann Diagn Pathol. 1999 Apr;3(2):104-33. Review.
2. Bittmann I, et al. Virchows Arch. 2004 Oct;445(4):375-81. Epub 2004 Jul 29.
3. d'Amore ES, et al. Pediatr Dev Pathol. 2007 May-Jun;10(3):181-91.

Mouse Monoclonal Clone: MRQ-23

0.1 ml, concentrate.....316M-14
0.5 ml, concentrate.....316M-15
1 ml, concentrate 316M-16
1 ml, prediluted 316M-17
7 ml, prediluted 316M-18
Positive control slides 316S

Mouse Monoclonal Clone: MRQ-23

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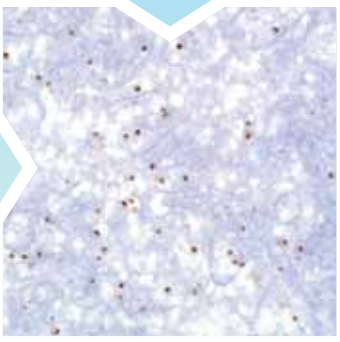

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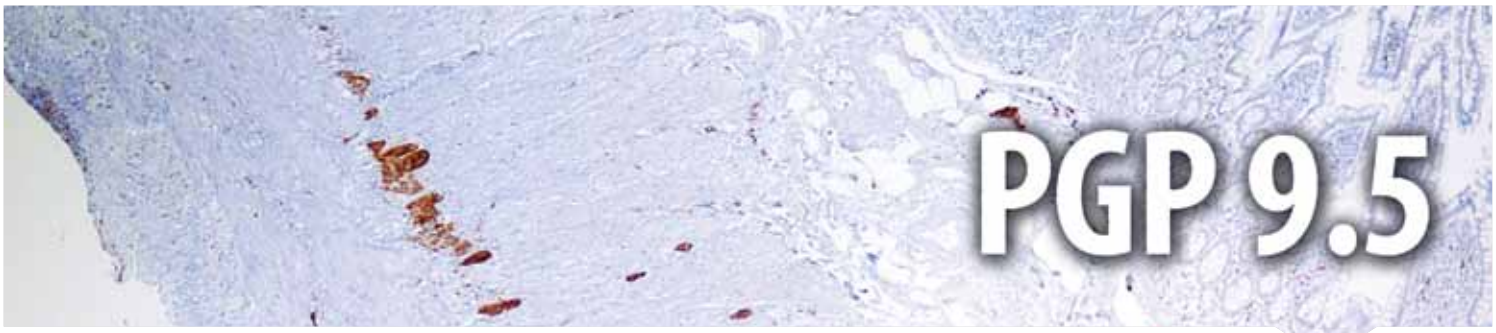

Protein gene product 9.5 (PGP 9.5), also known as ubiquitin carboxyl-terminal hydrolase-1 (UCHL-1), is a 27 kDa protein originally isolated from whole brain extracts. Although PGP 9.5 expression in normal tissues was originally felt to be strictly confined to neurons and neuroendocrine cells, it has 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. LK Campbell et al. demonstrated immunostaining of a plethora of different mesenchymal neoplasms with this antibody.

Retroperitoneal Lesions							
	PGP 9.5	NSE	Synaptophysin	Chromogranin A	Neurofilament	S-100	GFAP
Neuroblastoma	+	+	+	+	+	-	+/-
Ganglioneuroblastoma	+	+	+	+	+	+	+
Ganglioneuroma	+	+	+	+	+	+	+

Small, Round Blue Cell Tumors									
	PGP 9.5	MS Actin	Myoglobin	Myogenin	CK Cocktail	CD99	FLI-1	Vimentin	CD57
Rhabdomyosarcoma	+	-/+	+	+	-	-	-	+	-
Neuroblastoma	+	-	-	-	-	-	-	+	+
Embryonal Carcinoma	+	-	-	-	+	-	-	-	+
PNET/ES	+	-	-	-	-/+	+	+	+	+

Spindle Cell Tumors										
	PGP 9.5	β-Catenin	MS Actin	SM Actin	CD56	EMA	CK Cocktail	Calponin	BCL2	S-100
Spindle Cell Carcinoma	+	+/-	-	-	-	+/-	+	-	-	-
Neurofibroma	+	-	-	-	+	-	-	-	+	+
Endometrial Stromal Tumor	+	+/-	+	+	-	-	-	+	-	-
Fibromatosis	+	+	-	+	-	-	-	-	-	-

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Nerve Tissue

Stability
Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bassotti G, et al. J Clin Pathol. 2005 Sep;58(9):973-7.
2. Campbell LK, et al. Mod Pathol. 2003 Oct;16(10):963-9.
3. Kasprzak A, et al. Pol J Pathol. 2007;58(1):23-33. Review.
4. Mahalingam M, et al. J Cutan Pathol. 2001 Jul;28(6):282-6.

Rabbit Polyclonal

0.1 ml, concentrate.....318A-14
0.5 ml, concentrate.....318A-15
1 ml, concentrate 318A-16
1 ml, prediluted 318A-17
7 ml, prediluted 318A-18
Positive control slides 318S

Rabbit Polyclonal

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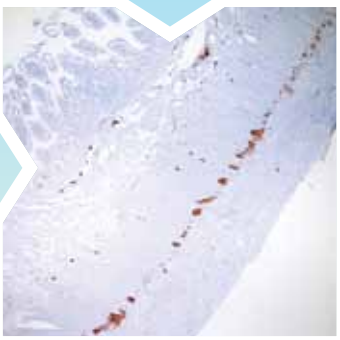

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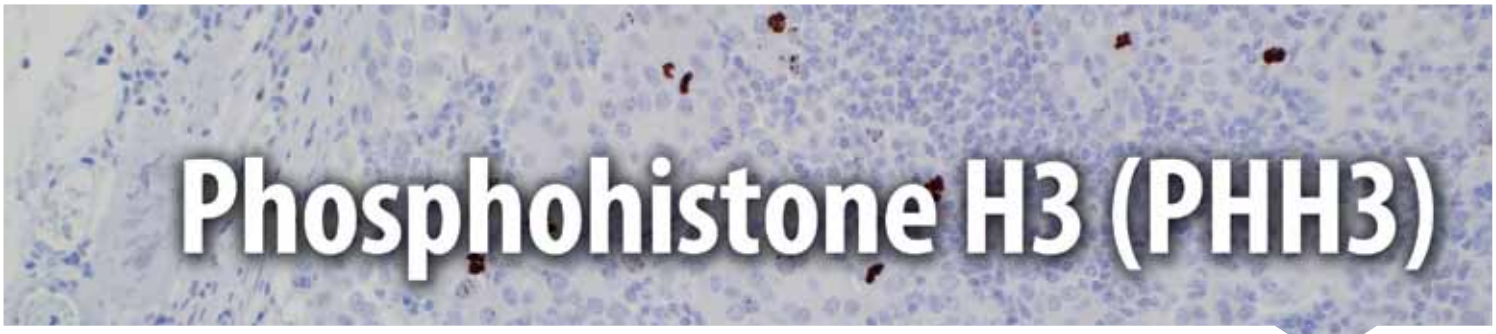

Phosphohistone H3 (PHH3)

Phosphohistone H3 (PHH3) is a core histone protein, which together with other histones, forms the major protein constituents of the chromatin in eukaryotic cells. In mammalian cells, phosphohistone H3 is negligible during interphase but reaches a maximum for chromatin condensation during mitosis. Immunohistochemical studies showed anti-PHH3 specifically detected the core protein histone H3 only when phosphorylated at serine 10 or serine 28. Studies have also revealed no phosphorylation on the histone H3 during apoptosis. Therefore, anti-PHH3 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 grading and staging, especially in central nervous system tumors, melanomas, soft tissue sarcomas, and gastrointestinal stromal tumor.

PHH3 index is a sensitive measure of mitotic activity and has several technical advantages over the currently existing methods. The PHH3 mitotic index method provides a true index, is independent of tumor cellularity (which can confound the scoring of mitoses per unit area), and greatly facilitates the identification of mitotic figures compared to the traditional H&E staining method. Because it stains only cells in mitosis, PHH3 offers the possibility of obtaining a true mitotic index, compared to Ki-67 proliferation index, which is positively stained in cells in all phases of the cell cycle, except G0. This feature of PHH3 staining also makes it less susceptible to variation based on antibody dilution or labeling intensity, as the pathologist can confirm that PHH3-labeled cells are also mitotic based on nuclear morphology.

Comparison of immunoreactivity of PHH3 and Ki-67 in cell cycle

Cell Cycle	PHH3	Ki-67
G0 phase	-	-
Interphase		
G1 phase	-	+
S phase	-	+
G2 phase	-	+
Mitosis phase		
Prophase	+	+
Metaphase	+	+
Anaphase	+	+
Telophase	+	+

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gurley, LR. Et al. Eur J Biochem 1978;84:1-15; Shibata, K, et al. J Biol Chem 1993;268:18431-4.
2. Hendzel, MJ, et al. J Biol Chem 1998;273:24470-8.
3. Colman H. et al. Am J Surg Pathol 2006;30:657-64.
4. Nasr MR and El-Zammar O. Am J Dermatopathol 2008;30:117-22.

Rabbit Polyclonal

0.1 ml, concentrate.....369A-14
0.5 ml, concentrate.....369A-15
1 ml, concentrate 369A-16
1 ml, prediluted 369A-17
7 ml, prediluted 369A-18
Positive control slides 369S

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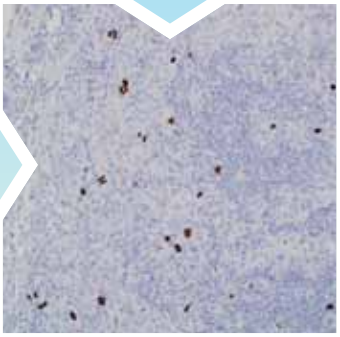

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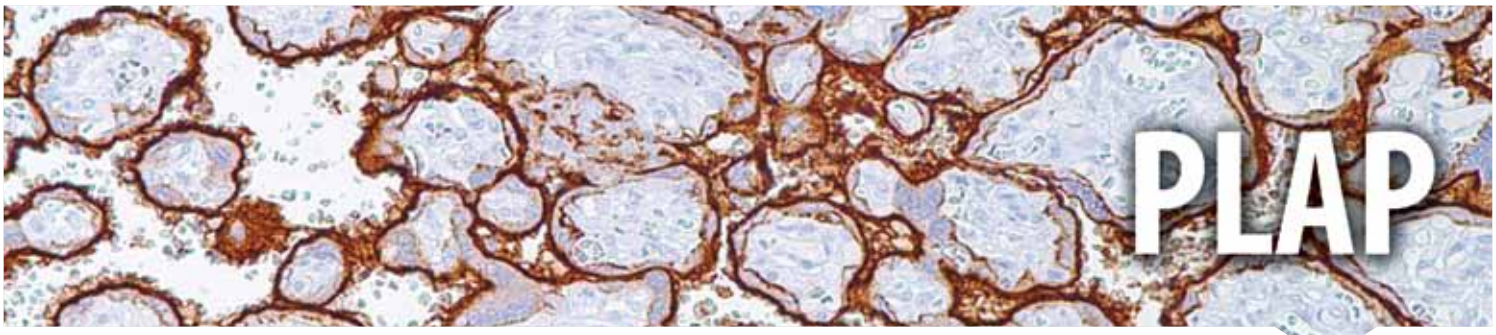

Anti-PLAP immunoreacts with germ cell tumors and can discriminate between these and other neoplasms. Somatic neoplasms e.g. breast, gastrointestinal, prostatic, and urinary cancers may also immunoreact with antibodies to PLAP. Anti-PLAP positivity in conjunction with anti-keratin negativity favors seminoma over carcinoma. Germ cell tumors are usually anti-keratin positive, but they regularly fail to stain with anti-EMA, whereas most carcinomas stain with anti-EMA. Anti-PLAP has been useful in the diagnosis of gestational trophoblastic disease. This antibody has shown cross-reaction with human intestinal alkaline phosphatase.

Germ Cell Tumors										
	PLAP	Oct-4	AFP	Vimentin	EMA	Inhibin	hPL	CD30	Glypican-3	CD117
Seminoma	+	+	-	+	-	-	-	-	-	+
Embryonal Carcinoma	+	+	-	-	-	-	-	+	-	-
Choriocarcinoma	+	-	-	-/+	+	-	+	-	+	-
Yolk Sac Tumor	+	-	+	-	-	-	-	-	+	-
Granulosa Cell Tumor	-	-	-	+	-	+	-	-	-	-
Hypercalcaemic Small Cell Carcinoma	-	-	-	-	+	-	-	-	-	-

Uterus: Trophoblastic Proliferations						
	PLAP	p57	hCG	hPL	CK Cocktail	Vimentin
Partial Mole	+	+	Weak, diffuse	Weak, diffuse	Strong, diffuse	-
Complete Mole	Weak, focal	-	Strong, diffuse	Weak, focal	Strong, diffuse	-
Choriocarcinoma	Weak, focal	-	Strong, diffuse	Weak, focal	Strong, diffuse	-/+
Placental Site Tumor	Strong, diffuse		Strong, focal	Strong, diffuse	Strong, diffuse	Strong, diffuse

Reactivity Paraffin

Visualization Cytoplasmic

Control Placenta

Stability Up to 36 mo. at 2-8°C

Isotype NB10: IgG/k
SP15: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Jacobsen GK, et al. Acta Path Microb Immuno Scand Sect A 1984;92:323-329
2. Paiva J, et al. Am J Pathol 1984;111:156-165
3. Burke AP, et al. Hum Path 1988;19:663-670

Mouse Monoclonal Clone: NB10

0.1 ml, concentrate.....321M-14
0.5 ml, concentrate.....321M-15
1 ml, concentrate 321M-16
1 ml, prediluted 321M-17
7 ml, prediluted 321M-18
Positive control slides 321S

Mouse Monoclonal Clone: NB10

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Rabbit Monoclonal Clone: SP15

0.1 ml, concentrate.....321R-14
0.5 ml, concentrate.....321R-15
1 ml, concentrate 321R-16
1 ml, prediluted 321R-17
7 ml, prediluted 321R-18
Positive control slides 321S

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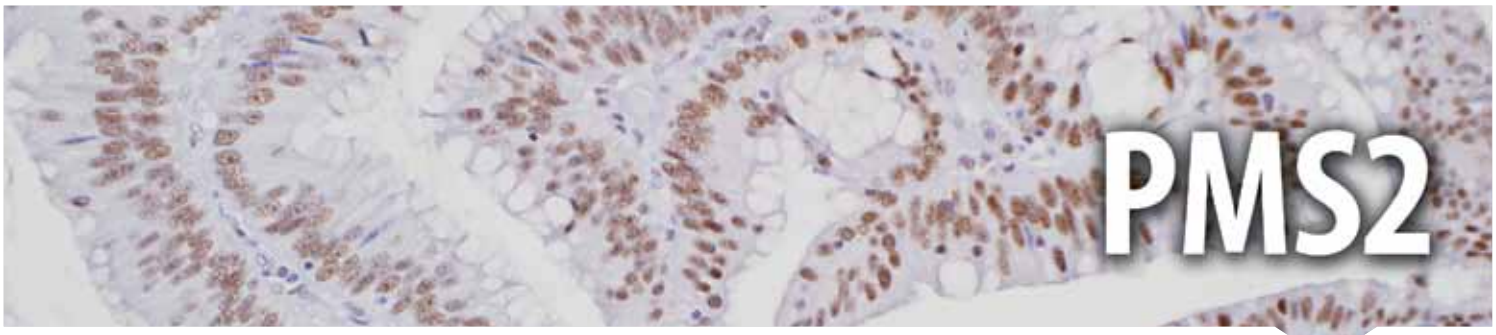

Microsatellite instability (MSI) is characterized by genome-wide alterations in short, repetitive DNA sequences. It is caused by defects in the nucleotide mismatch repair (MMR) system. Biologically, defective MMR results in a general increase in the mutation rate and the development of a "mutator phenotype."

In colorectal cancer (CRC), high-level MSI was first described in tumors from patients with hereditary non-polyposis colorectal cancer (HNPCC). In about 70% of cases, the HNPCC syndrome develops as a result of an inherited germline mutation of one allele, followed by a somatic mutation of the other allele in one of several mismatch repair genes: hMSH2, hMLH1, hPMS1, hPMS2, hMSH6, and hMLH3. Ninety-five percent of the mutations occur in hMSH2 or hMLH1.

Most colorectal carcinomas are thought to be of the chromosomal instable (CIN) or microsatellite stable (MSS) genotype. However, approximately 15% are thought to be of the MSI genotype, of which the HNPCC cases represent less than one-third. The MSS and MSI tumors also seem to differ in clinicopathologic features. The MSI tumors are more often located in the proximal colon and may be synchronous. On histologic examination, they are more often mucinous or poorly differentiated. The patients with MSI-type colorectal carcinomas are generally thought to have a better prognosis than patients with MSS-type colorectal carcinomas. On the other hand, MSS tumors are more often located in the distal colon and represent typical adenocarcinomas. Although the results published so far have been conflicting, some studies suggest that patients with MSI-type colorectal carcinomas seem to have a greater benefit from adjuvant chemotherapy than patients with MSS-type colorectal carcinomas.

Microsatellite Instability				
	PMS2	MLH1	MSH2	MSH6
Mismatch Repair Mutations	-	+	+	+

Reactivity Paraffin

Visualization Nuclear

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype EPR3947‡: IgG
MRQ-28: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 30-60 min. RT
  or *ultra*View™ 32 min. + AMP at 37° C

Please refer to product insert for complete protocol.

References

1. Chen JR, et al. Br J Surg. 2008 Jan;95(1):102-10.
2. de Jong AE, et al. Clin Cancer Res. 2004 Feb 1;10(3):972-80.
3. Gologan A, Sepulveda AR. Clin Lab Med. 2005 Mar;25(1):179-96. Review.

Rabbit Monoclonal Clone: EPR3947‡

1 ml, prediluted 288R-17
7 ml, prediluted 288R-18
Positive control slides 288S

Rabbit Monoclonal Clone: EPR3947‡

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Mouse Monoclonal Clone: MRQ-28

0.1 ml, concentrate.....288M-14
0.5 ml, concentrate.....288M-15
1 ml, concentrate 288M-16
1 ml, prediluted 288M-17
7 ml, prediluted 288M-18
Positive control slides 288S

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‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*

Pneumocystis jiroveci (carinii)

Pneumocystis jiroveci (carinii) is a fungal organism which is detected in human tissues (typically in lung in immunocompromised patients) in the trophozoite stage. Anti-pneumocystis jiroveci reacts with an epitope on the organism which is resistant to formalin, picric acid, paraffin, as well as alchohol and xylene. No cross-reactivity has been demonstrated with other fungi or parasitic organisms.

Reactivity Paraffin

Visualization Membranous (Trophozoite)

Control P. jiroveci Infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype IgM/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Silverberg SG, et al. Principles and Practice of Surgical Pathology and Cytopathology, 3rd edition. 1997; p. 182 – 185.
2. Linder E, et al. J Immunol Methods 1987;98:57-62.

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For IVD product, please remove the "ASR" suffix from the end of the catalog number when ordering.

For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Mouse Monoclonal
Clone: 3F6

0.1 ml, concentrate	219M-14 (ASR)
0.5 ml, concentrate	219M-15 (ASR)
1 ml, concentrate	219M-16 (ASR)
1 ml, prediluted	219M-17 (ASR)
7 ml, prediluted	219M-18 (ASR)
Positive control slides	219S

ASR†

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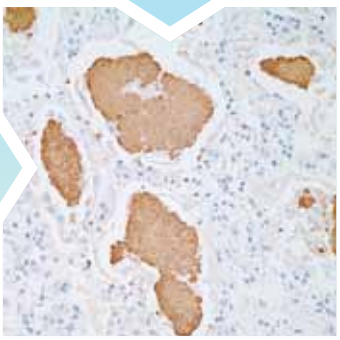
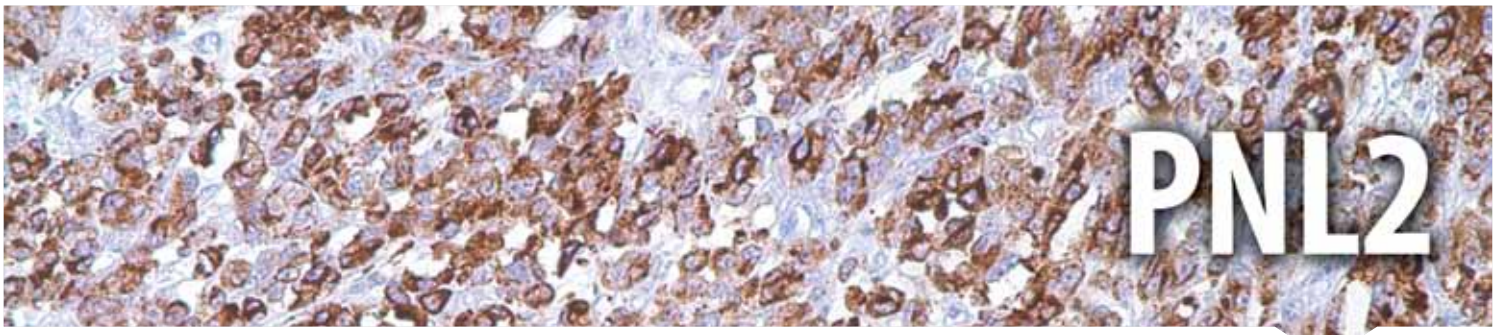


* *ultraView is a trademark of Roche.*



Anti-PNL2 is a novel monoclonal antibody, which has recently been introduced as an immunohistochemical reagent to stain melanocytes and tumors derived therefrom. Anti-PNL2 may be most useful because of its high sensitivity for metastatic melanoma (87%), as opposed to 76% for anti-HMB-45 and 82% for anti-MART-1. Anti-PNL2 yields a strong cytoplasmic staining of skin and oral mucosal melanocytes, and staining of granulocytes when used at high concentration. Anti-PNL2 labels intraepidermal nevi while the dermal component of compound nevi are largely non-reactive with anti-PNL2. Antibodies against PNL2, MART-1 (Melan A) and HMB-45 stain most clear cell sarcoma cells and a few cells in angiomyolipomas and lymphangioleiomyomatosis. Non-melanocytic lesions found to be positive with this marker include PEComas and melanotic Schwannoma. Anti-PNL2 is a useful antibody for the identification of melanomas and clear cell sarcomas. Differential diagnosis is aided by the results from a panel of antibodies, including antibodies against HMB-45, MART-1, tyrosinase, and MiTF.

Melanotic Lesions

	PNL2	S-100	HMB-45	MART-1	Tyrosinase	MiTF	CD63	Factor XIIIa	WT1	KBA.62
Adult Melanocytes	+	+	-	+	+	+	+	-		+
Junctional Nevus	+	+	+	+	+	+	-	-	+/-	+
Interdermal Nevus	+	+	-	+	+	+	-	-	+/-	+
Primary Melanoma	+	+	+	+	+	+	+	-		+
Metastatic Melanoma	+	+	+	+	+	+	+	-	+	+
Spindle Cell Melanoma	+	+	+	+	+	+	+	-	+	+
Angiomyolipoma	+	+	+	+	-	+	+	-		-
Adrenal Cortical Lesions	-	+	-	+	-	-	-	-		-
Intranodal Nevus Cells	+	+	-	+	+	+	-	-		+
Dermatofibroma	-	-	-	-	-	-	-	+		-

Spindle Cell Melanoma vs. Epithelioid Peripheral Nerve Sheath Tumor

	PNL2	S-100	HMB-45	Tyrosinase	NGFR	Collagen IV
Spindle Cell Melanoma	+	+	+	+	+	-
PNST	-	+	+	+	+	+
Adrenal Adenoma		+	+	+	-/+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Philippe Rochaix, et al. Mod Pathol, 2003; 16(5):481-490
2. Klaus J, et al. Am J Surg Pathol, 2005 March, 29(3):400-406
3. Luc G Morris, et al. Head Neck 30: 771-775, 2008

Mouse Monoclonal Clone: PNL2

0.1 ml, concentrate.....365M-94
0.5 ml, concentrate.....365M-95
1 ml, concentrate 365M-96
1 ml, prediluted 365M-97
7 ml, prediluted 365M-98
Positive control slides 365S

Mouse Monoclonal Clone: PNL2

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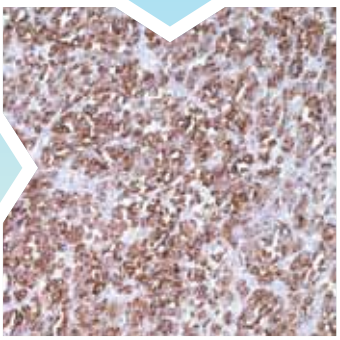

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Podoplanin (D2-40)

Podoplanin is a transmembrane mucoprotein (38 kD) recognized by the D2-40 monoclonal antibody. Podoplanin is selectively expressed in lymphatic endothelium as well as lymphangiomas, Kaposi sarcomas, and in a subset of angiosarcomas with probable lymphatic differentiation. Podoplanin has also been shown to be expressed in epithelioid mesotheliomas, hemangioblastomas, and seminomas.

Pleura: Adenocarcinoma vs. Mesothelioma										
	D2-40	Calretinin	CK 5&6	HBME-1	WT1	Caldesmon	CEA	Ep-CAM	TAG-72	TTF-1
Adenocarcinoma	-	-	-	-	-	-	+	+	+	+
Mesothelioma	+	+	+	+	+	+	-	-	-	-

Skin: Spindle Cell Tumors										
	D2-40	FLI-1	NGFR	MS Actin	Factor VIII	HHV-8	CK 8 & 18	CD34	CD31	Collagen IV
Spindle Squamous Cell Carcinoma	+	-	-	-	-	-	+	-	-	-
Spindle Cell Melanoma	+	+	+	-	-	-	-	-	-	-
Peripheral Nerve Sheath	+	-	-	+	-	-	-	-	-	-
Angiosarcoma	+/-	+	-	-	+	-	-	+	+	+/-
Kaposi's Sarcoma	+	+	-	-	+	+	-	+	+/-	+/-

Gonads: Germ Cell Tumors vs. Somatic Adenocarcinoma							
	D2-40	Oct-4	CK Cocktail	EMA	CD117	PLAP	Vimentin
Seminoma	+	+	-	-	+	+	+
Hypercalcaemic Small Cell Carcinoma	+	-	+	+	-	-	-

Renal Cell Carcinoma vs. Hemangioblastoma					
	D2-40	FLI-1	CD31	CK Cocktail	CD10
Metastatic RCC	-	-	-	+	+
Hemangioblastoma	+	+	+	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ordonez N. Adv Anat Pathol. 2006 Mar;13(2):83-8
2. Ordonez N. Hum Pathol. 2005 Apr;36(4):372-80
3. Niakosari F, et al. Arch Dermatol. 2005 Apr;141(4):440-4

Mouse Monoclonal Clone: D2-40

0.1 ml, concentrate.....322M-14
0.5 ml, concentrate.....322M-15
1 ml, concentrate 322M-16
1 ml, prediluted 322M-17
7 ml, prediluted 322M-18
Positive control slides 322S

Mouse Monoclonal Clone: D2-40

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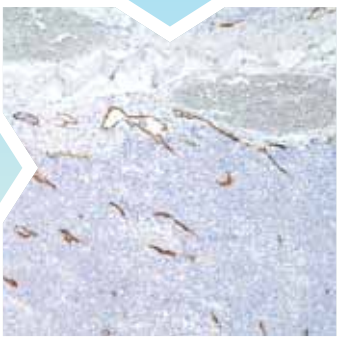

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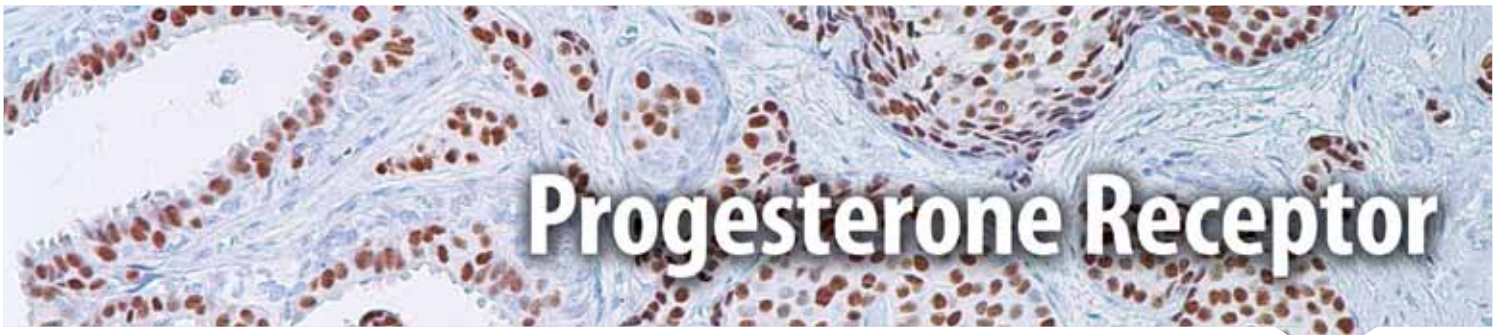

Progesterone Receptor

This anti-progesterone receptor reacts with progesterone receptor forms alpha and beta. This antibody stains nuclei in breast, ovarian and endometrial epithelia, as well as myometrial nuclei.

Reactivity Paraffin

Visualization Nuclear

Control Breast

Stability Up to 36 mo. at 2-8°C

Isotype SP42: IgG_1
Y85‡: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Dabbs DJ, et al. Diagnostic Immunohistochemistry 2002 Churchill Livingstone
2. Kell DL, et al. Applied Immunohisto-chemistry 1(4): 275-81,1993

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

For IVD product, please remove the "ASR" suffix from the end of the catalog number when ordering.

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Rabbit Monoclonal Clone: SP42

0.1 ml, concentrate	323R-34 (ASR)
0.5 ml, concentrate	323R-35 (ASR)
1 ml, concentrate	323R-36 (ASR)
1 ml, prediluted	323R-37 (ASR)
7 ml, prediluted	323R-38 (ASR)
Positive control slides	323S

ASR†

IVD

IVD

RUO

Rabbit Monoclonal Clone: Y85‡

0.1 ml, concentrate	323R-14 (ASR)
0.5 ml, concentrate	323R-15 (ASR)
1 ml, concentrate	323R-16 (ASR)
1 ml, prediluted	323R-17 (ASR)
7 ml, prediluted	323R-18 (ASR)
Positive control slides	323S

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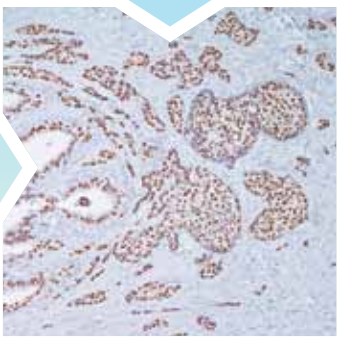
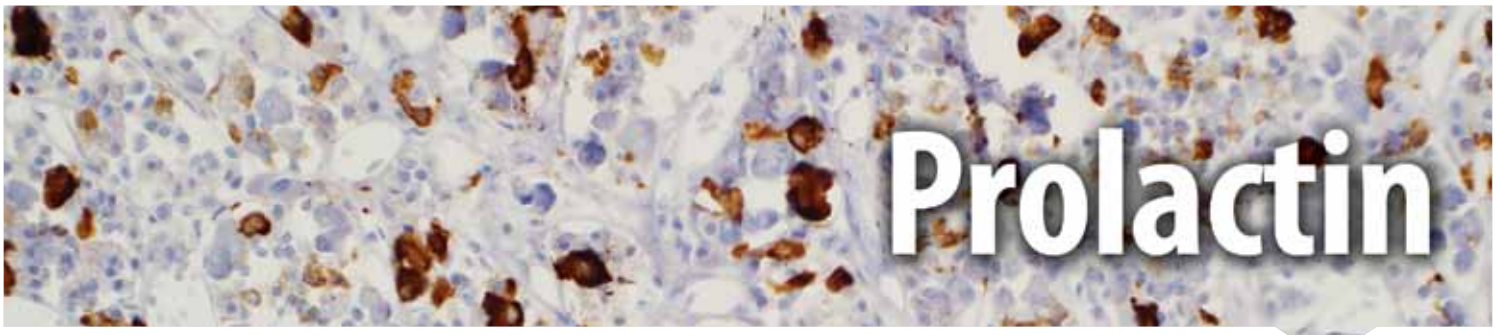


* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*



Prolactin

Prolactin (PRL) is a single-chain polypeptide of 226 amino acids with a molecular weight of about 24 kD. Prolactin plays a role in multiple processes including cell growth, reproduction, and immune function. The pituitary hormone PRL is involved in tumorigenesis in rodents and humans. PRL promotes proliferation, survival, and migration of cancer cells acting via the PRL receptor.

Anti-prolactin is a useful marker in classification of pituitary tumors and the study of pituitary disease. It reacts with prolactin-producing cells. Such prolactin-producing cells can also be found in prostate epithelium.

Pituitary Panel						
	Prolactin	ACTH	FSH	GH	LH	TSH
Pituitary	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Pituitary

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Asa SL, et al. Arch Pathol Lab Med 1982;106:360
2. Duello TM, et al. Amer J Anat 1980;158:463
3. Minniti G, et al. Surg Neurol. 2002 Feb;57(2):99-103
4. Popadic A, et al. Surg Neurol. 1999 Jan;51(1):47-54

Rabbit Polyclonal

0.1 ml, concentrate.....210A-14
0.5 ml, concentrate.....210A-15
1 ml, concentrate 210A-16
1 ml, prediluted 210A-17
7 ml, prediluted 210A-18
Positive control slides 210S

Rabbit Polyclonal

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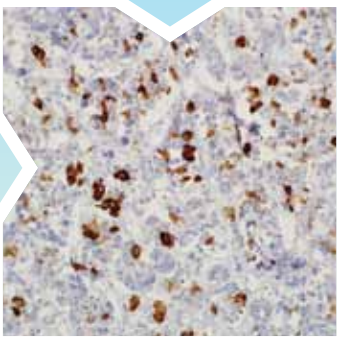

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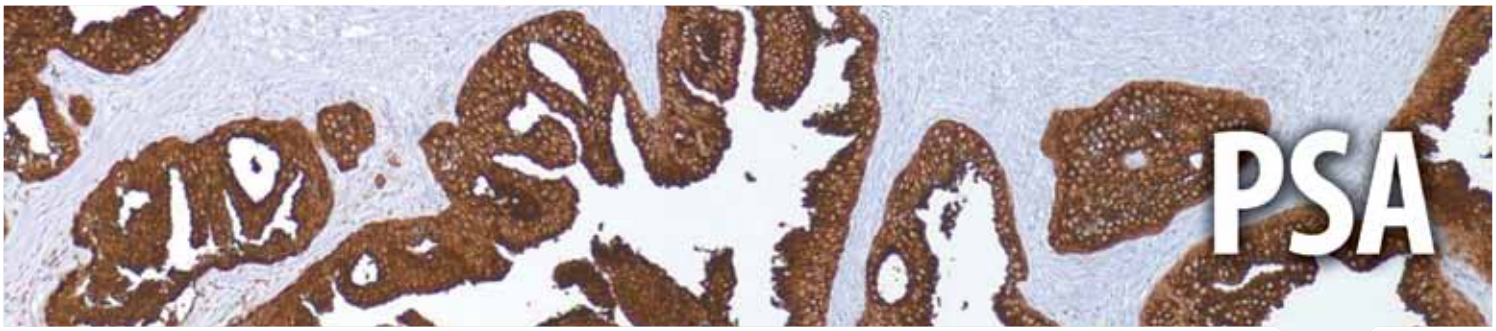

PSA is an antigen present in prostate tissue and in the majority of prostate carcinomas. This antibody recognizes primary and metastatic prostatic neoplasms and rarely tumors of nonprostatic origin. These include breast and a minority of salivary gland tumors. The antigen is a 33-34 kD glycoprotein that is restricted to epithelial cells of the prostate. An immunohistochemical study showed more than 95% of prostatic carcinomas stained with anti-PSA. PSA is demonstrable in the cytoplasm of acinar and ductal cells of benign prostate and prostate adenocarcinoma.

Prostate: Malignant vs. Benign								
	PSA	PSAP	Androgen Receptor	P504s	CK, 34βE12	p63	CK 5	CK 14
Prostate Carcinoma	+	+	+	+	-	-	-	-
Benign Prostate	+	+	+	-/+	+	+	+	+

Colon vs. Prostate Adenocarcinoma						
	PSA	CDX-2	CK 20	CEA	CA19-9	P504s
Colon Adenocarcinoma	-	+	+	+	+	+
Prostate Adenocarcinoma	+	-	-	-	-	+

Breast vs. Lung vs. Prostate Carcinoma					
	PSA	GCDFP-15	Mammaglobin	TTF-1	Napsin A
Breast Carcinoma	-	+	+	-	-
Lung Carcinoma	-	-	-	+	+
Prostate Carcinoma	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gallee MPW, et al. PC-82. Prostate 1986;9:33-45
2. Hadji M, et al. Cancer 1981;48(5):1229-1232
3. Battifora H, Princeton, NJ: Excepta Medica, 1986:2-11

For RUO product, please add an "RUO" suffix to the end of the catalog number when ordering.

Mouse Monoclonal Clone: ER-PR8

0.1 ml, concentrate.....324M-14
0.5 ml, concentrate.....324M-15
1 ml, concentrate 324M-16
1 ml, prediluted 324M-17
7 ml, prediluted 324M-18
Positive control slides 324S

Mouse Monoclonal Clone: ER-PR8

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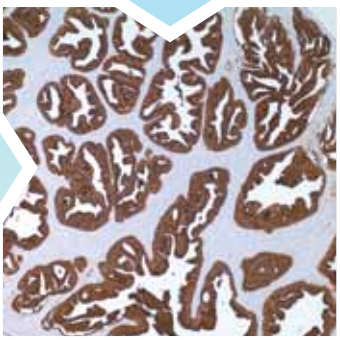

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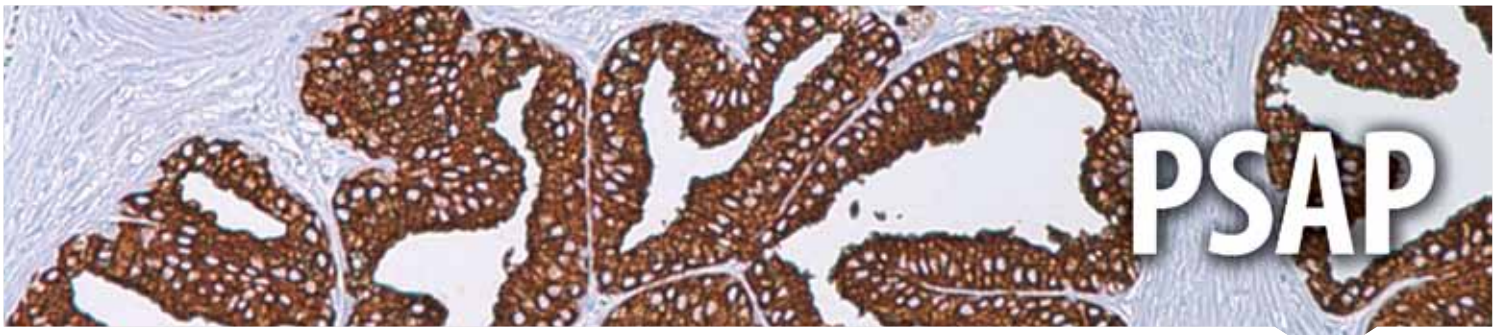

Anti-PSAP reacts with prostatic acid phosphatase in the glandular epithelium of normal and hyperplastic prostate, carcinoma of the prostate, and metastatic cells of prostatic carcinoma. This marker may be helpful in pinpointing the site of origin in cases of metastatic carcinoma of the prostate, and is considered a more sensitive marker than PSA. However, it also offers less specificity. Nevertheless, PSAP complements PSA in the right clinical context.

Prostate: Malignant vs. Benign

	PSAP	PSA	Androgen Receptor	P504s	CK, 34βE12	p63	CK 5	CK 14
Prostate Carcinoma	+	+	+	+	-	-	-	-
Benign Prostate	+	+	+	-/+	+	+	+	+

Carcinoma: Differential Diagnosis

	PSAP	Androgen Receptor	BCA-225	GCDFP-15	ER/PR	Mammaglobin	PSA	CD44
Salivary Duct Carcinoma	-	+	+	+	-	-	-	-
Breast Carcinoma	-	+(apocrine)	+	+	+/-	+	-	-
Prostate Carcinoma	+	+	-	-	-	-	+	+

Prostate Lesions

	PSAP	PSA	P504s	CK, 34βE12	p63	CK 7	Thrombo-modulin	Uroplakin III	PAX-2
Prostate Carcinoma	+	+	+	-	-	-	-	-	-
Urothelial Carcinoma	-	-	-	+	+	+	+	+	-
Nephrogenic Adenoma	-	-	+	+/-	-	+	-	-	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Prostate

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ansari MA, et al. Am J Clin Path 1981;76:94-98
2. Nadji M, Morales AR. Ann NY Acad Sci 1982;390:133-141
3. Kimura N, et al. Virchows Arch A 1986;4:247-251

Mouse Monoclonal Clone: PASE/4LJ

0.1 ml, concentrate.....326M-14
0.5 ml, concentrate.....326M-15
1 ml, concentrate 326M-16
1 ml, prediluted 326M-17
7 ml, prediluted 326M-18
Positive control slides 326S

Mouse Monoclonal Clone: PASE/4LJ

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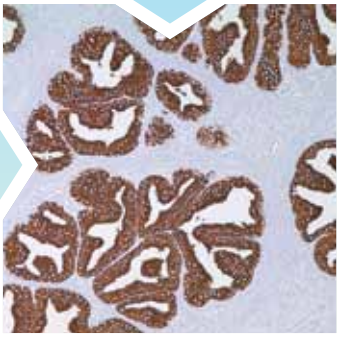

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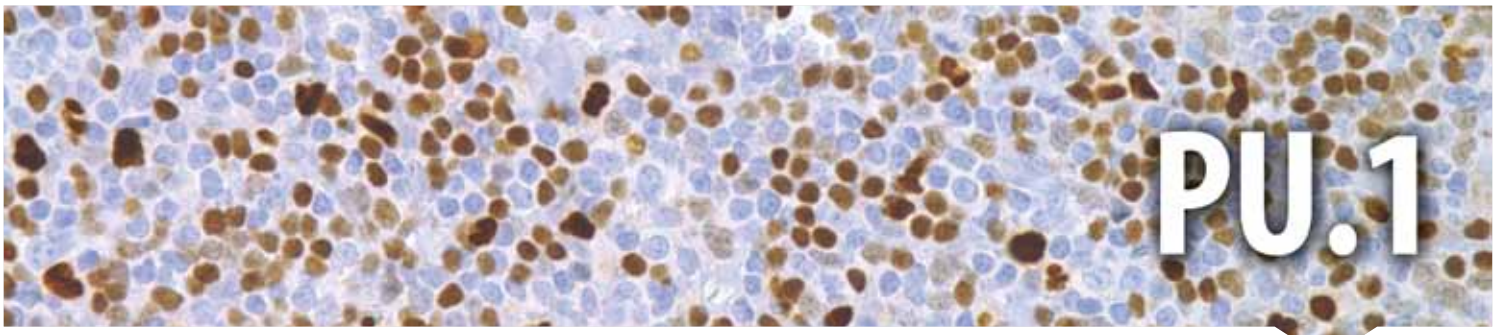

PU.1 is a transcription factor that has been shown to be important for normal B-cell development. PU.1 belongs to the Ets family of transcription factors. It is expressed in the myeloid lineage and in immature as well as mature B-lymphocytes, with the exception of plasma cells. PU.1 is essential during early B-cell differentiation. The absence of PU.1 results in total block of B-cell development at the pre-pro stage. PU.1 is expressed in germinal center B-cells and mantle B-cells. Various lymphomas are also positive for anti-PU.1 including the following: B-chronic lymphocytic leukemia, mantle cell lymphoma, follicular lymphoma, marginal zone lymphoma, diffuse large cell lymphoma, diffuse large B-cell lymphoma, and nodular lymphocyte predominant Hodgkin lymphoma. Torlakovic et al. have demonstrated a quantitative positive association between a high level of expression of germinal center antigens (including PU.1) and a longer overall survival and progression-free survival in the case of follicular lymphoma.

B-cell Lymphomas										
	PU.1	CD79a	BCL6	Oct-2	CD5	MUM1	CD10	CD23	Cyclin D1	TRAcP
Follicular	+	+	+	+	-	-	+	-	-	-
CLL/SLL	+	+	-	+	+	+	-	+	-	-
Mantle Cell	+	+	-	+	+	-/+	-	-	+	-
Marginal Zone	+	+	-	+	-	+	-	-	-	+/-
Lymphoplasmacytic		+	-		-	+	-	-	-	-
Diffuse Large Cell	+	+	+	+	-/+	+	-/+	-	-	-
Burkitt		+	+		-	-	+	-	-	-
Hairy Cell Leukemia		+	-		-		-	-	+(weak)/-	+

Hodgkin vs. Non-Hodgkin Lymphomas										
	PU.1	CD79a	CD15	CD30	Fascin	Granzyme B	BCL6	MUM1	ALK-1	EMA
Hodgkin Lymphoma, Classic	-	-	+	+	+	-	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	+	+	-	-	-	-	+	-/+	-	+
T-cell Rich LBCL	-	+	-	-	-	-	+	+	-	-
Anaplastic Large Cell Lymphoma	-	-	-	+	-	+	+/-	-	+	+

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hoefnagel JJ, et al. Mod Pathol. 2006 Sep;19(9):1270-6. Epub 2006 Jun 16.
2. Hromas R, et al. Blood. 1993 Nov 15;82(10):2998-3004
3. Loddenkemper C, et al. J Pathol. 2004 Jan;202(1):60-9.

Rabbit Monoclonal
Clone: EPR3158Y‡

0.1 ml, concentrate..... 328R-14
0.5 ml, concentrate..... 328R-15
1 ml, concentrate 328R-16
1 ml, prediluted 328R-17
7 ml, prediluted 328R-18
Positive control slides 328S

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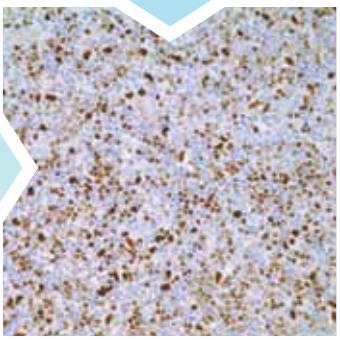

* *ultraView is a trademark of Roche.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*

Renal Cell Carcinoma

Anti-renal cell carcinoma (RCC) recognizes a 200 kD 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. Therefore, anti-RCC is a reliable tool for differentiating primary or metastatic renal cell carcinoma from non-renal tumors. It may be utilized as a marker for the differential diagnosis of eosinophilic renal tumors-granular variant of renal cell carcinoma, chromophobe renal cell carcinoma, and oncocytoma. Other tumors that may react with this antibody are parathyroid adenoma and an occasional breast carcinoma. Nephroblastoma, oncocytoma, mesoblastic nephroma, transitional cell carcinoma, and angiomyolipoma are not labeled with this antibody.

Kidney: Renal Epithelial Tumors								
	RCC	CD10	PAX-2	Vimentin	Ksp-cadherin	Parvalbumin	CD117	Ep-CAM
Clear Cell RCC	+	+	+	+	-	-	-	-
Chromophobe RCC	-/+	-/+	+	-	+	+	+	+
Oncocytoma	-	+/-	+	-	+/-	+	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Renal Cell Carcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: Protease
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Avery AK, et al. Am J Surg Pathol 24(2): 203-210, 2000
2. McGregor DK, et al. Am J Surg Pathol 25(12): 1485-1492, 2001

Mouse Monoclonal Clone: PN-15

0.1 ml, concentrate.....329M-94
0.5 ml, concentrate.....329M-95
1 ml, concentrate 329M-96
1 ml, prediluted 329M-97
7 ml, prediluted 329M-98
Positive control slides 329S

Mouse Monoclonal Clone: PN-15

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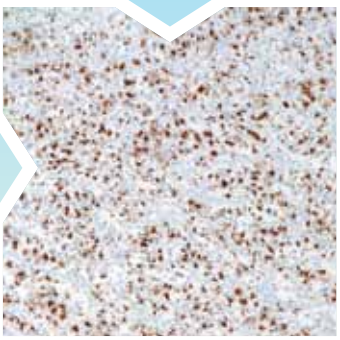

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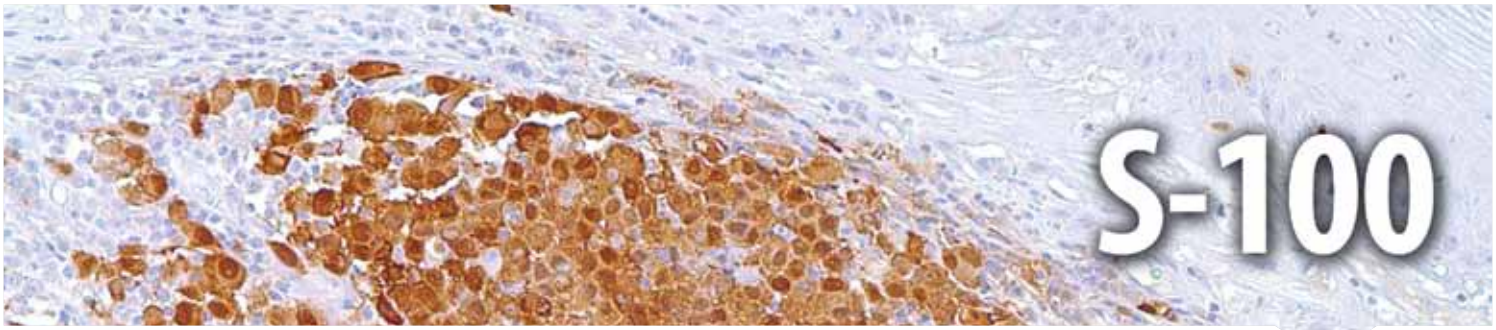

S-100 protein has been found in normal melanocytes, Langerhans cells, histiocytes, chondrocytes, lipocytes, skeletal and cardiac muscle, Schwann cells, epithelial and myoepithelial cells of the breast, salivary and sweat glands, as well as in glial cells. Neoplasms derived from these cells also express S-100 protein, albeit non-uniformly. A large number of well differentiated tumors of the salivary gland, adipose and cartilaginous tissue, and Schwann cell-derived tumors express S-100 protein. Almost all malignant melanomas and cases of histiocytosis X are positive for S-100 protein. Despite the fact that S-100 protein is an ubiquitous substance, its demonstration is of great value in the identification of several neoplasms, particularly melanomas.

Melanotic Lesions									
	S-100	SOX10	HMB-45	MART-1	Tyrosinase	MiTF	CD63	WT1	NGFR
Junctional Nevus	+	+	+	+	+	+	-	+/-	
Interdermal Nevus	+	+	-	+	+	+	-	+/-	
Primary Melanoma	+	+	+	+	+	+	+		-
Spindle Cell Melanoma	+	+	+	+	+	+	+	+	+
Angiomyolipoma	+	+	+	+	+	+	+		

Lymph Node				
	S-100	CD68	CD1a	Lysozyme
Langerhans Cell Histiocytosis	+	+	+	+
Sinus Histiocytosis with Massive Lymphadenopathy	+	+	-	+
Dermatopathic Lymphadenitis	+	-	+	+

CNS Tumors						
	S-100	GFAP	Vimentin	NGFR	CK Cocktail	INI-1
Astrocytoma	+	+	+	+	-	+
Glioblastoma	+	+	+	-	-	+
Ependymoma	+	+	-/+	+	-	+
Schwannoma	+	+	+	+	-	+

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Nakajima, et al. Ad J Surg Path 1982;6:715-727
2. Kuhn, et al. Am J Clin Path 1983;79:341-347
3. Monda L, et al. Hum Pathol

Mouse Monoclonal
Clone: 4C4.9

0.1 ml, concentrate.....330M-14
0.5 ml, concentrate.....330M-15
1 ml, concentrate 330M-16
1 ml, prediluted 330M-17
7 ml, prediluted 330M-18
25 ml, prediluted.....330M-10
Positive control slides 330S

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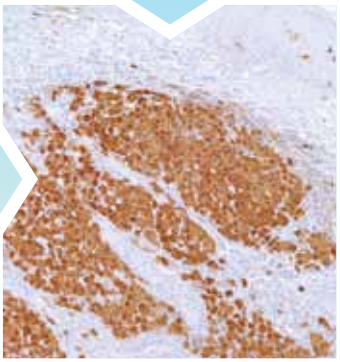
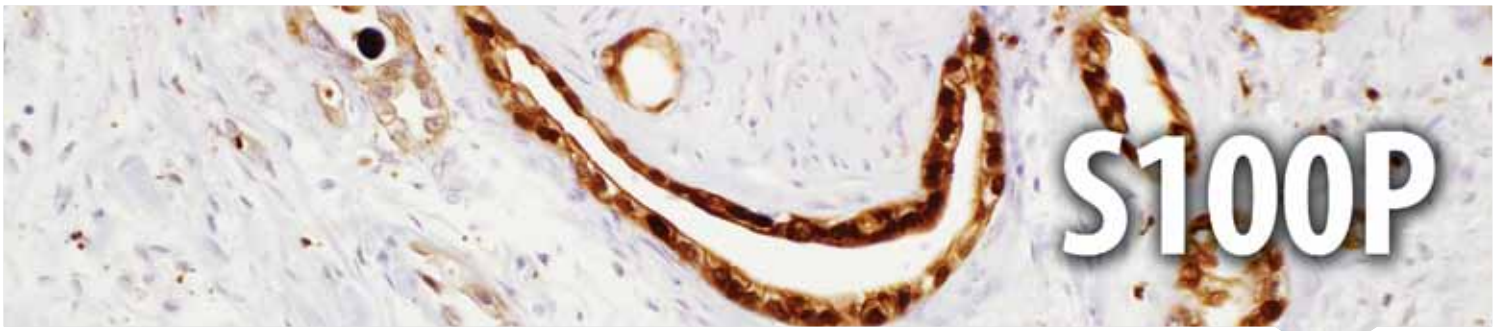


** ultraView is a trademark of Roche.*



S100P is a member of the S100 family of proteins. This family is expressed in a wide range of cells and is thought to play a role in cell cycle progression and in differentiation. S100P was initially identified in the placenta at rather high levels. Anti-S100P with nuclear or nuclear/cytoplasmic immunoreactivity can be seen in essentially 100% of pancreatic ductal adenocarcinoma in pancreatic resection, and fine needle aspiration biopsy specimens. Anti-S100P displays no staining in the benign pancreatic ducts and acinar glands. S100P has been detected in the cells of virtually all intraductal papillary mucinous neoplasms tested. S100P is clearly expressed in the invasive component of intraductal papillary mucinous neoplasms (100%), including perineural, lymphatic, and minimal invasion. Biopsies of bile ducts with primary adenocarcinomas (90%) have exhibited strong nuclear and cytoplasmic staining for anti-S100P, with none of the 32 benign biopsies exhibiting anti-S100P immunoreactivity. An immunohistochemical panel including anti-S100P can be helpful in distinguishing adenocarcinoma from reactive epithelial changes on challenging bile duct biopsies. The detection of S100P expression can help distinguish urothelial carcinomas from other genitourinary neoplasms that enter into the differential diagnosis.

Pancreas								
	S100P	Maspin	pVHL	SMAD4	CK7	CDX2	Synaptophysin	Chromogranin A
Pancreatic Ductal Adenocarcinoma	+	+	-	-	+	-	-	-
Pancreatic Endocrine Tumor	-	-	-	-	-	-	+	+
Acinar Cell Carcinoma	-	-	-	-	-	-	-	-
Benign Pancreatic Ducts	-	-	+	+	+	-	-	-

Carcinomas			
	S100P	CK, HMW	p63
Breast Carcinoma	-	+	-
Lung Adenocarcinoma	+	+	-/+
Lung SQ Carcinoma	-	+	+
Prostate Carcinoma	-	+	-
Renal Cell Carcinoma	-	+	-
Urothelial Carcinoma	+	+	+
Ovarian Carcinoma	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Pancreatic Ductal Adenocarcinoma, Urothelial Carcinoma, Placenta

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: Protease
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Lin, F et al. Am J Surg Pathol 2008;32:78-91.

Mouse Monoclonal Clone: 16/f5

0.1 ml, concentrate.....376M-94
0.5 ml, concentrate.....376M-95
1 ml, concentrate 376M-96
1 ml, prediluted 376M-97
7 ml, prediluted 376M-98
Positive control slides 376S

Mouse Monoclonal Clone: 16/f5

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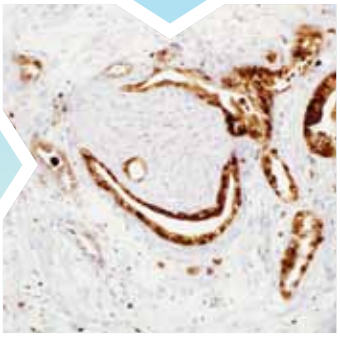

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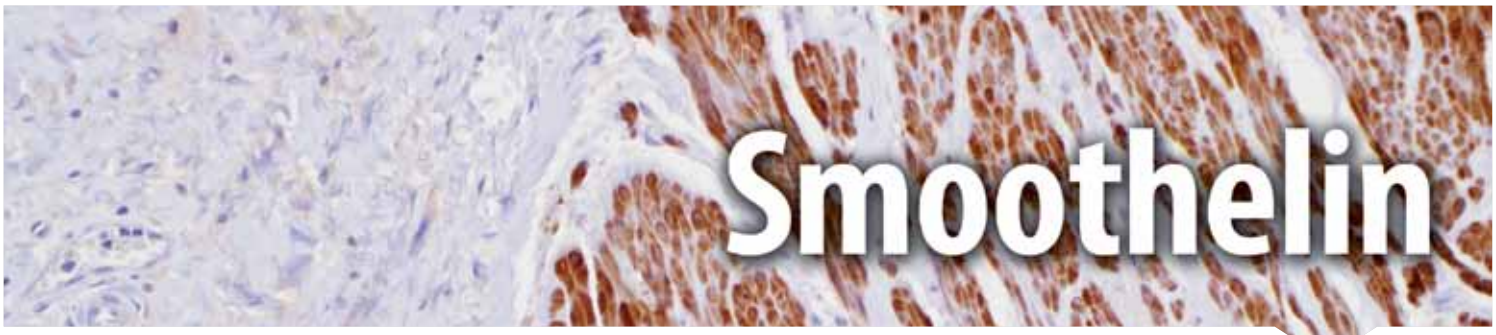

Smoothelin

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.

Distinguishing between bladder muscularis mucosae (MM) and muscularis propria (MP) muscle bundles is crucial for accurate staging of bladder carcinoma. Strong smoothelin expression is nearly exclusively observed in muscularis propria. 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 tumors. Differentiating between smooth muscle tumors and other mesenchymal neoplasms of the GI tract can be challenging in small biopsies. Anti-smoothelin immunostaining can be helpful in differentiating benign (+) from malignant smooth muscle tumors (-), and other mimics(-).

Bladder Tissue					
	Smoothelin	Actin, SM	Actin, MS	SMMHC	Calponin
Muscularis mucosae	-	+	+	+	+
Muscularis propria	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Bladder, Leiomyoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kramer, J et al. J Mol Med 1999; 77:294-8.
2. van der Loop, FT et al. J Cell Biol 1996; 134:401-411.
3. Maake, C et al. J Urol 2006; 175:1152-1157.

Mouse Monoclonal Clone: R4A

0.1 ml, concentrate.....377M-14
0.5 ml, concentrate.....377M-15
1 ml, concentrate 377M-16
1 ml, prediluted 377M-17
7 ml, prediluted 377M-18
Positive control slides 377S

Mouse Monoclonal Clone: R4A

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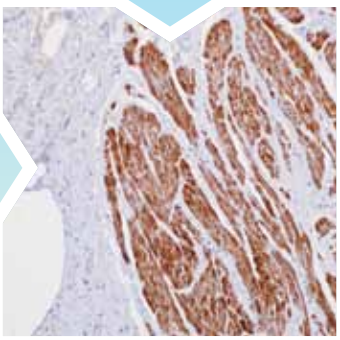

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Somatostatin (also known as growth hormone inhibiting hormone (GHIH) or somatotropin release-inhibiting factor (SRIF)) is a peptide hormone widely distributed throughout the body and is an important regulator of endocrine and nervous system function. Somatostatin can also be found in gastrointestinal and bronchopulmonary endocrine cells, thymic endocrine cells, and thyroid C-cells. Somatostatin suppresses gastric acid secretion, gallbladder contractions, and pancreatic enzyme secretion.

This antibody specifically stains the D-cells of the pancreatic islets of Langerhans and tumors arising from these cells. It recognizes somatostatin-containing cells in pancreatic tumors, islet cell hyperplasia, and islet cells originating in pancreatic ductules.

Pancreas										
	Somato-statin	Synapto-physin	Chromo-granin A	Gastrin	CD56	β-Catenin	CK 19	CA19-9	E-cadherin	CD10
Ductal Adenocarcinoma	-	-	-	-	-	+/-	+	+	+/-	+/-
Neuroendocrine Tumor	+/-	+	+	+/-	+	+	+/-	+/-	-	-
Solid Pseudopapillary Tumor		+	-	-	+	+	-	-	+(nuclear)	+
Acinic Cell Carcinoma		-	-	-	-	+	+	-/+	+	+/-
Pancreatoblastoma	-	-	+	-	+	+	-	-	-	-
Normal Pancreas	+	+	+	-	-	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Pancreas

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Krejs GJ, et al. N Eng J Med 1979;301:285-292
2. Somers G, et al. Gastroenterology 1983;85:1192-1198
3. Erlandsen SL. Williams and Wilkins, Baltimore 1980,pp140-155
4. Friesen, SR. N Eng J Med 1982;306:580-590

Rabbit Polyclonal

0.1 ml, concentrate.....332A-14
0.5 ml, concentrate.....332A-15
1 ml, concentrate 332A-16
1 ml, prediluted 332A-17
7 ml, prediluted 332A-18
Positive control slides 332S

Rabbit Polyclonal

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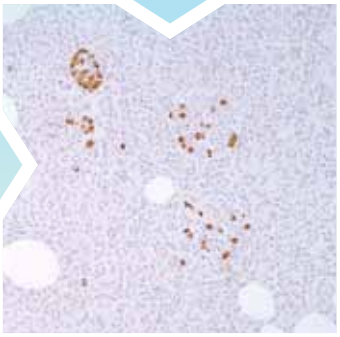

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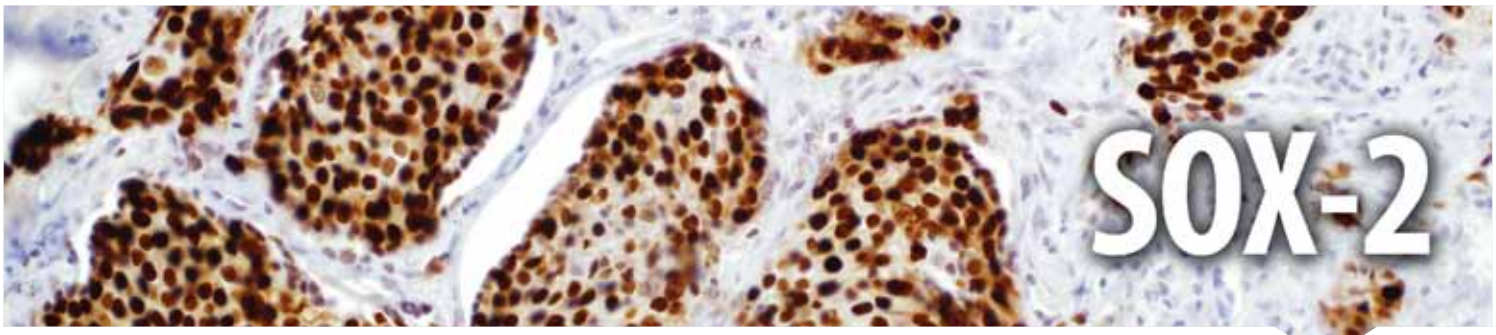

Anti-SOX-2 recognizes lung squamous cell carcinoma (LSCC). Extensive anti-SOX-2 staining is seen in over 90% of LSCC and largely parallels p63 expression. However, only 4.5% of lung adenocarcinoma (LACA) is positive for SOX-2. In a study by Sholl et al, 29% of LACA cases exhibited at least focal p63 expression. Combined p63 and SOX-2 expression was seen in 94% of LSCC and 12% of LACA with a statistically significant difference (P<0.0001) versus p63 alone. Anti-CK 5&6 had a good sensitivity but poor specificity for LSCC. Combined anti-CK 5&6 and anti-p63 positivity was seen in 93% of LSCC and 24% of LACA. Anti-CK 5&6+/anti-p63+/anti-SOX-2+ was detected in 93% of LSCC and only 9% of LACA. These results indicate that the sensitivity of anti-p63 is equally high but its specificity is similarly variable; it was seen at least focally in close to 30% of LACA. When used together, anti-p63+/anti-SOX-2+ applied to the same tumor cell population is >90% specific for LSCC. Anti-SOX-2 produced moderate-to-intense staining in all 50 cases of embryonal carcinoma components with strong anti-SOX-2 positivity and moderate-to-intense staining. The only other component that showed reactivity was the primitive neuroectodermal component in 11 of 14 (79%) of immature teratomas. In each of these positive staining foci, the staining varied from moderate-to-strong. Yolk sac tumor, seminoma, mature teratoma, choriocarcinoma, and IGCNU were uniformly negative, as were all the non-neoplastic parenchymal and stromal structures.

Lung				
	SOX-2	p63	Napsin A	TTF-1
Lung Adenocarcinoma	-	-/+	+	+
Lung SQ Carcinoma	+	+	-	-
Lung NET	-/+	-	-	+

Germ Cell Tumor						
	SOX-2	Oct-4	SALL4	CD117	CD30	PLAP
Seminoma	-	+	+	+	-	+
Embryonal Carcinoma	+	+	+	-	+	-

Reactivity Paraffin

Visualization Nuclear

Control Squamous Epithelium

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Sholl, LM et al. Appl Immunohistochem Mol Morphol 2010; 18:55–61.
2. Tsuta, K et al. J Thorac Oncol 2011; 6:1190–1199.
3. Gopalan, A et al. Mod Pathol 2009; 22:1066–1074.

Rabbit Monoclonal Clone: SP76

0.1 ml, concentrate.....371R-14
0.5 ml, concentrate.....371R-15
1 ml, concentrate 371R-16
1 ml, prediluted 371R-17
7 ml, prediluted 371R-18
Positive control slides 371S

Rabbit Monoclonal Clone: SP76

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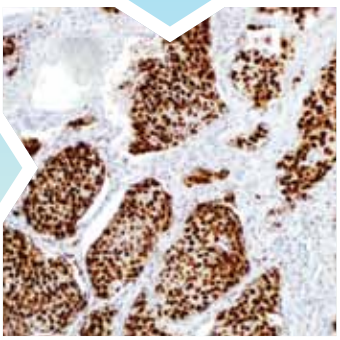

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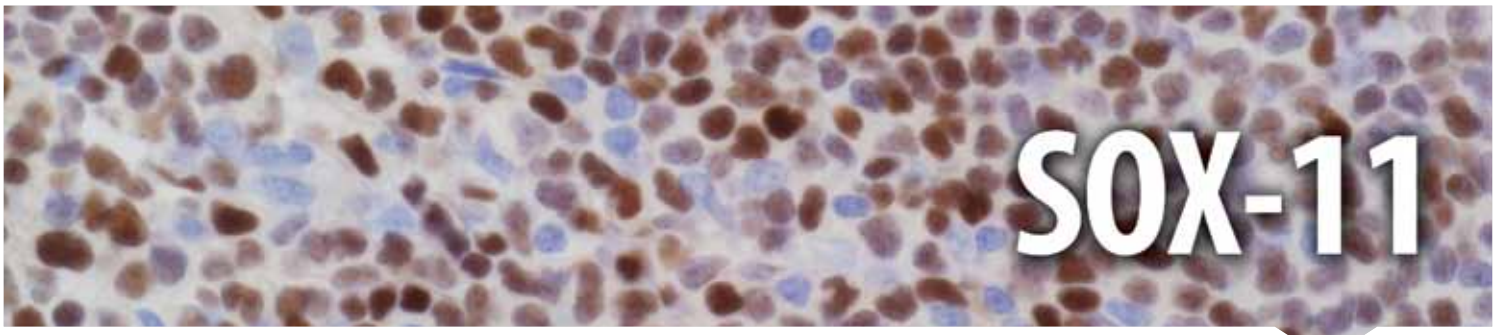

Mantle cell lymphoma (MCL) accounts for 5% to 10% of mature B-cell neoplasms and is an aggressive disease genetically characterized by overexpression of cyclin D1 (CCND1), an important regulator of the G1/S phase of the cell cycle, due to the specific translocation t(11;14)(q13;q32). Cyclin D1 overexpression is the hallmark of MCL. However, approximately 5%-10% of MCLs lack cyclin D1 expression and may be misdiagnosed by overreliance on cyclin D1 IHC. Recently, SOX-11 protein expression in MCL has been investigated by immunohistochemistry. Two studies have evaluated SOX-11 expression in MCL and found strong nuclear expression of SOX-11 in almost all cyclin D1-positive MCL (93%-100%). In all 13 cases of cyclin D1-negative MCL, SOX-11 was strongly expressed. The authors also found that blastoid variant of MCL can be differentiated from CD5+ diffuse large B cell lymphoma, which was negative for SOX-11. In summary, nuclear protein expression of SOX-11 is highly associated with cyclin D1-positive and negative MCL. The detection of this transcription factor is a useful biomarker for identifying true cyclin D1-negative MCL. SOX-11 IHC is of value in further defining pathologic features of CD5+ DLBCL. Routine use of SOX-11 in cases of suspected CD5+ DLBCL might help identify additional cases of cyclin D1-negative blastoid MCL. SOX-11 can also be detected in some BL, LBL and T-PLL, although the different morphological and phenotypic features of these malignancies allow differentiation from cyclin D1-negative MCL.

Neoplasm						
	SOX-11	CD20	CD5	CD10	CD23	Cyclin D1
MCL	+	+	+	-	-	+
FL	-	+	-	+	-	-
SLL/CLL	-	+	+	-	+	-
MZL	-	+	-	-	-	-
LBL	+	+	-	+/-	-	-
BL	-/+	+	-	-	-	-
CD5+ DLBCL	-	+	+	+	-	-
Blastoid Variant MCL	+	+	+	-	-	+

Reactivity Paraffin

Visualization Nuclear

Control Normal Tonsil, Mantle Cell Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Mozos, A, et al. Haematologica 2009; 84:1555-1561.
2. Zeng, W, et al. Am J Surg Pathol 2012; 36:214-219.

Mouse Monoclonal
Clone: MRQ-58

0.1 ml, concentrate..... 382M-14
0.5 ml, concentrate..... 382M-15
1 ml, concentrate 382M-16
1 ml, prediluted 382M-17
7 ml, prediluted 382M-18
Positive control slides 382S

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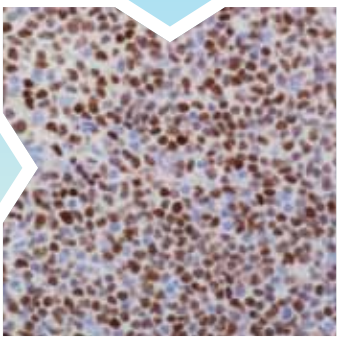

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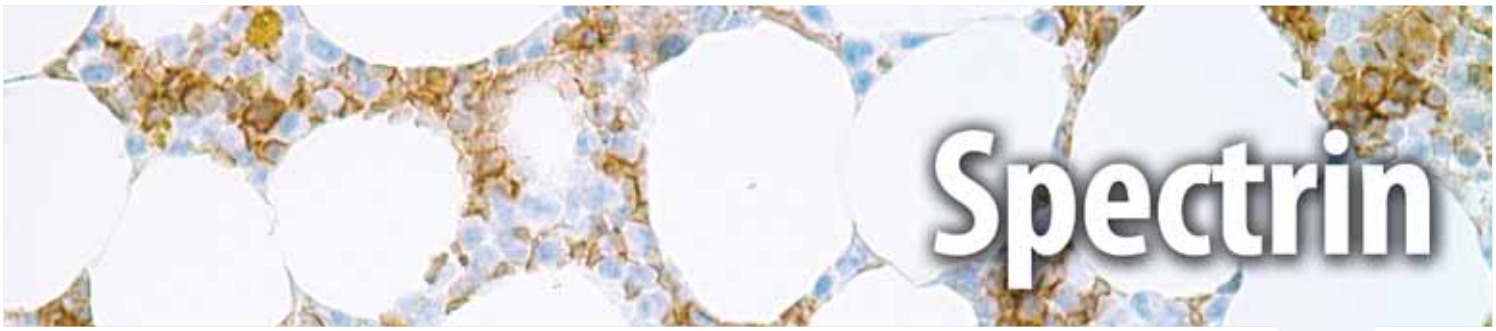

Spectrin is an actin-crosslinking and molecular scaffold protein that links the plasma membrane to the actin cytoskeleton and functions in the determination of cell shape, arrangement of transmembrane proteins, and organization of organelles. It is a tetramer made up of alpha-beta dimers linked in a head-to-head arrangement. The gene is one member of a family of alpha-spectrin genes. The encoded protein is primarily composed of 22 spectrin repeats which are involved in dimer formation. It forms weaker tetramer interactions than non-erythrocytic alpha spectrin, which may increase the plasma membrane elasticity and deformability of red blood cells. Mutations in the gene result in a variety of hereditary red blood cell disorders, including elliptocytosis type 2, pyropoikilocytosis, and spherocytic hemolytic anemia.

Anti-spectrin is useful in the diagnosis of erythroid leukemias.

Acute Myeloid Leukemia										
	Spectrin	MPO	CD68	Factor VIII	CD61	BOB.1	Oct-2	CD34	CD43	Lysozyme
Acute Myeloid, M0	-	-	-	-	-	-	-	+	+	+
Acute Myeloid, M1&2	-	+	+	-	-			-	+	+
Promyelocytic, M3	-	+	-	-	-	+	+	-	+	-
Myelomonocytic, M4	-	+	+	-	-	-	+	+	+	+
Monoblastic, M5	-	+	+	-	-	-	+	-/+	+	+
Acute Erythroid, M6	+	+	-	-	-	-	-	-/+		
Megakaryoblastic, M7	-	-	-	+	+	+/-	-	-		

Reactivity Paraffin

Visualization Membranous

Control Bone Marrow

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Sadahira Y, et al. J Clin Pathol. 1999 Dec; 52(12): 919-21
2. Nehls V, et al. Am J Pathol. 1993 May; 142(5): 1565-73
3. Muller M, et al. J Vet Med A Physiol Pathol Clin Med. 2001 Feb;48(1):51-7

Mouse Monoclonal Clone: RBC2/3D5

0.1 ml, concentrate.....333M-14
0.5 ml, concentrate.....333M-15
1 ml, concentrate 333M-16
1 ml, prediluted 333M-17
7 ml, prediluted 333M-18
Positive control slides 333S

Mouse Monoclonal Clone: RBC2/3D5

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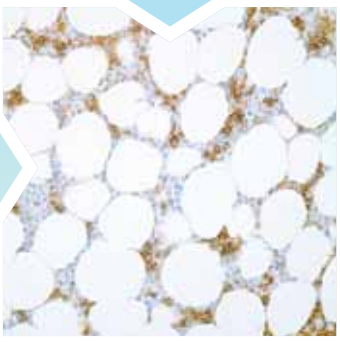

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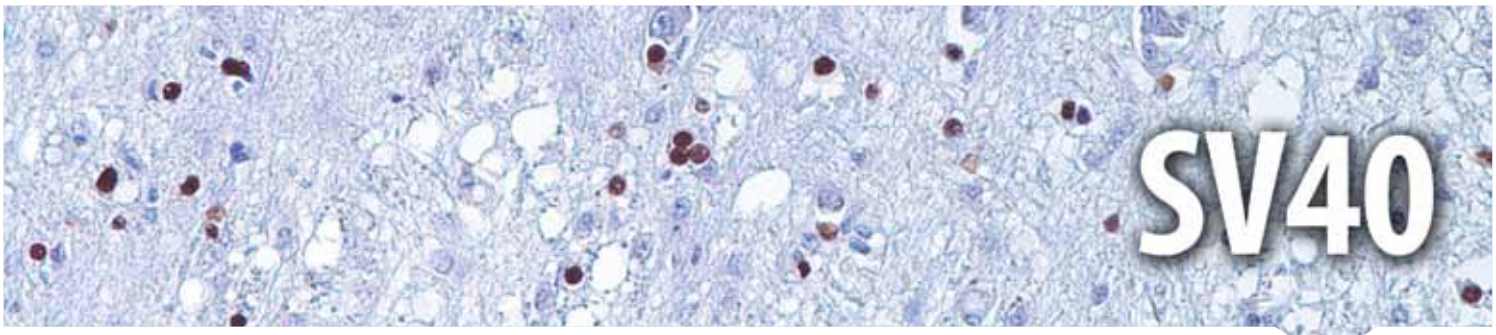

SV40, Simian Virus 40, is a polyomavirus that is found in both monkeys and humans. Like other polyomaviruses, SV40 is a DNA virus that has the potential to cause tumors. SV40 is believed to suppress the transcriptional properties of tumor-suppressing p53 in humans through the SV40 large T-antigen and SV40 small T-antigen. It is generally assumed that large T-antigen is the major protein involved in neoplastic processes and the large T-antigen predominantly exerts its effect through deregulation of tumor suppressor p53, which is responsible for initiating regulated cell death ("apoptosis"), or cell cycle arrest when a cell is damaged. A mutated p53 gene may contribute to uncontrolled cellular proliferation, leading to a tumor. The hypothesis that SV40 might cause cancer in humans has been a particularly controversial area of research. Some research has suggested that SV40 is associated with brain tumors, bone cancers, non-Hodgkin lymphoma, and malignant mesothelioma. Anti-SV40 recognizes the large T-antigen of SV40.

Reactivity Paraffin

Visualization Nuclear

Control SV40-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Gurney EG, et al. J Virol. 1980 34:752-763.
2. Huang H, et al. Brain Pathol. 1999,9:33-42.
3. Arrington AS, Butel JS. Molecular and Clinical Perspectives 2001; 461-489.

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Note: Ventana® 50 Test Dispenser not available in U.S.

Mouse Monoclonal Clone: MRQ-4

0.1 ml, concentrate. . . 351M-14 (ASR)
0.5 ml, concentrate. . . 351M-15 (ASR)
1 ml, concentrate . . . . 351M-16 (ASR)
1 ml, prediluted . . . . . 351M-17 (ASR)
7 ml, prediluted . . . . . 351M-18 (ASR)
Positive control slides . 351S

Mouse Monoclonal Clone: MRQ-4

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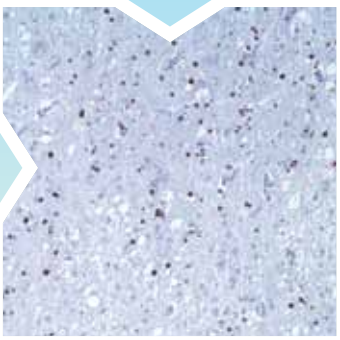

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Anti-synaptophysin reacts with neuroendocrine cells of human adrenal medulla, carotid body, skin, pituitary, thyroid, lung, pancreas, and gastrointestinal mucosa. Positive staining is seen in neurons of the brain, spinal cord, retina, Paneth cells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

Adrenal Tumors	Synaptophysin	Inhibin	Calretinin	MART-1	Chromogranin A	CD56
Pheochromocytoma	+	-	-	-	+	+
Adrenocortical Carcinoma	-/+	+	+	+	-	+
Adrenocortical Adenoma	-/+	+	+	+	-	+

CNS Tumors	Synapto-physin	GFAP	Neuro-filament	S-100	CK Cocktail	EMA	Vimentin	NGFR	INI-1
Central Neurocytoma	+	-	-	-	-	-	-	+	+
Neuroblastoma	+	+/-	+	+/-	-	-	+	+	+
Pineocytoma	+	-	-	-	-	-		-	+
Metastatic Carcinoma	-	-	-	-	+	+	-/+	-	+

Pancreas	Synapto-physin	Chromo-granin A	Insulin	Glucagon	Gastrin	Somato-statin	CD10	CD56	β-Catenin	PGP 9.5
Neuroendocrine Tumor	+	+	+/-	+/-	+/-	+/-	-	+	+	+
Solid Pseudopapillary Tumor	+	-	-	-	-		+	+	+	-
Normal Pancreas	+	+	+	+	-	+	-	-	+	-

Reactivity
Paraffin

Visualization
Cytoplasmic

Control
Pancreas

Stability
Up to 36 mo. at 2-8°C

Isotype
MRQ-40: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Navone F, et al. J Cell Biol 1986;103:2511-2527
2. Wiedenmann B, et al. Cell 1985;41:1017-1028
3. Kayser K, et al. Path Res Pract 1988;183:412-417

Rabbit Monoclonal Clone: MRQ-40

0.1 ml, concentrate.....336R-94
0.5 ml, concentrate.....336R-95
1 ml, concentrate 336R-96
1 ml, prediluted 336R-97
7 ml, prediluted 336R-98
Positive control slides 336S

Rabbit Monoclonal Clone: MRQ-40

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Rabbit Polyclonal

0.1 ml, concentrate.....336A-74
0.5 ml, concentrate.....336A-75
1 ml, concentrate 336A-76
1 ml, prediluted 336A-77
7 ml, prediluted 336A-78
25 ml, prediluted.....336A-70
Positive control slides 336S

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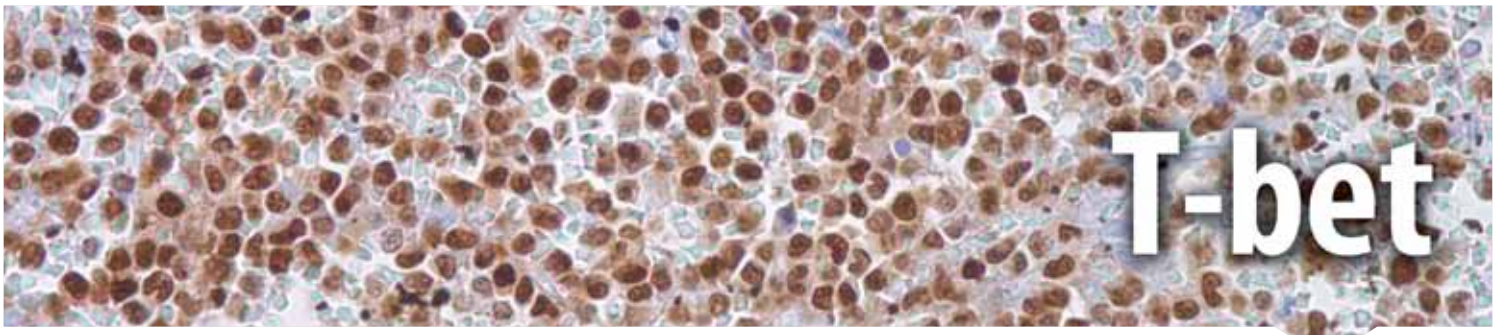

T-bet, a T-box transcription factor, is expressed in CD4+ T-lymphocytes committed to T-helper (Th)1 T-cell development from naïve T-helper precursor cells (Thp) and redirects Th2 T cells to Th1 development.

Anti-T-bet is a marker of mature T-cells and is expressed at very low levels in Th cells and is absent in precursor T-lymphoblastic leukemia/lymphoma cells. Scattered small lymphocytes in the interfollicular T-cell zone of lymphoid tissue, including tonsil, lymph node, and spleen exhibit nuclear staining for T-bet, with no T-bet staining being observed in germinal centers, mantle or marginal zones.

T-bet is expressed in a significant subset of B-cell lymphoproliferative disorders, particularly at an early stage of B-cell development (precursor B-cell lymphoblastic leukemia/lymphoblastic lymphoma), and B-cell neoplasms derived from mature B cells, including CLL/SLL, marginal zone lymphoma, and hairy cell leukemia. In contrast, 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. Anti-T-bet is a useful marker for the diagnosis and subtyping of B-cell and T-cell lymphoproliferative disorders. T-bet is not expressed in precursor T-cell lymphoblastic lymphoma/leukemia.

B-cell Lymphomas									
	T-bet	CD79a	BCL2	BCL6	CD10	CD23	Cyclin D1	IgD	MUM1
Follicular	-	+	+	+	+	-	-	+	- /+
CLL/SLL	+ /-	+	+	-	-	+	-	+	+
Mantle Cell	-	+	+	-	-	-	+	+	-
Marginal Zone BCL	+	+	+	-	-	-	-	-/+	+
Lymphoplasmacytic	+	+	+	-	-	-	-	-	+
Diffuse Large Cell Lymphoma	-	+	+	+	-	-	-	-	+
Burkitt Lymphoma	-	+	-	+	+	-	-	-	-
Hairy Cell Leukemia	+	+	+	-	-	-	+(weak)/-	-	

Reactivity Paraffin

Visualization Nuclear

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Szabo SJ, Kim ST, et al. Cell 2000; 100(6):665-69.
2. Dorfman DM, et al. Am J Clin Pathol 2004;122:292-7.
3. Johrens, Korinna MD, et al. Am J Surg Pathol. 2007;31:1181-85.

Rabbit Monoclonal Clone: MRQ-46

0.1 ml, concentrate.....368R-74
0.5 ml, concentrate.....368R-75
1 ml, concentrate 368R-76
1 ml, prediluted 368R-77
7 ml, prediluted 368R-78
Positive control slides 368S

Rabbit Monoclonal Clone: MRQ-46

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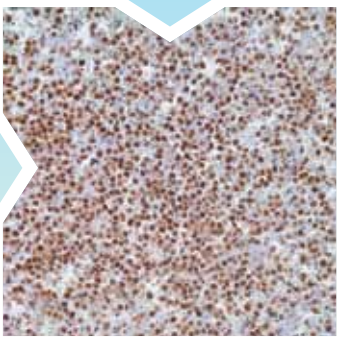

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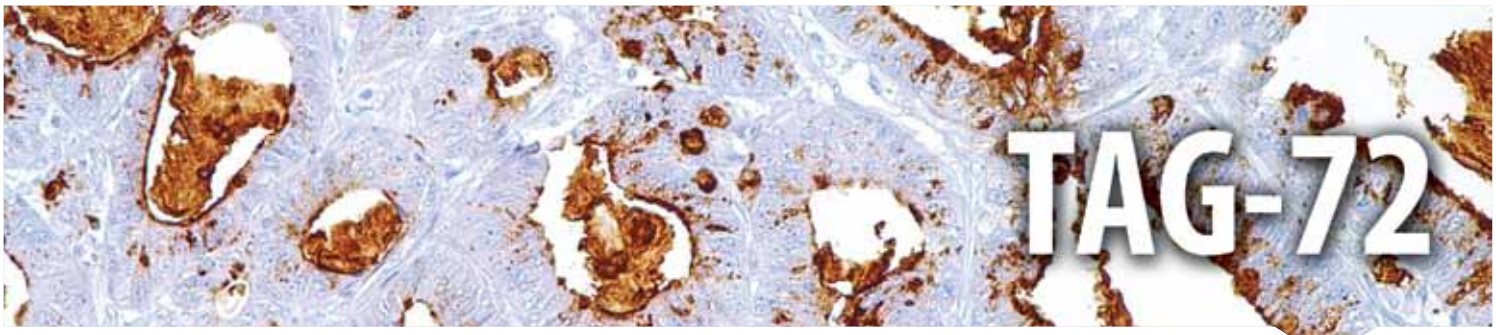

Anti-TAG-72 (B72.3) is monoclonal antibody directed against a high molecular weight glycoprotein known as tumor-associated glycoprotein-72 (TAG-72). The antigen is expressed in a limited range of benign tissue but a wide range of adenocarcinomas.

The antigen is usually expressed by adenocarcinomas, but is usually negative in mesotheliomas. Studies have shown that this antibody has 80% sensitivity and 93% specificity for pulmonary adenocarcinoma. Therefore, TAG-72 is a useful marker to distinguish between mesothelioma and adenocarcinoma. However, false positive reactions can occur so results must be interpreted with the utmost caution. This antibody may be useful in the differentiation of non-small cell carcinomas from small cell carcinomas of the lung. The combined use of anti-TAG-72 and anti-GCDFP-15 is valuable in the diagnosis of apocrine carcinoma.

Pleura: Adenocarcinoma vs. Mesothelioma										
	TAG-72	Calretinin	CK 5&6	D2-40	HBME-1	Caldesmon	Ep-CAM	E-cadherin	TTF-1	CEA
Adenocarcinoma	+	-	-	-	-	-	+	+	+	+
Mesothelioma	-	+	+	+	+	+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Lung Adenocarcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Thor A, et al. Cancer Res 1986;46:3118
2. Johnston WW, et al. Hum Pathol 1986;17:501-513
3. Lundy J, et al. Ann Aurg 1986;203:399-402

Mouse Monoclonal
Clone: B72.3

0.1 ml, concentrate.....337M-84
0.5 ml, concentrate.....337M-85
1 ml, concentrate 337M-86
1 ml, prediluted 337M-87
7 ml, prediluted 337M-88
Positive control slides 337S

Mouse Monoclonal
Clone: B72.3

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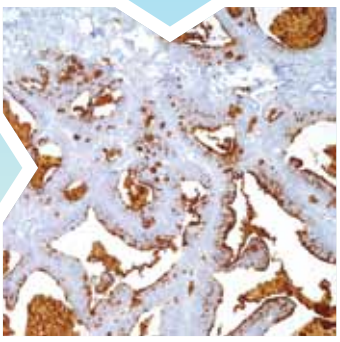

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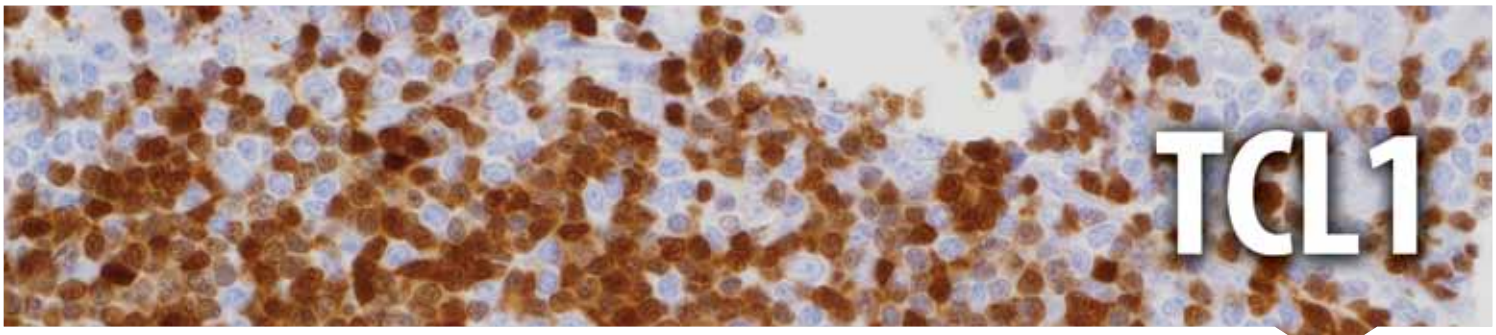

T-cell leukemia/lymphoma protein 1 (TCL1, TCL1A, p14TCL1) is a 14 kDa product of the TCL1 gene that is involved in T-cell prolymphocytic leukemia (T-PLL). TCL1 protein is normally found in the nucleus and cytoplasm of lymphoid lineage cells during early embryogenesis. Chromosomal translocations may lead to overexpression of TCL1, resulting in T-cell leukemia and B-cell lymphoma. TCL1 binds to a novel site in the pleckstrin homology (PH) domain, resulting in activation and nuclear translocation of Akt by overexpressed TCL1 which may promote an anti-apoptotic response; this may normally serve to promote growth during development but may lead to malignancy when TCL1 is overexpressed. TCL1 is expressed in differentiated B-cells under both reactive and neoplastic conditions, 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 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.

B-cell Lymphomas										
	TCL1	Annexin A1	CD79a	PAX-5	BCL6	CD5	CD10	CD23	Cyclin D1	MUM1
Follicular	+	-	+	+	+	-	+	-	-	-
CLL/SLL	+	-	+	+	-	+	-	+	-	+
Mantle Cell	+	-	+	+	-	+	-	-	+	-/+
Marginal Zone	-	-	+	+	-	-	-	-	-	+
Lymphoplasmacytic	+	-	+	+	-	-	-	-	-	+
Diffuse Large Cell	+	-	+	+	+	-/+	-/+	-	-	+
Burkitt	+	-	+	+	+	-	+	-	-	-
Hairy Cell Leukemia		+	+	+	-	-	-	-	+(weak)/-	

T-cell Lymphomas										
	TCL1	CD2	CD3	CD25	CD45RO	CD7	CD8	CD4	CD5	PD-1
NK	+	+	+	+	+	-/+	-	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Nuclear

Control Tonsil, B-cell Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Maria Grazia Narducci, et al. Cancer Research. 2000 April, 60:2095-2100.
2. Roos J, Henning I, et al. Pathobiology. 2001; 69 (2):59-66.
3. Pescarmona E, et al. Histopathology. 2006 Oct; 49 (4):343-8.

Mouse Monoclonal Clone: MRQ-7

0.1 ml, concentrate..... 357M-14
0.5 ml, concentrate..... 357M-15
1 ml, concentrate 357M-16
1 ml, prediluted 357M-17
7 ml, prediluted 357M-18
Positive control slides 357S

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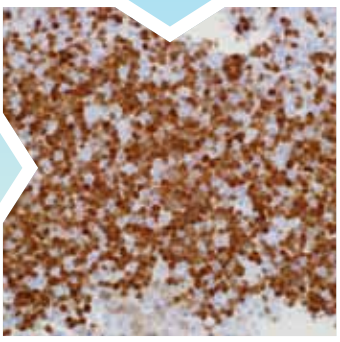

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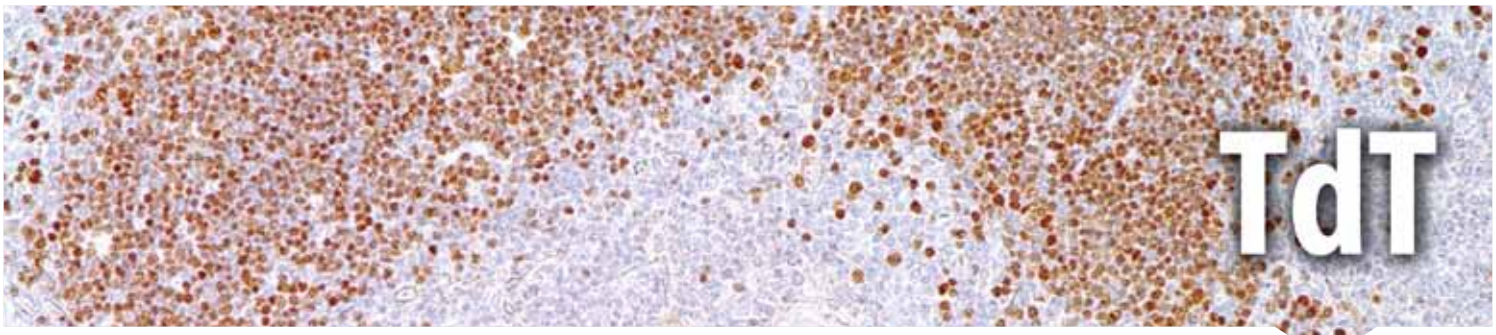

TdT (Terminal deoxynucleotidyl transferase) gene is a member of the DNA polymerase type-X family and encodes a template-independent DNA polymerase that catalyzes the addition of deoxynucleotides to the 3′-hydroxyl terminus of oligonucleotide primers. TdT protein is expressed in a restricted population of normal and malignant pre-B and pre-T lymphocytes during early differentiation, where it generates antigen receptor diversity by synthesizing non-germ line elements (N-regions) at the junctions of rearranged Ig heavy chain and T-cell receptor gene segments.

TdT expression occurs in over 90% of acute lymphoblastic lymphoma/leukemia cases with the exception of pre-B-cell ALL. TdT expression does not occur in normal mature T-or B-lymphocytes. Therefore, anti-TdT is a useful tool in diagnosis of T-ALL/T-lymphoblastic lymphoma and B-ALL/B-lymphoblastic lymphoma. Anti-TdT labels Type B thymoma, thus it can be used as a diagnostic marker for this entity. Anti-TdT is positive for approximately one-third of all cases of chronic myeloid leukemia.

Lymphoblastic Lymphomas, B-cell vs. T-cell										
	TdT	CD10	PAX-5	CD20	CD19	CD3	CD5	CD7	CD117	CD1a
B-cell	+	+	+	+/-	+	-	-	-	-	+
T-cell	+	+/-	-	-	-	+	+/-	+/-	-/+	+/-

Reactivity Paraffin

Visualization Nuclear

Control Thymus

Stability Up to 36 mo. at 2-8°C

Isotype SP150: IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Elias, JM. TdT. A Practical Approach to Diagnosis, ASCP Press, Chicago 1990 pp312-316
2. Arber DA, et al. Am J Clin Pathol. 1996 Oct; 106(4):462-8
3. Orazi A, et al. Mod pathol 1994 Jun;7(5):582-6

Rabbit Polyclonal

0.1 ml, concentrate.....338A-74
0.5 ml, concentrate.....338A-75
1 ml, concentrate 338A-76
1 ml, prediluted 338A-77
7 ml, prediluted 338A-78
Positive control slides 338S

Rabbit Polyclonal

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Rabbit Monoclonal Clone: SP150

0.1 ml, concentrate.....338R-14
0.5 ml, concentrate.....338R-15
1 ml, concentrate 338R-16
1 ml, prediluted 338R-17
7 ml, prediluted 338R-18
Positive control slides 338S

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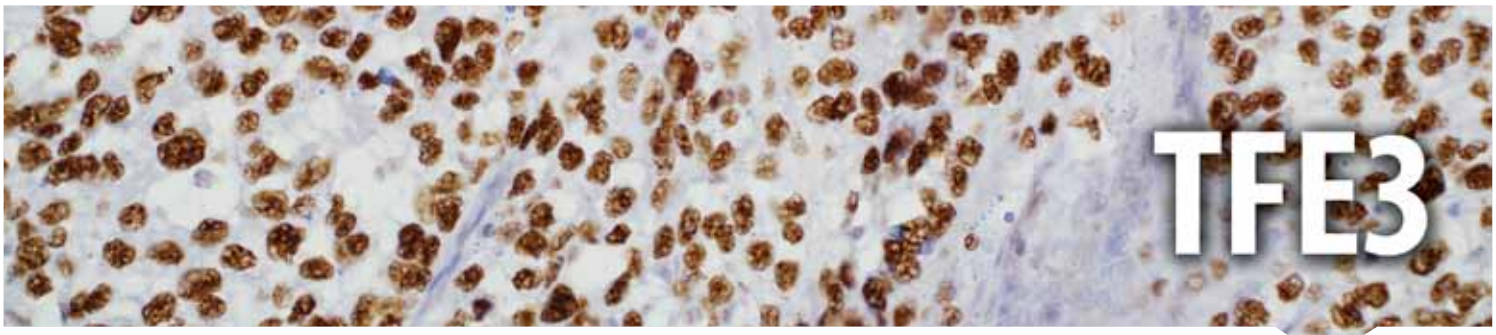

Xp11 translocation renal cell carcinoma (RCC) is a recently recognized subset of RCC, characterized by chromosome translocations involving the Xp11.2 break point and resulting in gene fusions involving the TFE3 transcription factor gene that maps to this locus. Xp11 translocation RCC represents the most common type of RCC in children, but is less frequent on a percentage basis in adults. Morphologically, the neoplasm frequently shows papillary architecture and clear cytoplasm, and frequently has associated psammoma bodies. Immunohistochemically, the neoplasm under-expresses epithelial markers such as cytokeratin and epithelial membrane antigen compared with typical RCC. The most sensitive and specific immunohistochemical marker for the Xp11 translocation RCC is nuclear labeling of TFE3 protein, which reflects over-expression of the resulting fusion proteins relative to TFE3. Alveolar soft part sarcoma (ASPS) is an uncommon soft tissue sarcoma which affects predominantly young patients, often in the extremities.

ASPS has the specific molecular translocation der(17)t(X;17)(p11.2;q25), which fuses the TFE3 transcription factor gene at 17q25 to ASPL, a gene at 17q25 to form a fusion transcript of ASPL-TFE3. The diagnosis of ASPS can be problematic due to histologic overlap with other tumors, particularly in small biopsies, as well as when the detection of a metastasis is prior to identification of a primary, or when presenting at unusual primary sites such as bone. Moreover, there has previously been a lack of specific diagnostic markers. The differential diagnoses include, in particular, paraganglioma, granular cell tumor, metastatic renal cell carcinoma, hepatocellular carcinoma, melanoma, and adrenal cortical carcinoma. Carcinomas can be separated by the expression of cytokeratins. Paraganglioma shows very strong positivity with anti-synaptophysin. Melanomas can be distinguished by strong positivity with antibodies against HMB-45, S100, and Melan A. These markers generally are all negative in ASPS. Anti-TFE3 has been shown to be highly specific and sensitive for ASPS.

Carcinomas								
	TFE3	RCC	CD10	CK7	Ksp-cadherin	S100P	CD117	HMWCK
Xp11 Tr RCC	+	+	+	-/+	+	-	NA	NA
Clear Cell RCC	-	+	+	-/+	-/+	-	-	-
Papillary RCC	-	+	+	+	-/+	-	-	+/-
Chromophobe RCC	-	+	+/-	+	+	-	+	-
Oncocytoma	-	-	+	-/+	+	-	+	-/+
Urothelial Carcinoma	-	-	+	+	-	+	+/-	+/-

Reactivity
Paraffin

Visualization
Nuclear

Control
Melanoma, ASPS

Stability
Up to 36 mo. at 2-8°C

Isotype
IgG

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Argani, P. Am J Clin Pathol. 2006; 126(3):332–334.
2. Argani, P et al. Am J SurgPathol. 2007;31:1149–1160.
3. Argani, P et al. Am J Pathol. 2001;159:179–192.

Rabbit Monoclonal Clone: MRQ-37

0.1 ml, concentrate.....354R-14
0.5 ml, concentrate.....354R-15
1 ml, concentrate 354R-16
1 ml, prediluted 354R-17
7 ml, prediluted 354R-18
Positive control slides 354S

Rabbit Monoclonal Clone: MRQ-37

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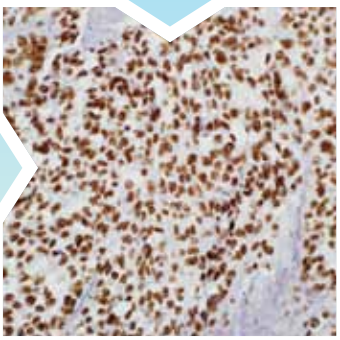

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Thrombomodulin (TM) is a transmembrane glycoprotein composed of 575 amino acids (molecular weight 75 kD) with natural anticoagulant properties. It is normally expressed by a restricted number of cells such as endothelial and mesothelial cells. In addition, synovial lining and syncytiotrophoblasts of human placenta also express TM. Several immunohistochemical endothelial markers are currently available and anti-thrombomodulin serves as another such marker, staining blood and lymphatic channels consistently. Anti-TM has demonstrated positivity in 100% of benign vascular tumors (pyogenic granuloma and hemangioma) and 94% of malignant vascular tumors (Kaposi's sarcoma, angiosarcoma, and epithelioid hemangioendothelioma). Hence, anti-TM serves as a sensitive marker for lymphatic endothelial cells and their tumors. There has also been recent interest in the use of anti-TM as an immunohistochemical marker for mesothelial cells and malignant mesotheliomas. Anti-TM is immunoexpressed in a variety of other tumors including squamous cell carcinomas of the lung, synovial sarcoma, transitional cell carcinoma, renal cell carcinomas, and thymomas.

Pleura: Adenocarcinoma vs. Mesothelioma

	Thrombo-modulin	Calretinin	CK 5&6	HBME-1	Caldesmon	CEA	TAG-72	Ep-CAM	E-cadherin	TTF-1
Adenocarcinoma	-	-	-	-	-	+	+	+	+	+
Mesothelioma	+	+	+	+	+	-	-	-	-	-

Squamous vs. Transitional Cell Carcinoma

	Thrombomodulin	CK, 34βE12	p63	CK 5	CK 7	CK 20	Uroplakin III
Squamous Carcinoma	+	+	+	+	-	-	-
Transitional Cell Carcinoma	+	+	+	-/+	+	+	+

Prostate Lesions

	Thrombo-modulin	PSA/PSAP	P504s	CK, 34βE12	p63	CK 7	Uroplakin III	PAX-2
Prostate Carcinoma	-	+	+	-	-	-	-	-
Urothelial Carcinoma	+	-	-	+	+	+	+	-
Nephrogenic Adenoma	-	-	+	+/-	-	+	-	+

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Bladder, Mesothelioma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wen D, Dittman W, Ye R, et al. Biochemistry 1987;26:4350-7
2. Maruyama I, et al. Journal of Cellular Biology 1985;101:363-71
3. Suthipintawong C, et al. Applied IHC 1995;3:239-44

Mouse Monoclonal
Clone: 1009

0.1 ml, concentrate	339M-14
0.5 ml, concentrate	339M-15
1 ml, concentrate	339M-16
1 ml, prediluted	339M-17
7 ml, prediluted	339M-18
Positive control slides	339S

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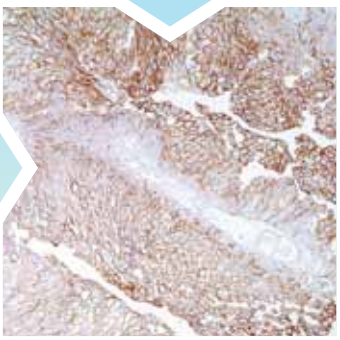

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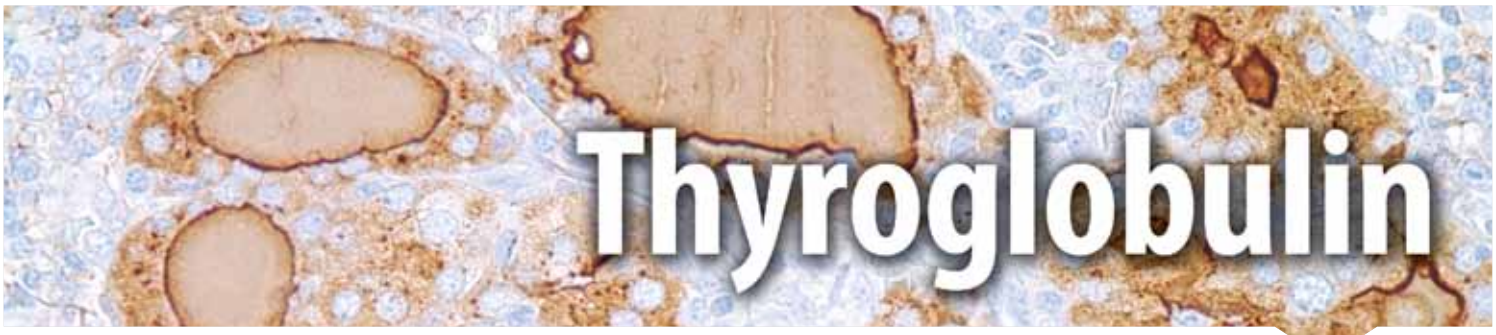

Thyroglobulin is the glycoprotein precursor of the iodinated thyroid hormones thyroxine (T4) and triiodothyronine (T3). Thyroglobulin is obtained from the thyroid gland and exhibits the general properties of the globulins. Human thyroglobulin (hTG) is a high molecular weight glycoprotein (605 kDa) found in the thyroid follicular cells. It plays a central role in the uptake, incorporation, and regulated biosynthesis of thyroid hormones.

Anti-thyroglobulin 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 anti-thyroglobulin even though sometimes only focally. Poorly differentiated carcinomas of the thyroid are frequently anti-thyroglobulin negative. Adenocarcinomas of other-than-thyroid origin do not react with this antibody. This antibody is useful in identification of thyroid carcinoma of the papillary and follicular types. Presence of thyroglobulin in metastatic lesions establishes the thyroid origin of tumor. Anti-thyroglobulin, combined with anti-calcitonin, can identify medullary carcinomas of the thyroid. Furthermore, anti-thyroglobulin, combined with anti-TTF1, can be a reliable marker to differentiate between primary thyroid and lung neoplasms.

Thyroid: Malignant vs. Benign						
	Thyroglobulin	Calcitonin	CK 19	Galectin-3	TTF-1	HBME-1
Papillary Carcinoma	+	-	+	+	+	+
Follicular Carcinoma	+	-	-/+	+	+	+/-
Medullary Carcinoma	-	+	+/-	-	+	+
Benign Thyroid	+	-	-	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Thyroid

Stability Up to 36 mo. at 2-8°C

Isotype 2H11+6E1: IgG_1 + IgG_1
MRQ-41: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bellet D, et al. J Clin Endocrin Metab 1983;56:530-533
2. Heffess CS, et al. Cancer. 2002 Nov 1;95(9):1869-78
3. Bejarano PA, et al. Appl Immunohistochem Mol Morphol.

Mouse Monoclonal Clone: 2H11+6E1

0.1 ml, concentrate.....340M-14
0.5 ml, concentrate.....340M-15
1 ml, concentrate 340M-16
1 ml, prediluted 340M-17
7 ml, prediluted 340M-18
Positive control slides 340S

Mouse Monoclonal Clone: 2H11+6E1

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Mouse Monoclonal Clone: MRQ-41

0.1 ml, concentrate.....340M-94
0.5 ml, concentrate.....340M-95
1 ml, concentrate 340M-96
1 ml, prediluted 340M-97
7 ml, prediluted 340M-98
Positive control slides 340S

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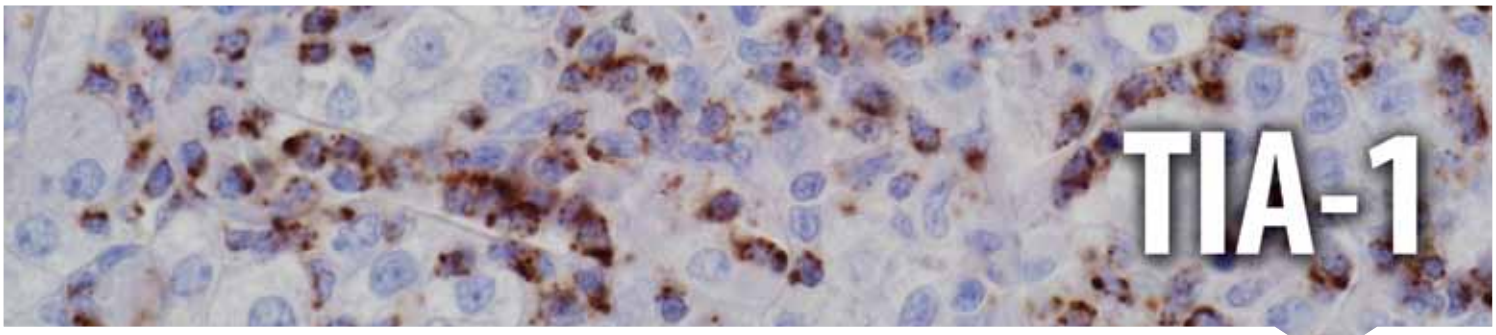

T-cell-restricted intracellular antigen (TIA-1) is a cytoplasmic granule-associated RNA binding protein reportedly expressed in cells with cytolytic potential, including 50-60% of CD8+ lymphocytes. Most peripheral T-cell lymphomas, including NK/T cell lymphomas, are positive for TIA-1, especially those with cytotoxic differentiation. Generally, peripheral T-cell lymphomas with CD4 positivity, such as follicular T-cell lymphoma and adult T-cell leukemia/lymphoma and early stage of mycosis fungoides, do not express TIA-1. However, upon progression from plaque stage to tumor stage disease and large cell transformation, mycosis fungoides could be positive for TIA-1. Primary cutaneous CD30-positive T-cell proliferative disorders, including cutaneous anaplastic large cell lymphoma, show expression of TIA-1, even tumor cells that express CD4. A panel with three immunomarkers of cytotoxic granules will be more useful in identification of peripheral T-cell lymphoma with activated (all three positive) or non-activated profile (TIA-1 -, granzyme B +, perforin +).

Lymphoma			
	TIA-1	Granzyme B	Perforin
NK/T-cell Lymphoma	+	+	+
Hepatosplenic T-cell Lymphoma	+	+	+
Cutaneous T-cell lymphoma	+	+	+
EBV+ systemic T-lymphoproliferative Disorders	+	+	+
T-cell Large Granular Lymphocytic Leukemia	+	+	+
Adult T-cell leukemia/ Lymphoma	-	-	-
Angioimmunoblastic Lymphoma	-	-	-
Anaplastic Large Cell Lymphoma	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic Granular

Control Peripheral T-cell Lymphoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Hasserjian, RP and Harris, NL. Am J Clin Pathol 2007; 127:860-868.
2. Willemze R, et al. Blood. 2005;105:3768-3785.

Mouse Monoclonal
Clone: MRQ-59

0.1 ml, concentrate..... 381M-14
0.5 ml, concentrate..... 381M-15
1 ml, concentrate 381M-16
1 ml, prediluted 381M-17
7 ml, prediluted 381M-18
Positive control slides 381S

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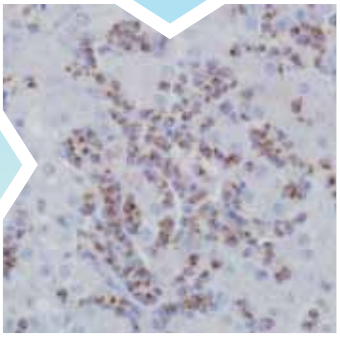

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Toxoplasma gondii

Toxoplasma gondii is a spindle-to-oval-shaped protozoan which presents as an infection in humans. The cyst (30 um) and trophozoite (7 um) stages can be identified in humans in such cases. This intracellular parasite is transmitted via raw/undercooked meat, contaminated soil, or by direct contact with an infected host. Infection in humans is usually associated with a variable degree of immunosuppression such as in pregnancy or immunosuppression due to various drugs. Anti-Toxoplasma gondii labels the trophoblasts of Toxoplasma gondii.

Reactivity Paraffin

Visualization Cell Wall of Trophoblast

Control Toxoplasma Gondii-Infected Tissue

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bellet D, et al. J Clin Endocrin Metab 1983;56:530-533
2. Heffess CS, et al. Cancer. 2002 Nov 1;95(9):1869-78
3. Bejarano PA, et al. Appl Immunohistochem Mol Morphol. 2000 Sep;8(3):189-94

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Rabbit Polyclonal

0.1 ml, concentrate.....220A-14 (ASR)
0.5 ml, concentrate.....220A-15 (ASR)
1 ml, concentrate .....220A-16 (ASR)
1 ml, prediluted .....220A-17 (ASR)
7 ml, prediluted .....220A-18 (ASR)
Positive control slides 220S

ASR†
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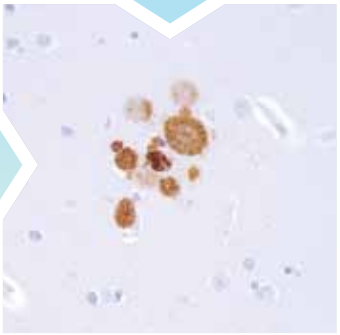

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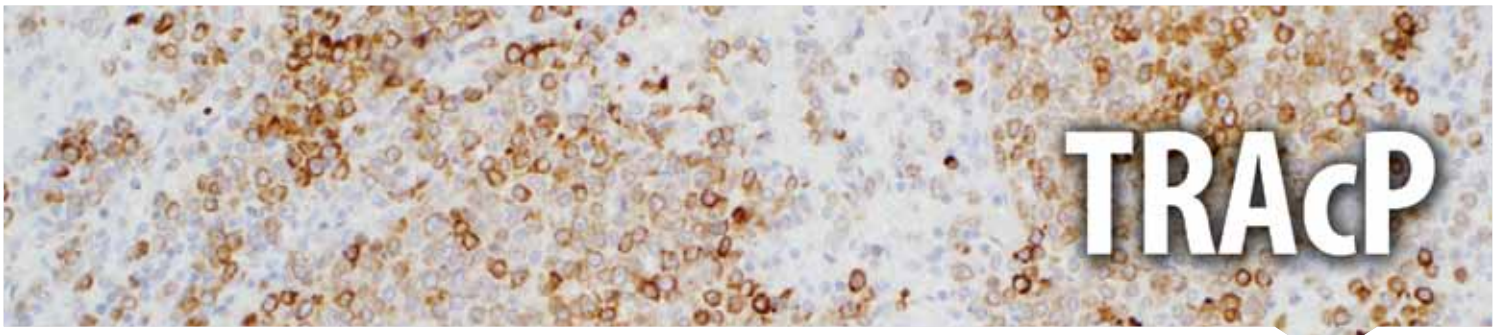

Tartrate resistant acid phosphatase (TRAcP) is a basic, iron-binding protein with high activity towards phosphoproteins, ATP and 4 nitrophenyl phosphate. Expression of TRAcP is reported to be increased in the spleen and monocytes of individuals with Gaucher's disease, splenocytes and circulating white cells of individuals with hairy cell leukemia, spleens of individuals with Hodgkin disease, and the sera of individuals undergoing active bone turnover. Elevated levels are also reported to be associated with various B-cell and T-cell leukemias and lymphomas, placental decidual cells, syncytiotrophoblasts, and some macrophages distributed throughout maternal and embryonic tissues.

The histochemical identification of hairy cell leukemia via tartrate-resistant acid phosphatase assay has been a standard for over two decades. Anti-TRAcP labels the cells of hairy cell leukemia (HCL) with a high degree of sensitivity and specificity. Worthy also of mention in this regard are anti-annexin A1 and anti-CD11c. Other cells stained with anti-TRAcP are tissue macrophages and osteoclasts, which also express abundant TRAcP activity.

B-cell Lymphomas										
	TRAcP	CD79a	BCL2	BCL6	CD10	CD23	Cyclin D1	CD5	IgD	MUM1
Follicular	-	+	+	+	+	-	-	-	+	-
CLL/SLL	-	+	+	-	-	+	-	+	+	+
Mantle Cell	-	+	+	-	-	-	+	+	+	-/+
Marginal Zone	+/-	+	+	-	-	-	-	-	-/+	+
Lymphoplasmacytic	-	+	+	-	-	-	-	-	-	+
Diffuse Large Cell	-	+	+	+	-/+	-	-	-/+	-	+
Burkitt	-	+	-	+	+	-	-	-	-	-
Hairy Cell Leukemia	+	+	+	-	-	-	+(weak)/-	-	-	

Reactivity Paraffin

Visualization Cytoplasmic

Control Hairy Cell Leukemia

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2b}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Janckila AJ, et al. Blood. 1995 May 15;85(10):2839-44
2. Yaziji H, et al. Am J Clin Pathol. 1995 Oct;104(4):397-402
3. Janckila AJ, et al. J Histochem Cytochem. 1996 Mar;44(3):235-44

Mouse Monoclonal Clone: 9C5

0.1 ml, concentrate.....341M-94
0.5 ml, concentrate.....341M-95
1 ml, concentrate 341M-96
1 ml, prediluted 341M-97
7 ml, prediluted 341M-98
Positive control slides 341S

Mouse Monoclonal Clone: 9C5

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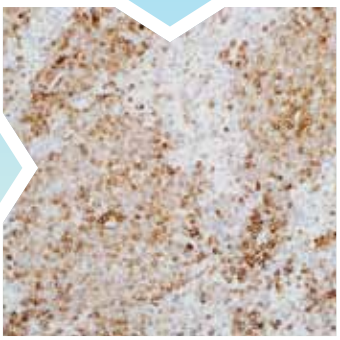

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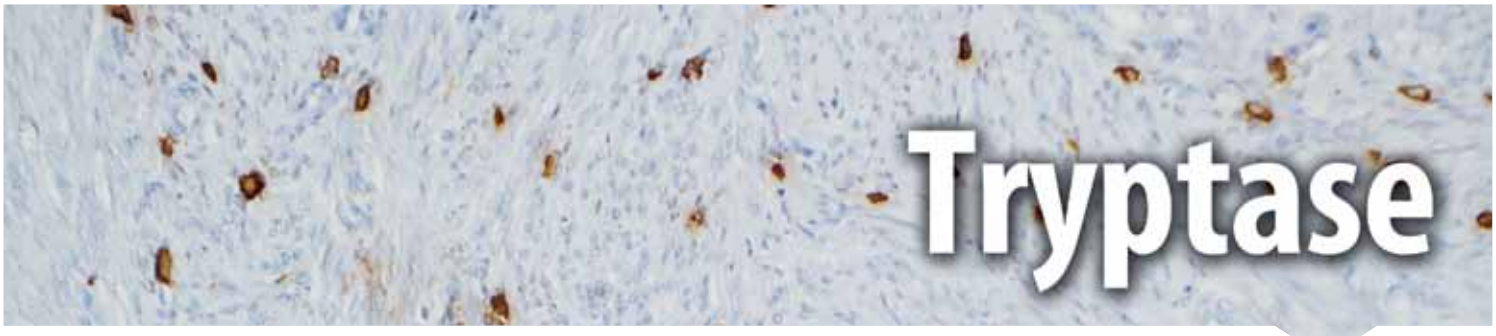

Tryptase

Tryptases comprise a family of trypsin-like serine proteases, the peptidase family S1. Tryptases are stored in mast cell secretory granules and basophils. These enzymes are released into the extracellular environment, and are resistant to all known endogenous proteinase inhibitors. Several tryptase genes are clustered on chromosome 16p13.3. There are two separate genes: alpha and beta 1. Beta tryptases appear to be the main isoenzymes expressed in mast cells whereas in basophils, alpha tryptases predominate. Tryptases have been implicated as mediators in the pathogenesis of asthma and other allergic and inflammatory disorders.

Anti-tryptase is a good marker for mast cells, basophils, and their derivatives. Mastocytosis is a term collectively used for a group of disorders in which there is abnormal accumulation of mast cells in one or multiple organs. Anti-tryptase, combined with anti-CD2, anti-CD25, and anti-CD117, can be useful in the differential diagnosis of reactive mast cell hyperplasia, myelogenous neoplasms, mast cell leukemia, and mastocytosis.

Mastocytosis					
	Tryptase	CD117	CD25	CD163	CD2
Systemic Mastocytosis	+	+	+	-	+
Mast Cell Leukemia	+	+	+	-	+
Reactive Mast Cells	+	+	-	+	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Uterus

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
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Please refer to product insert for complete protocol.

References

1. Fiorucci L, Ascoli F. Cell Mol Life Sci. 2004 Jun;61(11):1278-95
2. Li CY. Leuk Res. 2001 Jul;25(7):537-41
3. Jordan JH, et al. Hum Pathol. 2001 May;32(5):545-52
4. Gordon LK, et al. Clin Immunol. 2000 Jan;94(1):42-50

Mouse Monoclonal Clone: G3

0.1 ml, concentrate.....342M-14
0.5 ml, concentrate.....342M-15
1 ml, concentrate 342M-16
1 ml, prediluted 342M-17
7 ml, prediluted 342M-18
Positive control slides 342S

Mouse Monoclonal Clone: G3

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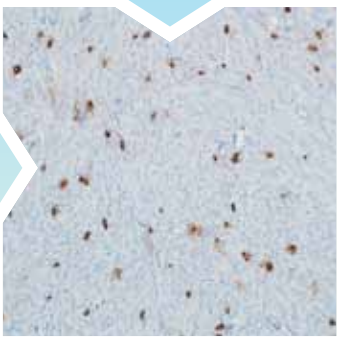

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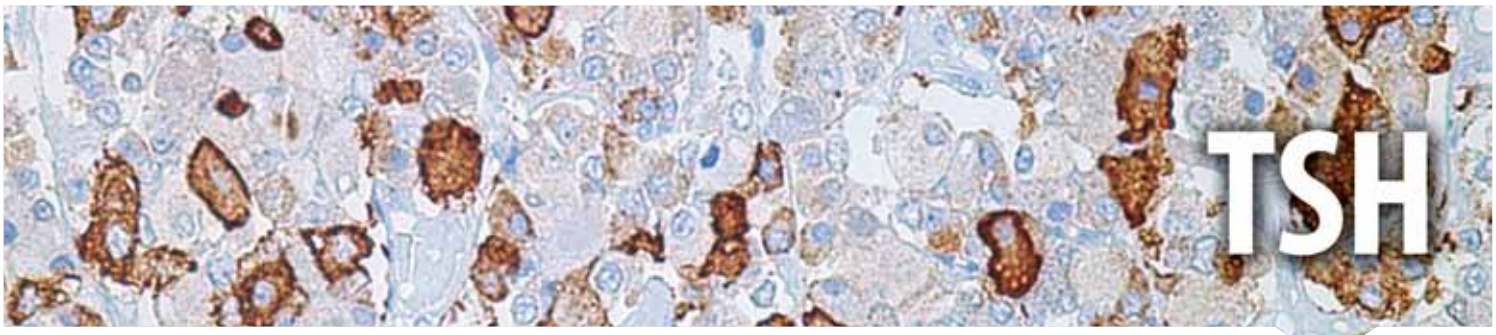

Thyroid-stimulating hormone (also known as TSH or thyrotropin) is a peptide hormone synthesized and secreted by thyrotrope cells in the anterior pituitary gland which regulate the endocrine function of the thyroid gland. TSH is a glycoprotein and consists of two subunits, the alpha and the beta subunit, which are non-covalently bound to one another. The alpha subunit of TSH is also present in two other pituitary glycoprotein hormones: Follicle stimulating hormone and luteinizing hormone and, in primates, in the placental hormone chorionic gonadotropin. Each of these hormones also has a unique beta subunit, which provides receptor specificity. In other words, TSH is composed of alpha subunit bound to the TSH beta subunit, and TSH associates only with its own receptor. Free alpha and beta subunits have essentially no biological activity.

Anti-TSH reacts with TSH-producing cells (thyrotrophs), and is a useful marker in classification of pituitary tumors and the differential identification of primary and metastatic tumors in the pituitary gland.

Pituitary Panel						
	TSH	ACTH	FSH	GH	LH	Prolactin
Pituitary	+	+	+	+	+	+

Reactivity Paraffin

Visualization Cytoplasmic

Control Pituitary

Stability Up to 36 mo. at 2-8°C

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Batanero E, et al. Brain Behav Immun. 1992 Sep;6(3):249-64
2. Kovalic JJ, et al. J Neurooncol. 1993 jun;16(3):227-32
3. Gessl A, et al. J Clin Endocrinol Metab. 1994 Oct;79(4):1128-34
4. Sanno N, et al. J Clin Endocrinol Metab. 1995 Aug;80(8):2518-22

Rabbit Polyclonal

0.1 ml, concentrate.....211A-14
0.5 ml, concentrate.....211A-15
1 ml, concentrate 211A-16
1 ml, prediluted 211A-17
7 ml, prediluted 211A-18
Positive control slides 211S

Rabbit Polyclonal

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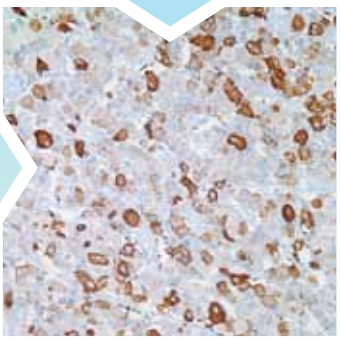

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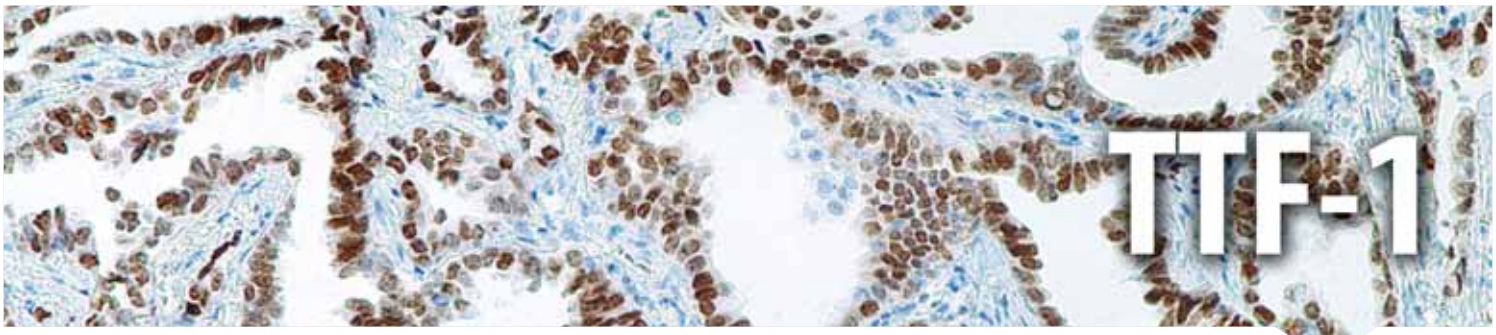

Anti-TTF-1 (Thyroid Transcription Factor 1) is useful in differentiating primary adenocarcinoma of the lung from metastatic carcinomas originating in the breast, mediastinal germ cell tumors, and malignant mesothelioma. It can also be used to differentiate small cell lung carcinoma from lymphoid infiltrates. Loss of TTF-1 expression in non-small cell lung carcinoma has been associated with aggressive behavior of such neoplasms. TTF-1 labelling is also seen in thyroid malignancies.

Liver: Malignant vs. Benign

	TTF-1	Hep-Par1	Glypican-3	CD34	p53	AFP	A1AT	pCEA	mCEA
Hepatocellular Carcinoma	+ Cytoplasmic	+	+	+	+	-/+	-/+	+	-
Hepatoblastoma	-	+	+	-	+	+	+	+	-
Benign Liver Nodules	+ Cytoplasmic	+	-	-	-	-	+/-	-	-

Thyroid: Malignant vs. Benign

	TTF-1	Thyroglobulin	Calcitonin	CK 19	Galectin-3	HBME-1
Papillary Carcinoma	+	+	-	+	+	+
Follicular Carcinoma	+	+	-	-/+	+	+/-
Medullary Carcinoma	+	-	+	+/-	-	+
Benign Thyroid	+	+	-	-	-	-

Lung Small Cell Carcinoma vs. Merkel Cell Carcinoma

	TTF-1	CEA	CK 20	Chromogranin A	E-cadherin	Neurofilament	CD117	Synaptophysin
Merkel Cell Carcinoma	-	-	+	+(nuclear)	+	+	+	+
Lung Small Cell Carcinoma	+	-	-	-	-	-	+/-	+

Breast vs. Lung vs. Prostate Carcinoma

	TTF-1	GCDFP-15	Mammaglobin	PSA	Napsin A
Breast Carcinoma	-	+	+	-	-
Lung Carcinoma	+	-	-	-	+
Prostate Carcinoma	-	-	-	+	-

Reactivity Paraffin

Visualization Nuclear

Control Lung Adenocarcinoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Bejarano PA, et al. Mod Pathol 1996 Apr;9(4): 445-52
2. Di Loreto C, et al. Cancer Lett 1998 Feb13;124(1):73-8
3. Di Loreto C, et al. J Clin Pathol 1997 Jan;50(1):30-2

Mouse Monoclonal
Clone: 8G7G3/1

0.1 ml, concentrate.....343M-94
0.5 ml, concentrate.....343M-95
1 ml, concentrate 343M-96
1 ml, prediluted 343M-97
7 ml, prediluted 343M-98
25 ml, prediluted.....343M-90
Positive control slides 343S

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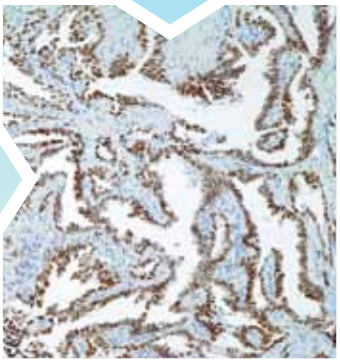

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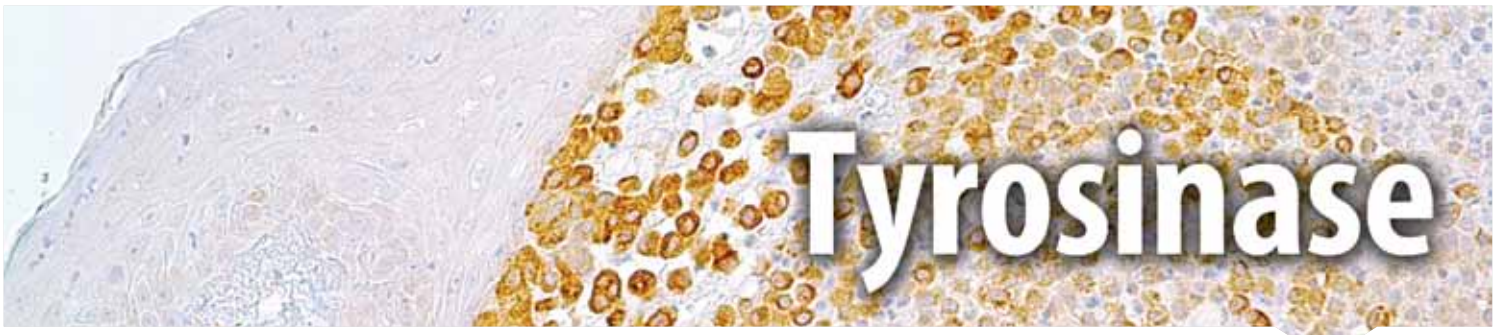

Tyrosinase is an enzyme, amongst a family of enzymes, which is involved in the biosynthesis of melanin. Anti-tyrosinase has been found to be quite specific for melanotic lesions such as malignant melanoma and melanotic neurofibroma. Essentially no carcinomas express this marker.

Melanotic Lesions										
	Tyrosinase	S-100	SOX10	HMB-45	MART-1	MiTF	CD63	Factor XIIIa	WT1	NGFR
Adult Melanocytes	+	+	+	-	+	+	+	-		
Junctional Nevus	+	+	+	+	+	+	-	-	+/-	
Interdermal Nevus	+	+	+	-	+	+	-	-	+/-	
Primary Melanoma	+	+	+	+	+	+	+	-		-
Metastatic Melanoma	+	+	+	+	+	+	+	-	+	-
Spindle Cell Melanoma	+	+	+	+	+	+	+	-	+	+
Angiomyolipoma	-	+	+	+	+	+	+	-		
Adrenal Cortical	-	+		-	+	-	-	-		
Intranodal Nevus Cells	+	+	+	-	+	+	-	-		
Dermatofibroma	-	-	-	-	-	-	-	+		

PEComa										
	Tyrosinase	HMB-45	MART-1	CD63	S-100	SM Actin	Calponin	Caldesmon	Desmin	CD68
Angiomyolipoma	-	+	+	+	-	+	+	+	-	+
Lymphangiomyomatosis	-	+	+	+	-	+	+	+	-	-
Extrapulmonary Clear Cell Tumor	-	+	+	+	+	+	-	-	-	-
Primary Cutaneous PEComa	-	+	+	+	-	-	-	-	-	+/-
Pulmonary Clear Cell Sugar Tumor	-	+	+	+	+/-	-	-	-	-	+/-

Reactivity Paraffin

Visualization Cytoplasmic

Control Melanoma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kaufmann O, et al. Mod Pathol 1998 Aug; 11(8):740-6
2. Busam KJ, et al. Am J Dermatopathol 2000 Jun; 22(3):237-41
3. Jungbluth AA, et al. Pathol Res Pract 2000; 196(4):235-42

Mouse Monoclonal
Clone: T311

0.1 ml, concentrate..... 344M-94
0.5 ml, concentrate..... 344M-95
1 ml, concentrate 344M-96
1 ml, prediluted 344M-97
7 ml, prediluted 344M-98
Positive control slides 344S

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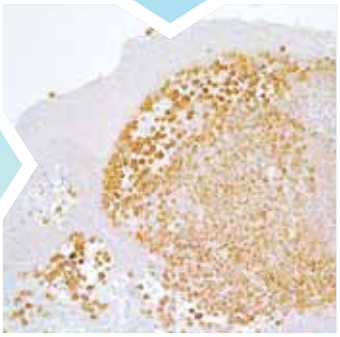

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Uroplakin III

Uroplakins (UPs) are a family of transmembrane proteins (UPs Ia, Ib, II and III) that are specific differentiation 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. Moll et al. reported that UPIII was detectable immunohistochemically in 29 of 55 primary (53%) and 23 of 35 metastatic (66%) urothelial carcinomas, whereas many non-urothelial carcinomas were UPIII-negative. The authors concluded that anti-UPIII should be a valuable marker, especially for the specific identification of urothelial carcinomas in patients with metastases of unknown primary site. Subsequently, Olsburgh et al. studied UP gene expression in normal urothelium and bladder cancer specimens, and found that expression was absent after malignant transformation. Ohtsuka et al. concluded in their studies that UPIII expression was strongly associated with lower tumor grades, that lack of UPIII expression in urothelial tumors of the upper urinary tract was associated with much higher rates of metastases, and that five-year specific survival was much worse for UPIII negative tumors (54%) than for UPIII positive tumors (100%). Apparently UPIII expression is a better indicator of the malignant potential of the tumor than the grade of the tumor.

Squamous vs. Transitional Carcinoma							
	Uroplakin III	CK, 34βE12	p63	CK 5	Thrombomodulin	CK 7	CK 20
Squamous Carcinoma	-	+	+	+	+	-	-
Transitional Cell Carcinoma	+	+	+	-/+	+	+	+

Prostate Lesions								
	Uroplakin III	PSA/PSAP	P504s	CK, 34βE12	p63	CK 7	Thrombo-modulin	PAX-2
Prostate Carcinoma	-	+	+	-	-	-	-	-
Urothelial Carcinoma	+	-	-	+	+	+	+	-
Nephrogenic Adenoma	-	-	+	+/-	-	+	-	+

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Bladder

Stability Up to 36 mo. at 2-8°C

Isotype SP73: IgG
AU-1: IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Moll R, Wu XR, Lin JH, Sun TT. Am J Pathol 1995; 147:1383–97
2. Ohtsuka Y, et al. BJU Int. 2006 Jun;97(6):1322-6.

Rabbit Monoclonal Clone: SP73

0.1 ml, concentrate.....345R-14
0.5 ml, concentrate.....345R-15
1 ml, concentrate 345R-16
1 ml, prediluted 345R-17
7 ml, prediluted 345R-18
Positive control slides 345S

Rabbit Monoclonal Clone: SP73

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Mouse Monoclonal Clone: AU-1

0.1 ml, concentrate.....345M-14
0.5 ml, concentrate.....345M-15
1 ml, concentrate 345M-16
1 ml, prediluted 345M-17
7 ml, prediluted 345M-18
Positive control slides 345S

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Varicella Zoster Virus

Varicella zoster virus (VZV), a member of the human herpes virus family, causes two distinct clinical manifestations: Chickenpox and shingles. Primary VZV infection results in chickenpox (varicella), which may rarely result in complications including encephalitis or pneumonia. Even when clinical symptoms of chickenpox have resolved, VZV remains dormant in the nervous system (virus latency) in the trigeminal and dorsal root ganglia. In about 10%-20% of cases, VZV reactivates later in life producing a disease known as herpes zoster or shingles. Serious complications of shingles include postherpetic neuralgia, zoster multiplex, myelitis, herpes ophthalmicus, or zoster sine herpete.

VZV is closely related to the herpes simplex virus (HSV). Affected skin shares so many histological similarities that distinguishing between them may be difficult. Anti-VZV is directed against the VZV virus.

Reactivity Paraffin

Visualization Membranous, Cytoplasmic

Control Varicella-Zoster Infected Tissue

Stability Up to 36 mo. at 2-8°C

Isotype Mixed

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Kleinschmidt D, et al. J Neurol Sci. 1998 Aug 14; 159(2):213-8
2. Kaye SB, et al. Br J Ophthalmol. 2000 Jun;84(6):563-71

†Analyte Specific Reagent: Analytical and performance characteristics are not established.

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For RUO product, please replace the "ASR" suffix with an "RUO" suffix at the end of the catalog number when ordering.

Mouse Cocktail
Clone: SG1-1, SG1-SG4, NCP-1 & IE-62

0.1 ml, concentrate	364M-14 (ASR)
0.5 ml, concentrate	364M-15 (ASR)
1 ml, concentrate	364M-16 (ASR)
1 ml, prediluted	364M-17 (ASR)
7 ml, prediluted	364M-18 (ASR)
Positive control slides	364S

ASR†

IVD

IVD

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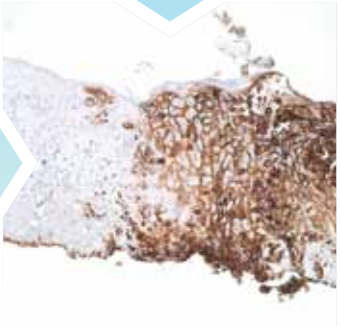

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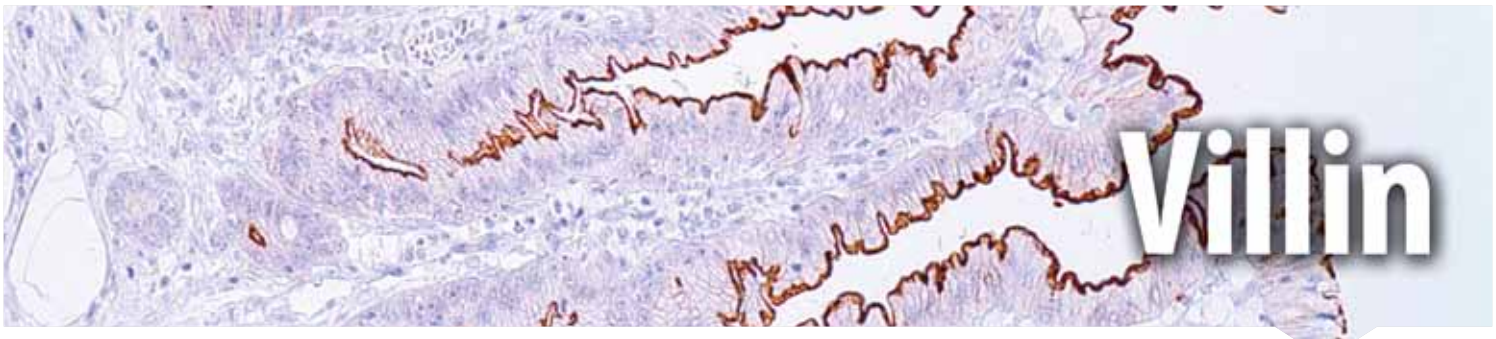

Villin is a 95 kD glycoprotein of microvilli associated with rootlet formation in gastrointestinal mucosal epithelium. Anti-villin labels the brush border area in the gastrointestinal mucosal epithelium. This antibody has been useful in differentiating gastrointestinal adenocarcinoma, neuroendocrine carcinomas, and ovarian adenocarcinomas from adenocarcinomas of other organs. This antibody also labels Merkel cells of the skin.

Carcinomas										
	Villin	Hep-Par1	CK 7	CK 20	pCEA	CK 5	p63	CD10	TTF-1	β-Catenin
Hepatocellular Carcinoma	-	+	-	-	+	-	-	+	+ (cytoplasmic)	-
Bladder Carcinoma	+	-	+	+	+	-	-	+	-	-
Salivary Gland Carcinoma	-	-	+	-	+	+	+			-
Lung Adenocarcinoma	-	-	+	-	+	-	-		+	-
Colorectal Adenocarcinoma	+	-	-	+	+	-	-	+	-	+
Prostate Adenocarcinoma	-	-	-	-	-	-	-	+	-	-
Cervical Carcinoma	-	-	+	-	+	-	-		-	-
Sweat Gland Carcinoma	-	-	+	-	+	+	+			-
Pancreatic Carcinoma	-	-	+	-	+	-	-	+/-	-	-
Gastric Carcinoma	+	-	+	-	+	-	-		-	-

Colon vs. Ovarian Carcinoma										
	Villin	CK 7	CK 20	CEA	CDX-2	CA19-9	Ep-CAM	WT1	CA-125	CK 5&6
Ovarian Carcinoma, Serous	+	+	-	+	-	+	+	+	+	-
Ovarian Carcinoma, Mucinous	+	+	-	-	+	+	+	-	-	
Colon Carcinoma	+	-	+	+	+	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic, Membranous

Control Colon

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Werling RW, et al. Am J Surg. Path. 27(3):303-310, 2003
2. Jainyou T, et al. Hum Pathol 29: 390-396, 1998
3. Goldstein NS, et al. Am J Clin Pathol:116:319-325, 2001

Mouse Monoclonal Clone: CWWB1

0.1 ml, concentrate.....346M-14
0.5 ml, concentrate.....346M-15
1 ml, concentrate 346M-16
1 ml, prediluted 346M-17
7 ml, prediluted 346M-18
Positive control slides 346S

Mouse Monoclonal Clone: CWWB1

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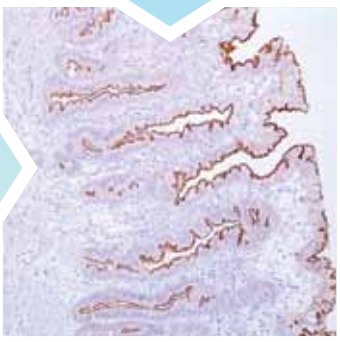

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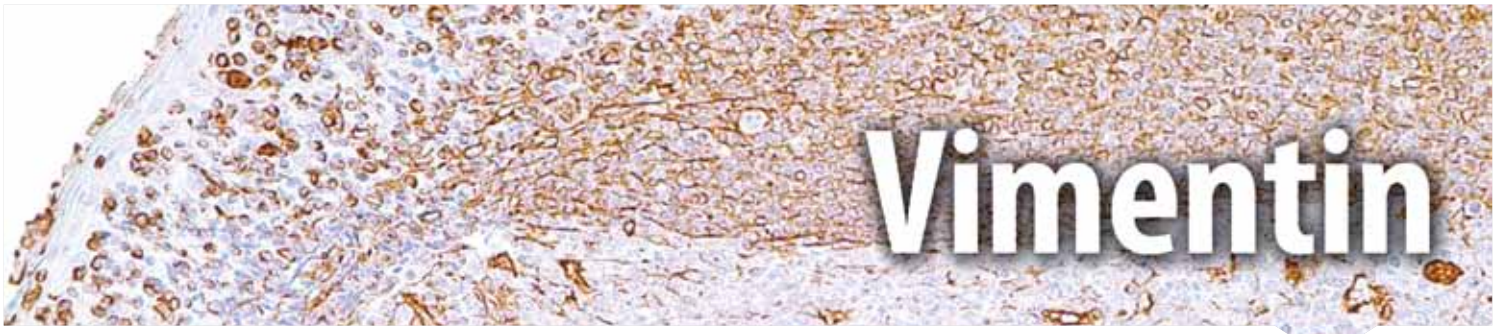

Anti-vimentin is of limited value as a diagnostic tool; however, when used in combination with other antibodies (in panels) it is useful for the subclassification of a given tumor. Expression of vimentin, when used in conjunction with anti-keratin, is helpful when distinguishing melanomas from undifferentiated carcinomas and large cell lymphomas. All melanomas and Schwannomas react strongly with anti-vimentin. This antibody recognizes a 57 kD intermediate filament. It labels a variety of mesenchymal cells, including melanocytes, lymphocytes, endothelial cells, and fibroblasts. Non-reactivity of anti-vimentin is often considered more useful than its positive reactivity, since there are a few tumors that do not contain vimentin, e.g. hepatoma and seminoma. Anti-vimentin is also useful as a tissue process control reagent.

Small, Round Blue Cell Tumors										
	Vimentin	MS Actin	PGP 9.5	Myogenin	CK Cocktail	CD99	FLI-1	CD57	WT1	INI-1
Leiomyosarcoma	+	+	-	-	-/+	-	-	+/-	-	
Rhabdomyosarcoma	+	-/+	+	+	-	-	-	-	-	+
Embryonal Carcinoma	-	-	+	-	+	-	-	+	-	+
PNET/ES	+	-	+	-	-/+	+	+	+	-	+
DSRCT	+	-	-	-	+	-	+	+/-	+	+

Kidney: Renal Epithelial Tumors								
	Vimentin	RCC	CD10	PAX-2	Ksp-cadherin	Parvalbumin	CD117	Ep-CAM
Clear Cell RCC	+	+	+	+	-	-	-	-

CNS Tumors								
	Vimentin	GFAP	NGFR	INI-1	S-100	CK Cocktail	PR	EMA
Astrocytoma	+	+	+	+	+	-	-	-
Glioblastoma	+	+	-	+	+	-	-	-
Oligodendriglioma	+	-	-	+	+	-	-	-
Ependymoma	-/+	+	+	+	+	-	-	-
Meningioma	+	-	-	+	-	-	+	+
Schwannoma	+	+	+	+	+	-	-	-

Reactivity Paraffin

Visualization Cytoplasmic

Control Tonsil

Stability Up to 36 mo. at 2-8°C

Isotype SP20: IgG_1
V9: IgG/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ishii Y, et al. Clin Exp Immunol 1984;58:183-192
2. Davey FR, et al. Am J Pathol 1987;129:54-63

Rabbit Monoclonal Clone: SP20

0.1 ml, concentrate.... 347R-14
0.5 ml, concentrate.... 347R-15
1 ml, concentrate 347R-16
1 ml, prediluted 347R-17
7 ml, prediluted 347R-18
Positive control slides . 347S

IVD
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RUO

Mouse Monoclonal Clone: V9

0.1 ml, concentrate.... 347M-14
0.5 ml, concentrate.... 347M-15
1 ml, concentrate 347M-16
1 ml, prediluted 347M-17
7 ml, prediluted 347M-18
25 ml, prediluted..... 347M-10
Positive control slides . 347S

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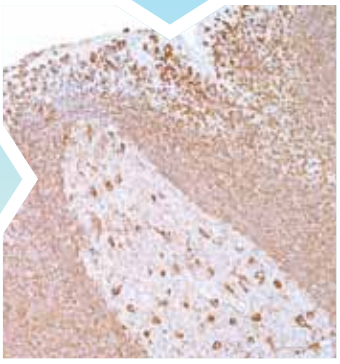

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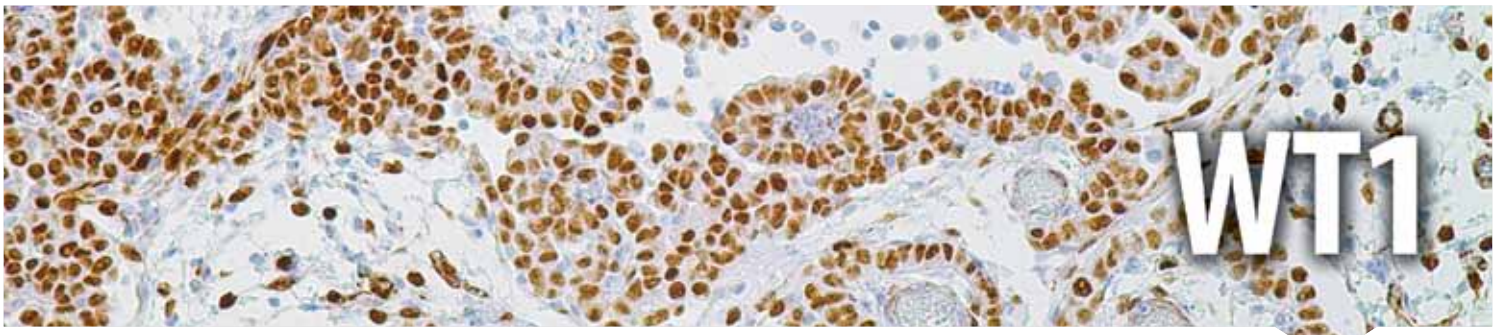

WT1 is a suppressor gene located on chromosome 11p13. Wilms' Tumor protein (WT1) has been identified in proliferative mesothelial cells, malignant mesothelioma, ovarian carcinoma, gonadoblastoma, nephroblastoma, and desmoplastic small round cell tumor. Lung adenocarcinomas rarely stain positive with this antibody.

Pleura: Adenocarcinoma vs. Mesothelioma										
	WT1	Calretinin	CK 5	D2-40	HBME-1	Caldesmon	TAG-72	Ep-CAM	E-cadherin	TTF-1
Adenocarcinoma	-	-	-	-	-	-	+	+	+	+
Mesothelioma	+	+	+	+	+	+	-	-	-	-

Colon vs. Ovarian Carcinoma										
	WT1	CK 7	CK 20	CEA	CDX-2	Villin	CA19-9	Ep-CAM	CA-125	CK 5&6
Ovarian Carcinoma, Serous	+	+	-	+	-	+	+	+	+	-
Ovarian Carcinoma, Mucinous	-	+	-	-	+	+	+	+	-	
Ovarian Endometrioid Ca	-/+	+	-	-	-		+/-	+	+	-
Colon Carcinoma	-	-	+	+	+	+	+	+	-	-

Small, Round Blue Cell Tumors										
	WT1	MS Actin	SM Actin	Myogenin	CK Cocktail	CD99	FLI-1	CD57	Vimentin	PGP 9.5
Lymphoblastic Lymphoma	-	-	-	-	-	+	+	-	+	
Leiomyosarcoma	-	+	+	-	-/+	-	-	+/-	+	-
Rhabdomyosarcoma	-	-/+	-/+	+	-	-	-	-	+	+
Neuroblastoma	-	-	-	-	-	-	-	+	+	+
Embryonal Carcinoma	-	-	-	-	+	-	-	+	-	+
PNET/ES	-	-	-	-	-/+	+	+	+	+	+
DSRCT	+	-	-	-	+	-	+	+/-	+	-

Reactivity Paraffin

Visualization Nuclear

Control Mesothelioma

Stability Up to 36 mo. at 2-8°C

Isotype IgG_1/k

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time:
  HiDef Detection™ 10-30 min. RT
  or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Ordonez NG. Am J Surg Pathol 24(4):598-606, 2000
2. Ordonez NG. Am J Surg Pathol 22(11):1314-1327, 1998
3. Charles AK, et al. Histopathology 1997 Apr;30(4):312-4

Mouse Monoclonal Clone: 6F-H2

0.1 ml, concentrate.....348M-94
0.5 ml, concentrate.....348M-95
1 ml, concentrate 348M-96
1 ml, prediluted 348M-97
7 ml, prediluted 348M-98
Positive control slides 348S

Mouse Monoclonal Clone: 6F-H2

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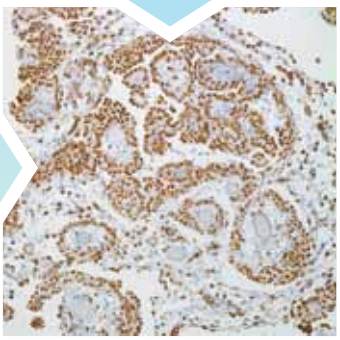

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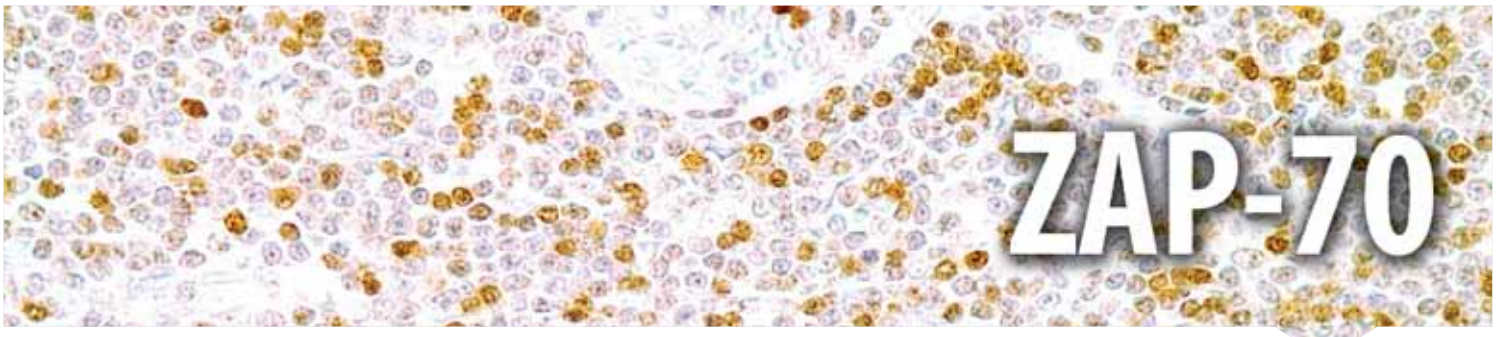

ZAP-70 is a 70 kD protein tyrosine kinase found in T-cells and natural killer cells. Control of this protein translation is via the IgVH gene. ZAP-70 protein is expressed in leukemic cells of approximately 25% of chronic lymphocytic leukemia (CLL) cases as well. Anti-ZAP-70 expression is an excellent surrogate marker for the distinction between the Ig-mutated (anti-ZAP-70 negative) and Ig-unmutated (anti-ZAP-70 positive) CLL subtypes and can identify patient groups with divergent clinical courses. The anti-ZAP-70 positive Ig-unmutated CLL cases have been shown to have a poorer prognosis.[1-3]

B-cell Lymphomas										
	ZAP-70	CD79a	BCL2	BCL6	CD10	CD23	Cyclin D1	CD5	MUM1	Annexin A1
Follicular	-	+	+	+	+	-	-	-	-	-
CLL/SLL	+/-	+	+	-	-	+	-	+	+	-
Mantle Cell	-	+	+	-	-	-	+	+	-/+	-
Marginal Zone	-	+	+	-	-	-	-	-	+	-
Lymphoplasmacytic	-	+	+	-	-	-	-	-	+	-
Diffuse Large Cell	-	+	+	+	-/+	-	-	-/+	+	-
Burkitt	-	+	-	+	+	-	-	-	-	-
Hairy Cell Leukemia	-	+	+	-	-	-	+(weak)/-	-		+

Reactivity Paraffin

Visualization Cytoplasmic

Control Chronic Lymphocytic Leukemia

Stability Up to 36 mo. at 2-8°C

Isotype IgG_{2a}

Protocols

- Pretreatment: EDTA/Trilogy™
- Incubation Time: HiDef Detection™ 10-30 min. RT or *ultra*View™ 16-32 min. at 37° C

Please refer to product insert for complete protocol.

References

1. Wiestner A, et al. Blood 15 June 2003. Vol. 101, No. 12, p. 4944-4951.
2. Crespo M, et al. N Engl J Med 348;18 May 1, 2003, p.1764-1775
3. Chen L, et al. Blood. 2002 Dec 15;100(13):4609-14

Mouse Monoclonal Clone: 2F3.2

0.1 ml, concentrate.....349M-94
0.5 ml, concentrate.....349M-95
1 ml, concentrate 349M-96
1 ml, prediluted 349M-97
7 ml, prediluted 349M-98
Positive control slides 349S

Mouse Monoclonal Clone: 2F3.2

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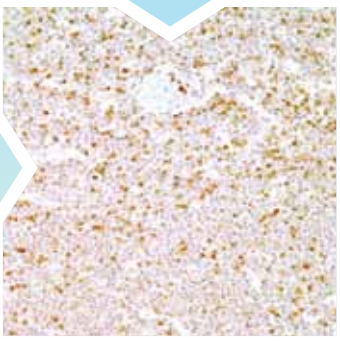
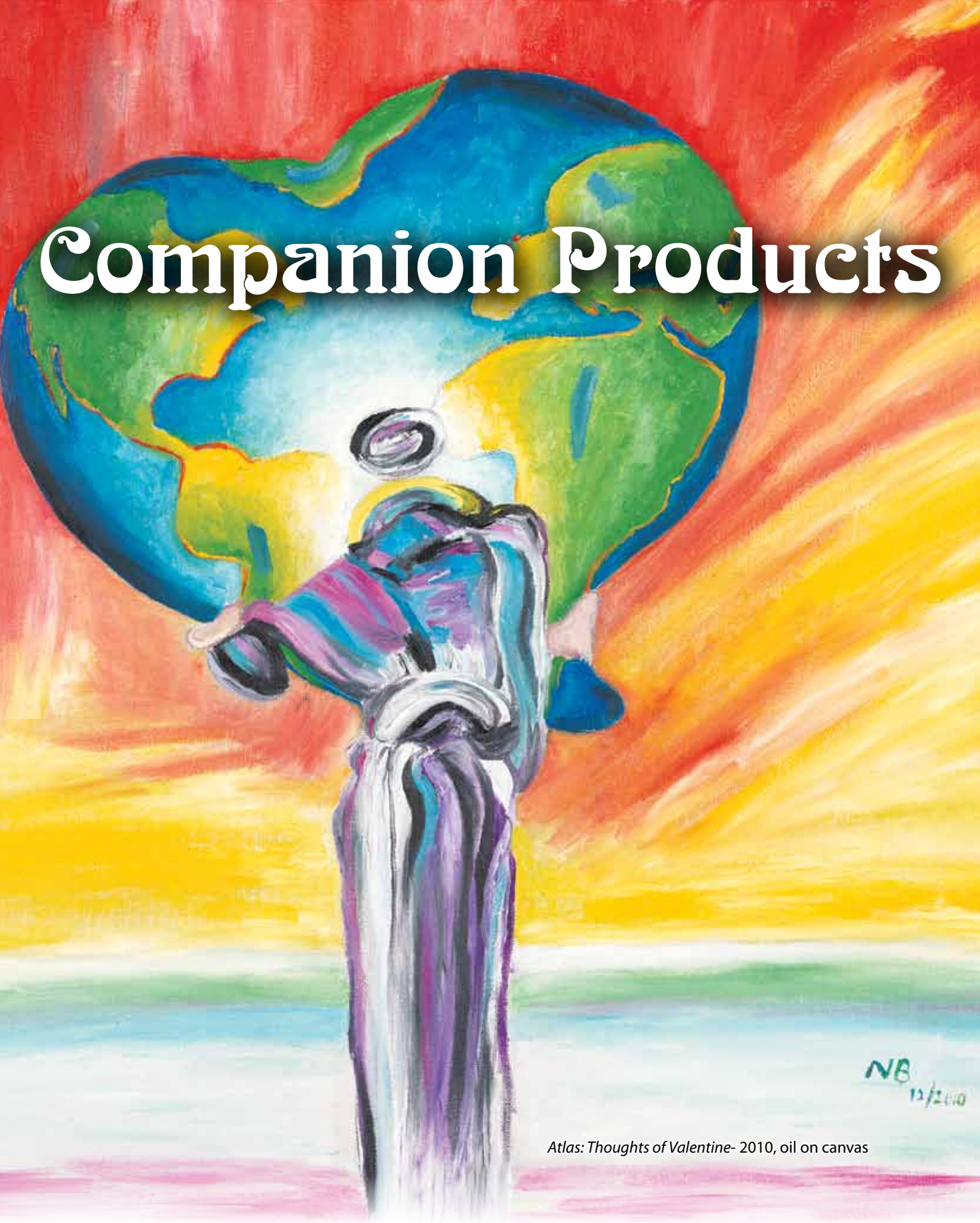


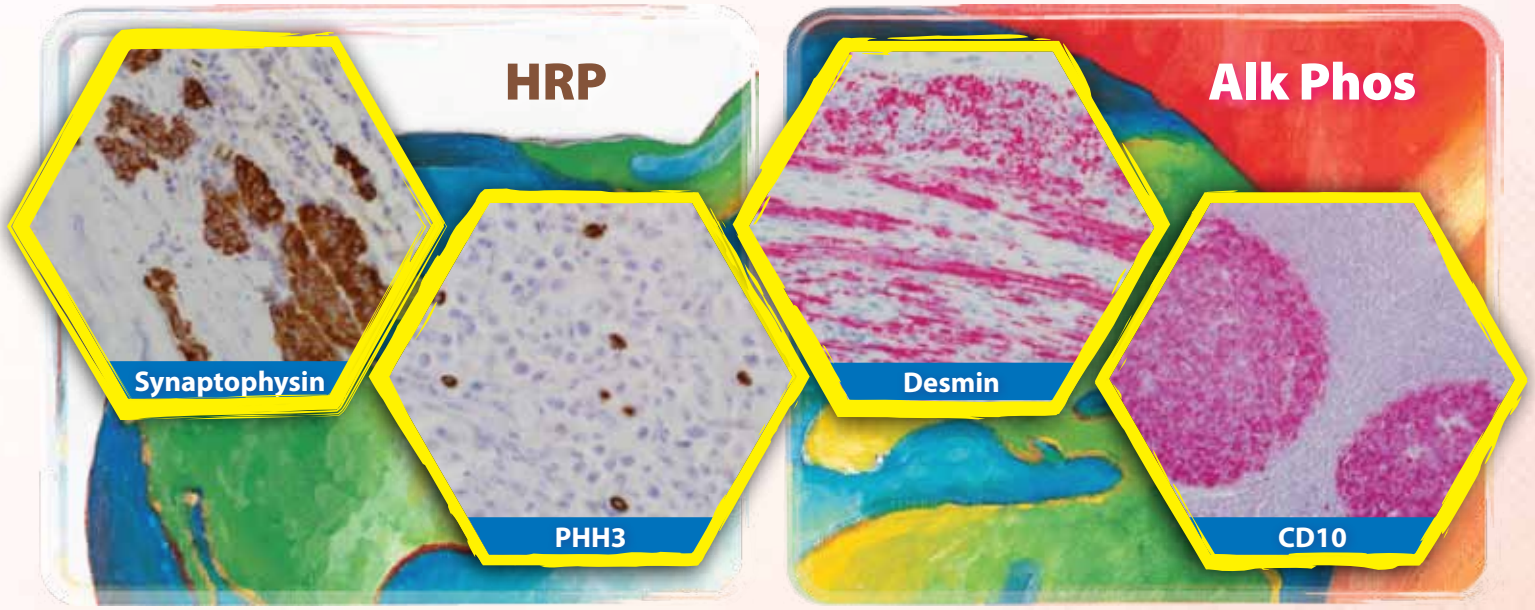
Companion Products



Atlas: Thoughts of Valentine- 2010, oil on canvas

HiDef Detection™

The HiDef Detection™ Polymer Systems are high-sensitivity visualization systems that are ready-to-use in immunohistochemical protocols. This two-step system uses an indirect method resulting in an antibody-enzyme complex that universally detects primary mouse and rabbit antibodies. The resulting chromogenic reaction can be visualized by either HRP or Alk Phos compatible chromogens using light microscopy. They are biotin-free and eliminate non-specific staining that could result from any endogenous biotin. These visualization systems consist of two detection reagents for amplifying the detection of low expressing antigens within a shorter turnaround time. These systems are compatible with both manual and automated staining platforms (subject to available software-selectable options in the latter instances).



HiDef Detection™ HRP Polymer System

50 ml (500 tests) 954D-20
100 ml (1000 tests) 954D-30

HiDef Detection™ Alk Phos Polymer System

50 ml (500 tests) 962D-20
100 ml (1000 tests) 962D-30

Detection Systems & Chromogens

CytoScan™ Avidin-Biotin Detection System

The CytoScan™ Avidin-Biotin Detection Systems are ready-to-use in immunohistochemical protocols. This two-step system uses an indirect method resulting in an avidin-biotin-enzyme complex that universally detects primary mouse and rabbit antibodies and the reaction can be visualized by either HRP or Alk Phos compatible chromogens using light microscopy. The visualization systems consist of two detection reagents and are based on the sequential application of CytoScan™ Biotinylated Link followed by either CytoScan™ HRP Label or CytoScan™ Alk Phos Label. These visualization systems utilize a sensitive procedure that gives clean, intense staining and are compatible with both manual and automated staining platforms. With CytoScan™ systems, it is recommended that avidin-biotin blocking be used for tissue that is found to contain significant levels of endogenous biotin. Though CytoScan™ systems are not biotin-free, they do offer excellent sensitivity at a lower price point than polymer-based systems thereby providing labs with a complete range of options to best determine how to serve its needs. Kits are optimized for use with Cell Marque primary antibodies, however they are universal kits and therefore will work equally well with other vendors' primary antibodies.

CytoScan™ HRP Avidin-Biotin Detection System

50 ml (500 tests) 951D-20
200 ml (2000 tests) 951D-30

CytoScan™ Alk Phos Avidin-Biotin Detection System

50 ml (500 tests) 952D-20
200 ml (2000 tests) 952D-30

Chromogens

Cell Marque chromogens, while compatible with other detection systems, have been specially formulated for optimal signal with Cell Marque's HiDef Detection™ and Cytoscan™ detection systems. Cell Marque offers the following chromogens for use with immunohistochemistry: DAB (permanent, insoluble in alcohol) and AEC (temporary, soluble in alcohol) for horseradish peroxidase (HRP) detection chemistries; and Permanent Magenta (permanent, soluble in alcohol) and Permanent Red (permanent, insoluble in alcohol) for alkaline phosphatase (Alk Phos) chemistries.

Chromogens for HRP Systems

DAB Kit:
1 ml DAB/20 ml buffer (200 tests) 957D-10
3 ml DAB/50 ml buffer (500 tests) 957D-20
12 ml DAB/200 ml buffer (2000 tests) 957D-30
30 ml DAB/500 ml buffer (5000 tests) 957D-40

AEC ready-to-use:
50 ml (500 tests) 958D-20
200 ml (2000 tests) 958D-30

Chromogens for Alk Phos Systems

Permanent Magenta Kit:
2 reagents at 1 ml ea./30 ml substrate (300 tests) 959D-10
2 reagents at 4 ml ea./100 ml substrate (1000 tests) 959D-20

Permanent Red Kit:
3 reagents at 0.7 ml ea./30 ml buffer (300 tests) 960D-10
3 reagents at 2.25 ml ea./100 ml buffer (1000 tests) 960D-20

Trilogy™

3 Steps in 1: Deparaffinize, Rehydrate, Unmask

Trilogy™, Cell Marque's patented pretreatment formula, is the ultimate solution for your lab. Unlike other EDTA solutions, Trilogy™ is a near neutral pH solution, making it less harmful on tissue, while still exhibiting the strong unmasking abilities of a conventional EDTA solution. Trilogy's™ revolutionary formula combines deparaffinization, rehydration, and unmasking, all in one simple step! Trilogy™ allows for standardization of the pretreatment procedure, which in turn leads to more consistent and reliable results.

Why Trilogy™ is Right For You

Quality: Pretreatment with Trilogy™ will guarantee satisfaction with typically stronger visualization when compared to other pretreatment solutions.

Cost: Compared to other pretreatment reagents on the market, Trilogy™ is proven to be very economical.

Versatility: Trilogy's™ unique formula can be utilized as a three in one retrieval solution- deparaffinizing, rehydrating, and unmasking all in one step.

Time: Pretreatment with Trilogy™ is approximately 15-35 minutes, which is significantly less than alternative methods.

Standardization: Trilogy™ standardizes pretreatment protocols, increasing the efficiency of the lab.

Trilogy™	50 ml, 20x	920P-04
	200 ml, 20x	920P-06
	240 ml, 100x	920P-07
	1 liter, ready-to-use	920P-09
	1 gallon, ready-to-use	920P-10

Ancillary Reagents & Hardware

Declere™	50 ml, 20x	921P-04
	200 ml, 20x	921P-06
	1 liter, 20x	921P-09
PBS IHC Wash Buffer + Tween® 20	200 ml, 20x	934B-06
	1 liter, 20x	934B-09
TBS IHC Wash Buffer + Tween® 20	200 ml, 20x	935B-06
	1 liter, 20x	935B-09
Diamond TBS Antibody Diluent	50 ml	938B-03
	200 ml	938B-05
	1 liter	938B-09
Emerald PBS Antibody Diluent	50 ml	936B-03
	250 ml	936B-08
	1 liter	936B-09
Mouse Negative Control Serum	15 ml	932B-02
Rabbit Negative Control Serum	15 ml	933B-02
Electric Pressure Cooker	110 V, 60 Hz	976L
Plastic Staining Dishes & Slide Rack	One Pair	975L

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Troubleshooting

Immunohistochemistry is multifaceted. It is important to consider the impact of all aspects of the process including fixation, microtomy, pretreatment, blocking, primary antibody, detection, and chromogen. Although troubleshooting can seem overwhelming, there is no need to worry as Cell Marque's technical team is here to help! Below are several tips that will assist you with successful IHC staining.

Tissue Preparation

FIXATION

Type: 10% Neutral Buffered Formalin

10% NBF is the optimal fixative for preserving proteins which are your antibody's target.

Troubleshooting Tips

Weak/no staining ➔ use of other fixatives like alcohols, mercurials, Bouin's, Schaffer's, etc. may result in a lack of adequate protein preservation. These fixatives may also damage or alter target antigens. If the target antigen is damaged or denatured, the antibody cannot bind.

MICROTOMY

Baking: 2-4 hours at 60°C

Fatty tissue, such as breast, does not adhere to microscope slides as well or as strongly as other tissues; baking overnight at 60°C is recommended to prevent tissue loss during pretreatment.

Troubleshooting Tips

No staining ➔ tissue is lost or damaged; water is trapped underneath the tissue and/or tissue is not strongly adhered to the slide. In any of these circumstances, heated pretreatment can destroy the tissue sections.

Pretreatment

DEPARAFFINIZATION & REHYDRATION

Time:
Deparaffinization: 30-45min
Rehydration: 10-20min

Protocols can vary depending on the type/strength of reagents used as well as the intensity of the epitope unmasking procedure.

Troubleshooting Tips

Weak/no staining ➔ paraffin is not adequately removed; target epitope still blocked.

"Background" staining ➔ excess paraffin can trap chromogen. Paraffin that is not removed will also be evident under the microscope and can be distracting to pathologists.

** Using Trilogy™ can cut overall pretreatment time in half! Trilogy™ in a pressure cooker will deparaffinize, rehydrate, and unmask in ~35min!*

Type:
Deparaffinization: Xylene or substitute
Rehydration: Graded Alcohol (100%, 95%, 50%)

Less toxic xylene substitutes (e.g. Clearene) are not as potent and will require slightly longer protocols.

Troubleshooting Tips

Weak/no staining ➔ inappropriate reagent used (one that does not remove paraffin); target epitope still blocked.

Weak/no staining ➔ reagents saturated; reagents like xylene and alcohol need to be changed based on usage. If not, potency will be lost and deparaffinization/rehydration will become ineffective; paraffin not removed and epitope still blocked.

** Trilogy™ is a non-toxic/biodegradable, economic alternative to xylene. Trilogy™ does not require a hood or special disposal procedure.*

EPITOPE UNMASKING

Time: 10-60 min

Protocols vary depending on the type of unmasking (HIER or EIER) and the instrument used.

HIER ➔ 30-60min; EIER ➔ 10-20min

Troubleshooting Tips

Too short: Weak/no staining ➔ epitope not adequately unmasked; antibody cannot bind to target.

Too long: No staining ➔ tissue loss/over digestion; nothing to stain!

** Trilogy™ in a pressure cooker will deparaffinize, rehydrate, and unmask in ~35min!*

Type:
1. HIER (heat induced epitope retrieval)
2. EIER (enzyme induced epitope retrieval)

It is important to follow the manufacturer's epitope unmasking recommendation. False positives/negatives can occur otherwise.

Troubleshooting Tips

Weak/no staining ➔ incompatible epitope unmasking method. Some epitopes are better unmasked with either enzyme or HIER. If the preferred method is not followed, inadequate/no unmasking will occur and the antibody will be unable to bind.

Reagents/Instruments:
Enzyme: Proteinase K, Pronase, Pepsin, Trypsin
HIER: Citrate Buffer: pH 5-6.5 and EDTA Buffer: pH 7-9

Troubleshooting

Instruments: pressure cooker, steamer, waterbath, microwave

The majority of IHC antibodies on the market will work optimally using HIER with an EDTA (pH 7-9) buffer.

Troubleshooting Tips

Weak/no staining ➔ incompatible epitope unmasking reagent. Most epitopes are better unmasked with HIER and EDTA. If the preferred reagent is not used, inadequate/no unmasking will occur and the antibody will be unable to bind.

Staining

BLOCKING

Type:
1. Endogenous elements:
   Avidin-Biotin block ➔ biotin
   Peroxide block & Levamisole ➔ peroxidase & phosphatase
2. Background block
   Liver, kidney, brain, and spleen contain the highest levels of endogenous biotin. It is important to use an A/B block if running slides with a biotin-based detection system.

Troubleshooting Tips

Wrong/No blocking: Background staining ➔ endogenous elements/ non-specific tissue binding sites not blocked sufficiently; non-specific antibody/detection/chromogen binding occurs.

PRIMARY ANTIBODY

Time & Concentration: Variable

More sensitive two-step polymer detection systems allow for shorter incubations and less concentrated primary antibodies.

Troubleshooting Tips

Too short/dilute: Weak staining ➔ minimal antibody binding; overall weak signal.

Too long/concentrated: Background staining ➔ excess antibody binds non-specifically to various sites within the tissue specimen.

DETECTION

Time & Concentration: 20-45min

Most universal detection systems contain anti-mouse/rabbit secondary antibodies.

Troubleshooting Tips

Too short/dilute: Weak staining ➔ minimal detection component binding; overall weak signal.

Too long/concentrated: Background staining ➔ excess detection components bind non-specifically to various sites within the tissue specimen.

Type & Compatibility:
1. LSAB vs. one-step polymer vs. two-step polymer
2. Horseradish Peroxidase (HRP) vs. Alkaline Phosphatase (AP)

Although one-step polymer detection systems have more chromogen binding sites, the bulky polymer molecules are susceptible to steric hindrance, decreasing overall sensitivity.

Troubleshooting Tips

Weak staining ➔ low detection sensitivity

Background staining ➔ high detection sensitivity

CHROMOGEN

Time & Concentration: 1-20min.

Sticky substances/cells like mucus/mucins will grab onto excess chromogen. A short enzyme incubation during or after pretreatment can minimize this non-specific binding.

Troubleshooting Tips

Too short/dilute: Weak staining ➔ minimal enzyme-chromogen color-producing reaction.

Too long/concentrated: Background staining ➔ chromogen will bind non-specifically. Chromogen is also easily trapped in folds/artifacts created during tissue processing.

Type & Compatibility:
1. Horseradish Peroxidase (HRP) ➔ DAB (brown) & AEC (Red)
2. Alkaline Phosphatase (AP) ➔ permanent red/magenta

DAB/AEC will undergo an oxidation-reduction reaction when exposed to HRP; colored precipitate results.

Permanent red/magenta will lose a phosphate group when exposed to AP; colored precipitate results.

Troubleshooting Tips

No staining ➔ incompatible enzyme-chromogen; color changing chemical reaction will not occur.

For more information
Visit: www.cellmarque.com/support
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Product Index

Product Index

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† *Analyte Specific Reagent: Analytical and performance characteristics are not established.*

‡ *Rabbit monoclonals produced using technology from Epitomics, Inc. under Patent No. 5,675,063.*

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Shipping

FOB Rocklin, California USA. Freight is prepaid and added to invoice. Heavy shipments that do not require refrigeration are shipped via ground where applicable. Orders containing items requiring refrigeration are normally shipped by express service as follows:

U.S. Shipments: Monday - Thursday with delivery to most locations by noon or by 5:00 p.m. to outlying areas. Saturday and priority delivery available in most areas upon request. Orders received by 2:00 p.m. Pacific time will generally be shipped the same day. Orders received on Friday will generally be shipped the following Monday, unless otherwise requested.

Canadian Shipments: Monday - Wednesday via express service. Delivery is subject to the time required to clear customs (typically 48 hours).

Shipments outside North America: Express service delivers in 48 hours to most locations (subject to customs). The recipient is required to specify any special documentation or packaging requirements at the time the order is placed.

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Payments are per invoiced terms. A 1.5% monthly finance charge may be added to late payments. Cell Marque accepts Master Card, Visa and American Express as well as wire transfers. Shipments outside the USA may be subject to a handling charge. Product liability is limited to credits or replacements.

Returns and credits: A prior authorization number from Cell Marque Corp. is required for any return for credit, replacement, or exchange. A 25% restocking fee plus the return cost of shipping shall be assessed on incorrectly placed orders. Items must be returned on ice if applicable and must be unused and intact to revise original terms of shipment.

Quality Guarantee: All Cell Marque products are quality guaranteed and any return within 30 days after receipt that is determined to be due to unsatisfactory product performance is 100% credited. Your complete satisfaction is our goal.


NB 1/2011