H-HC
Helvetica Health Care

IVD

GenomeMe
CANADA

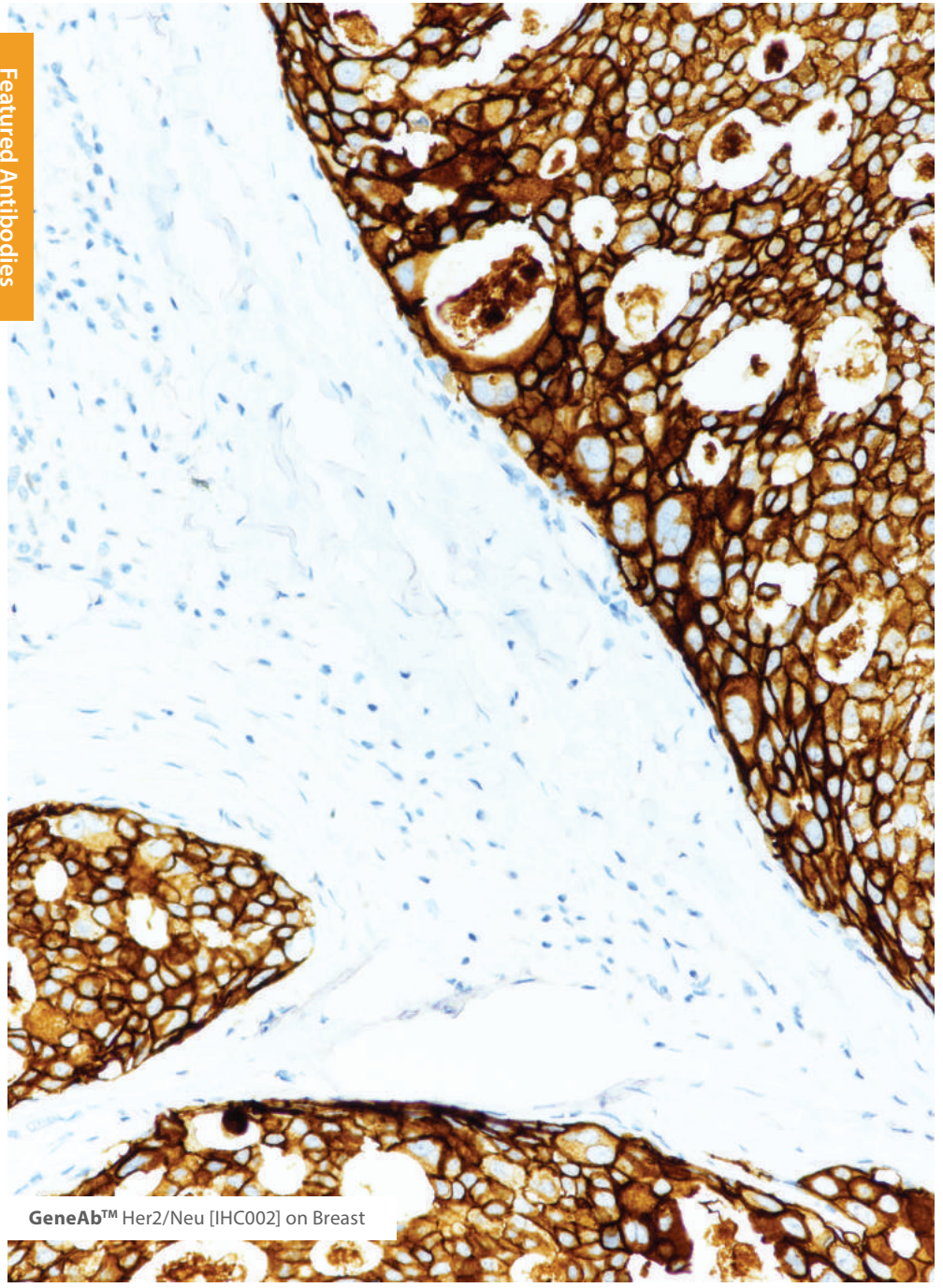
Featured Antibodies

GeneAb™

Her2/Neu

Clone: IHC002 | **Source:** Mouse Monoclonal | **Positive Control:** Breast Carcinoma

Featured Antibodies



GeneAb™ Her2/Neu [IHC002] on Breast

Description

The **Her2/Neu** (c-erbB-2) proto-oncogene is a transmembrane receptor tyrosine kinase that is clinically indicated in a number of carcinomas. Overexpression of the c-erbB-2 protein has been associated with ductal breast cancer, as well as pulmonary and gastric adenocarcinomas. A correlation between Her2 and p53 has also been documented, as overexpression of both proteins has been associated with early invasion and metastasis in bladder cancer.

References

1. Suthipintawong C, et al. Diagn Cytopathol. 1997; 17:127-33. 2. Alexiev BA, et al. Gen Diagn Pathol. 1997; 142:271-9. 3. Fernández Aceñero MJ, et al. Gen Diagn Pathol. 1997; 142:289-96. 4. Koeppen HKW, et al. Histopathology. 2001; 38:96-104. 5. Moch H, et al. Virchows Arch A Pathol Anat Histopathol. 1993; 423:329-34. 6. Cetin B, et al. Transl Gastroenterol Hepatol. 2016; 1:59.

Reference Panels

- Breast/Gynecological

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC002-100
1 ml, Concentrate	IHC002-1
7 ml, Pre-dilute	IHC002-7
25 ml, Pre-dilute	IHC002-25
3 Positive Control Slides	IHC002-PC

Designations

IVD: RUO:

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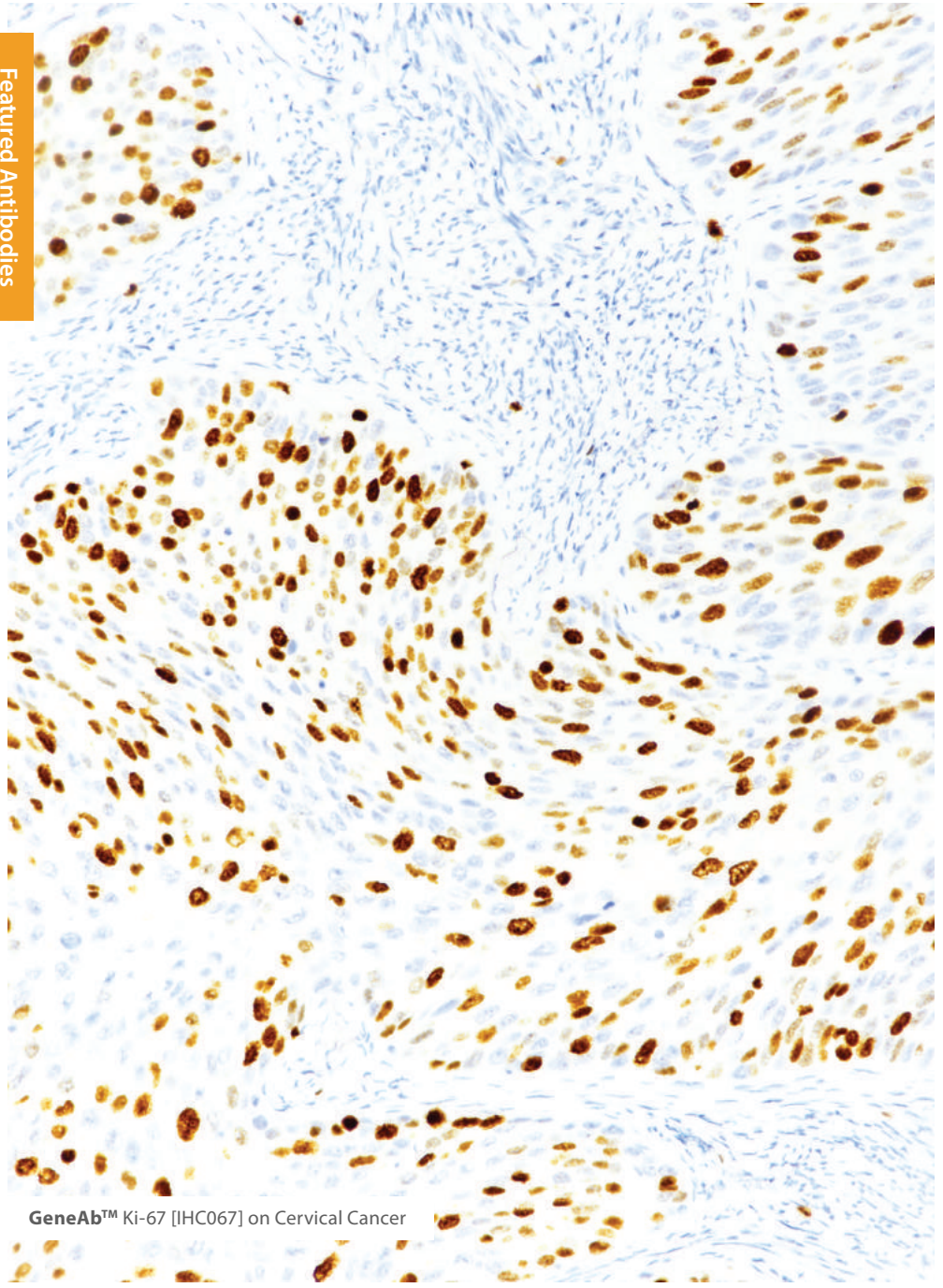
GeneAb™

Ki-67

Clone: IHC067 | **Source:** Mouse Monoclonal | **Positive Control:** Tonsil

Featured Antibodies



GeneAb™ Ki-67 [IHC067] on Cervical Cancer

Description

Ki-67 is a nuclear, non-histone protein that is expressed only during active phases of the cell cycle (G1, S, G2 and M), but not in the resting phases (G0 and G1 early phase). Although the antigen has also been associated with ribosomal RNA transcription, it is strongly linked to cell proliferation and has thus been indicated as an effective marker in grading the proliferation rate of tumors, including those of the brain, breast, cervix, and prostate.

References

1. Mckeever P, et al. J Neuropathol Exp Neurol. 1998; 57:931-6. 2. Coons SW, et al. Neurosurgery. 1997; 41:878-84. 3. Allegra CJ, et al. J Clin Oncol. 2003; 21:241-50. 4. Pathmanathan N, et al. J Clin Pathol. 2013; 66: 512-6. 5. Jansen R, et al. Br J Cancer 1998; 78:460-5. 6. Goodson WH, et al. Breast Cancer Res Treat. 1998; 49:155-64. 7. Rossi S, et al. Am J Clin Pathol. 2005; 124: 295-302. 8. Pena LL, et al. J Vet Diag Invest. 1998; 10:237-46. 9. Gibbons D, et al. Comparison Mod Pathol. 1997; 10:409-13.

Reference Panels

- Breast/Gynecological
- Genitourinary (GU)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC067-100
1 ml, Concentrate	IHC067-1
7 ml, Pre-dilute	IHC067-7
25 ml, Pre-dilute	IHC067-25
3 Positive Control Slides	IHC067-PC

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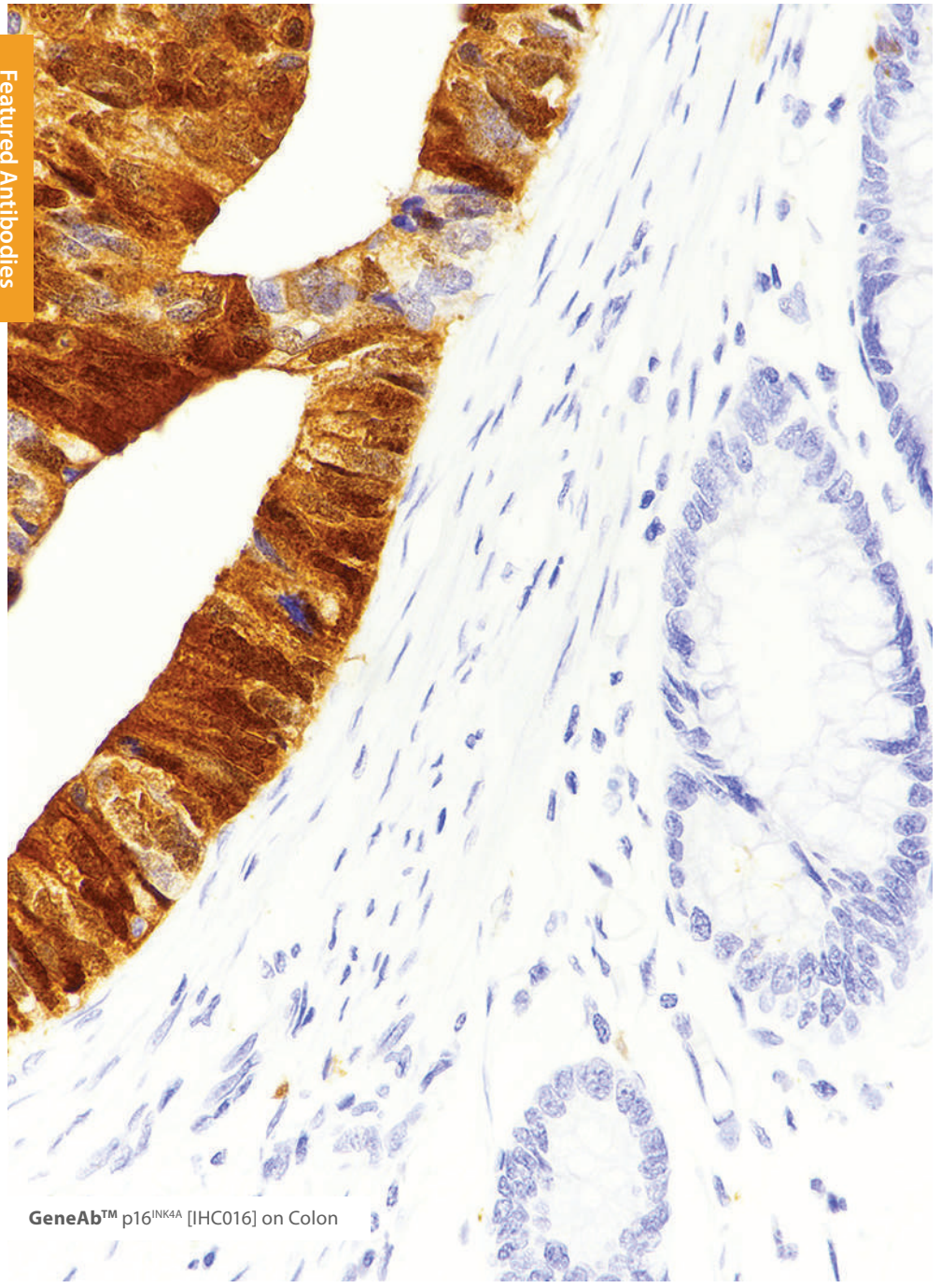
GeneAb™

p16^{INK4A}

Clone: IHC016 | **Source:** Mouse Monoclonal | **Positive Control:** Normal Pancreas, Normal Tonsil, Cervical Carcinoma

Featured Antibodies



GeneAb™ p16^{INK4A} [IHC016] on Colon

Description

The **p16 (p16^{INK4A})** protein is a cyclin-dependent kinase inhibitor that plays an important regulatory role in the cell cycle. By controlling the transition between the G1 and S phases through regulation of retinoblastoma protein, p16 decelerates cellular differentiation and therefore acts as a tumor suppressor, making it the key marker in several human cancers including head and neck cancer, perianal lesions, melanomas, gliomas, lymphomas, and some types of leukemia. p16 is also clinically indicated in carcinomas of the esophagus, pancreas, lung, biliary tract, liver, colon, and urinary bladder.

References

1. Sano T, et al. Am J Pathol. 1998; 153:1741-48. 2. Agoff SN, et al. Mod Pathol. 2003; 16:665-73. 3. Negri G, et al. Am J Surg Pathol. 2003; 27:187-93. 4. Klaes R, et al. Int J Cancer. 2001; 92:276-84. 5. Klaes R, et al. Am J Surg Pathol. 2002; 26:1389-99. 6. Negri G, et al. Virchows Arch. 2004; 445:616-20.

Reference Panels

- Breast/Gynecological
- Gastrointestinal (GI)
- Genitourinary (GU)
- Head and Neck

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC016-100
1 ml, Concentrate	IHC016-1
7 ml, Pre-dilute	IHC016-7
3 Positive Control Slides	IHC016-PC

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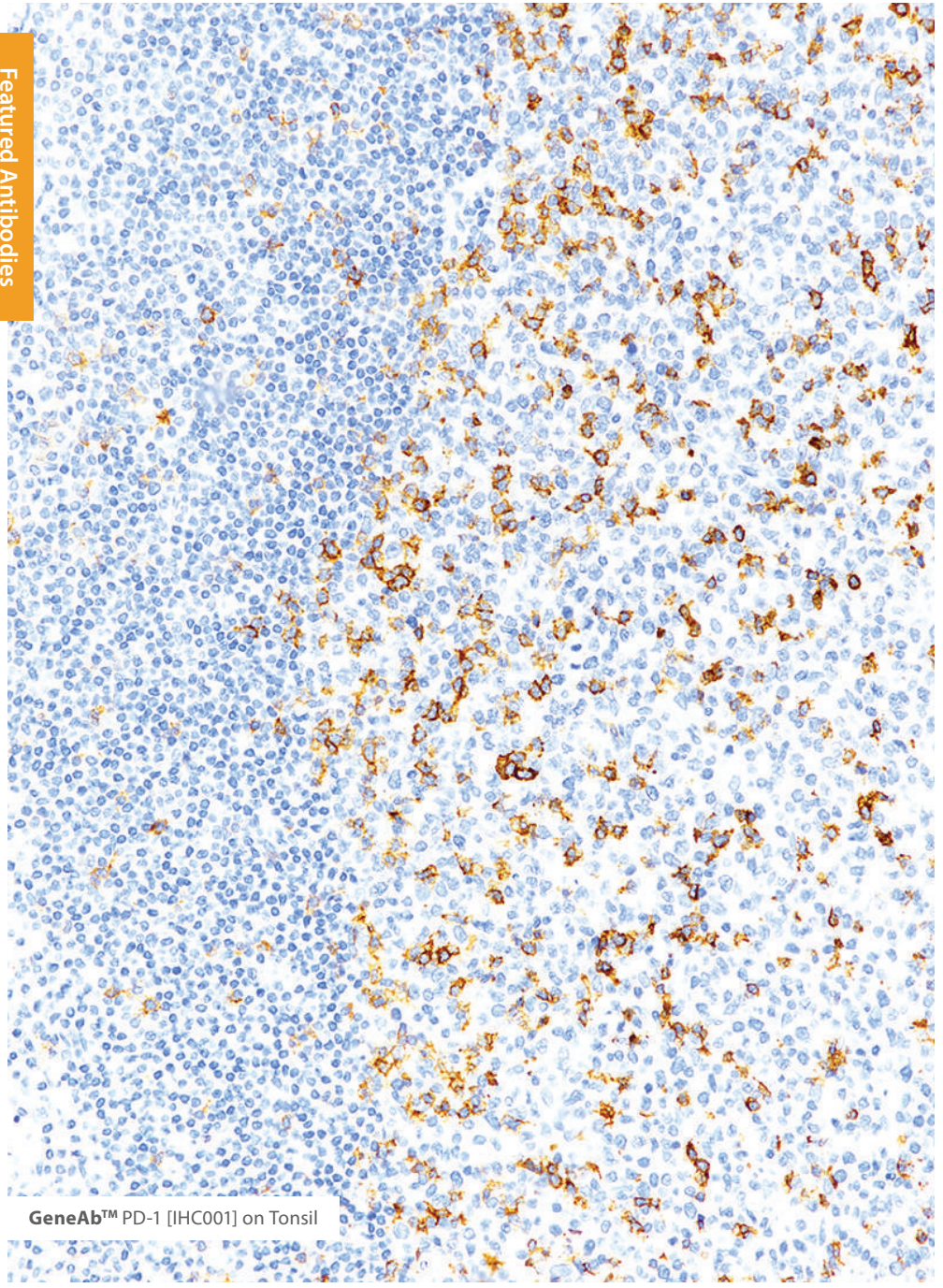
GeneAb™

PD-1

Clone: IHC001 | **Source:** Mouse Monoclonal | **Positive Control:** Tonsil, Lymph Node

Featured Antibodies



GeneAb™ PD-1 [IHC001] on Tonsil

Description

Programmed Death 1 (PD-1) is a member of the CD28/CTLA-4 family of T-cell regulators, expressed as a co-receptor on the surface of activated T-cells, B-cells, and macrophages. New studies have suggested that the PD-1/PD-L1 signaling pathway may be linked to anti-tumor immunity, as PD-L1 has been shown to induce apoptosis of activated T cells or inhibit activity of cytotoxic T cells. In comparison to CD10 and Bcl-6, PD-1 is expressed by fewer B cells and has therefore been considered a more specific and useful diagnostic marker for angioimmunoblastic T-cell lymphoma. Therapies targeted toward the PD-1 receptor have shown remarkable clinical responses in patients with various types of cancer, including non–small-cell lung cancer, melanoma, and renal-cell cancer.

References

1. Dorfman DM, et al. Am J Surg Pathol. 2006; 30:802-10. 2. Hamanishi J, et al. Proc Natl Acad Sci USA. 2007; 104:3360-5. 3. Kobayashi M, et al. J Rheumatol. 2005; 32:2156-63. 4. Konishi J, et al. Clin Cancer Res. 2004; 10:5094-100. 5. Mataki N, et al. Am J Gastroenterol. 2007; 102:302-12. 6. Kim JW, et al. Oncology (Williston Park). 2014; 28:15-28. 7. Tumeh PC, et al. Nature. 2014; 515:568-71. 8. D'Incecco A, et al. Br J Cancer. 2015; 112:95-102. 9. Tykodi SS. Onco Targets Ther. 2014; 7:1349-59.

Reference Panels

- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC001-100
1 ml, Concentrate	IHC001-1
7 ml, Pre-dilute	IHC001-7
3 Positive Control Slides	IHC001-PC

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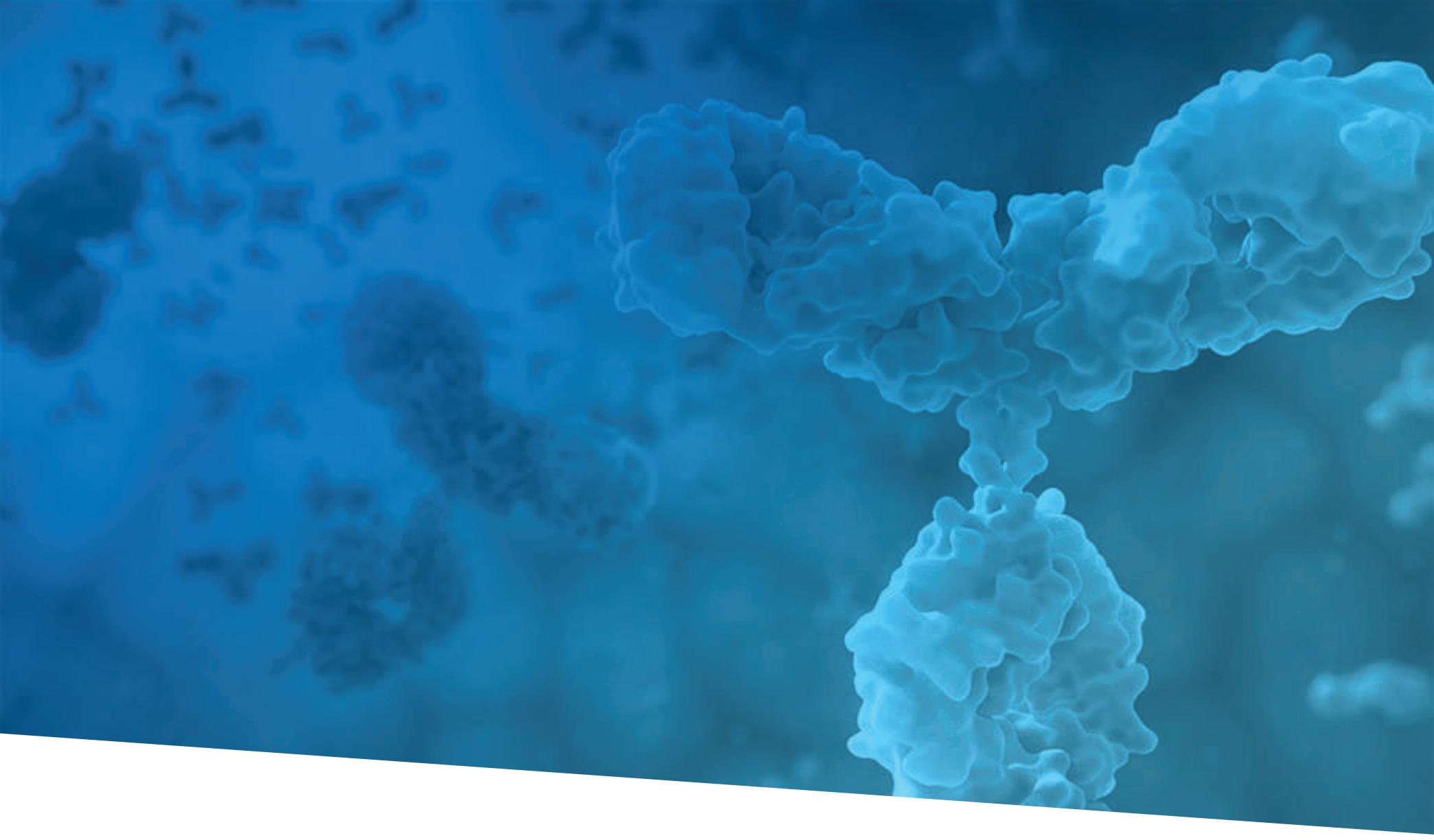


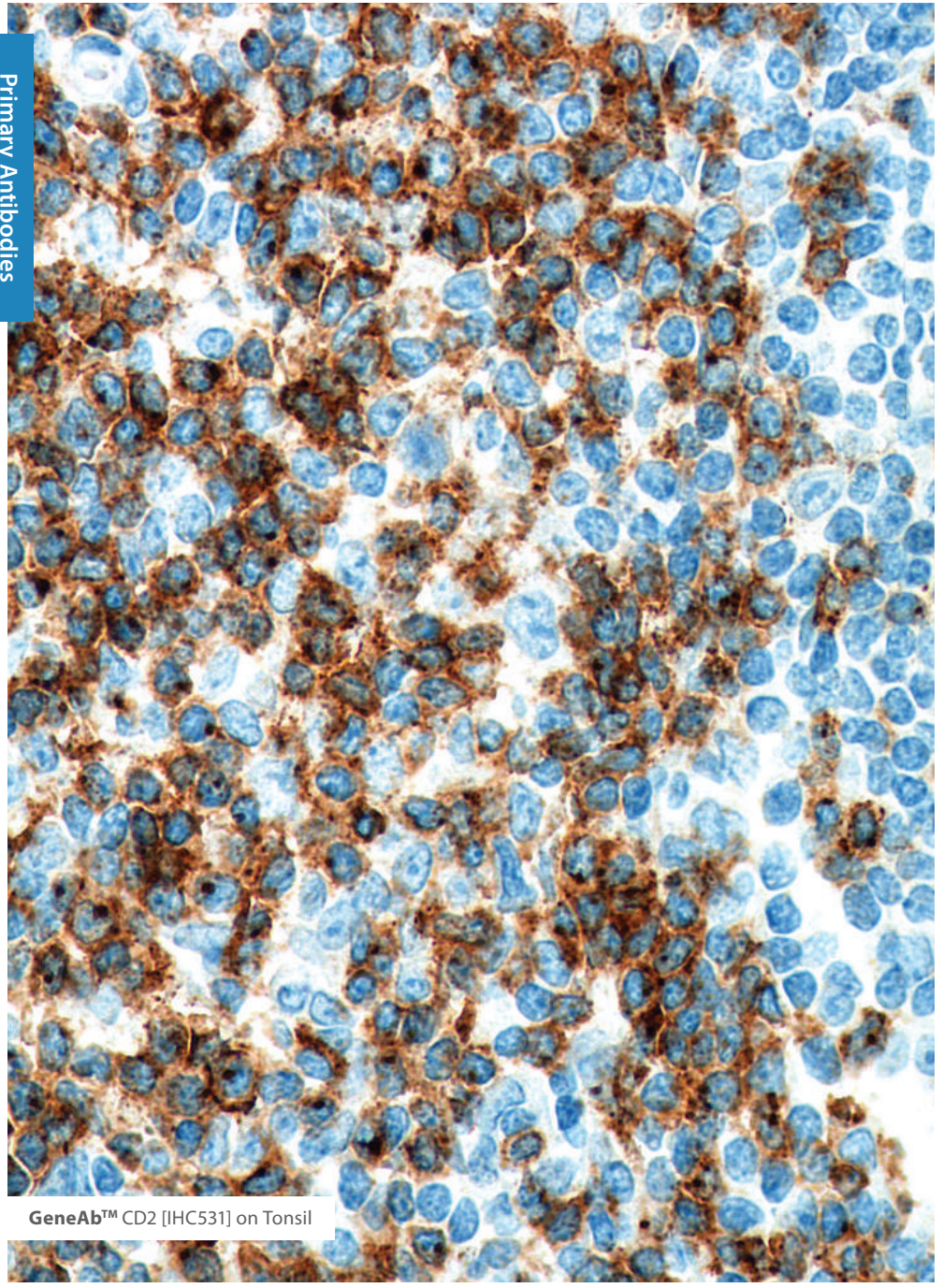
Primary Antibodies

GeneAb™

CD2

Clone: IHC531 | **Source:** Mouse Monoclonal | **Positive Control:** Tonsil

Primary Antibodies



GeneAb™ CD2 [IHC531] on Tonsil

Description

Cluster of differentiation 2 (CD2) is a useful early T-cell lineage restricted antigen that is present in T-cell differentiation. As a pan-T-cell marker, CD2 staining is used for recognizing practically all normal T-cells, but may be deleted in some T-cell neoplasms. Since CD2 is present in most precursor and mature T-cell leukemias and lymphomas, it is useful in the evaluation of lymphoid malignancies. By using CD2 and CD25 staining, the recognition of systemic mastocytosis and mastocytic leukemia is supported.

References

1. Went P, et al. J Clin Oncol. 2006; 24:2472-2479. 2. Aguilera NS, et al. Arch Pathol Lab Med. 2006; 130:1772-9. 3. Barrionuevo C, et al. Appl Immunohistochem Mol Morphol. 2007; 15:38-44. 4. Bovenschen HJ, et al. Br J Dermatol. 2005; 153:72-8. 5. Foon KA, et al. Blood 1986; 68:1- 31.

Reference Panels

- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC531-100
1 ml, Concentrate	IHC531-1
7 ml, Pre-dilute	IHC531-7
3 Positive Control Slides	IHC531-PC

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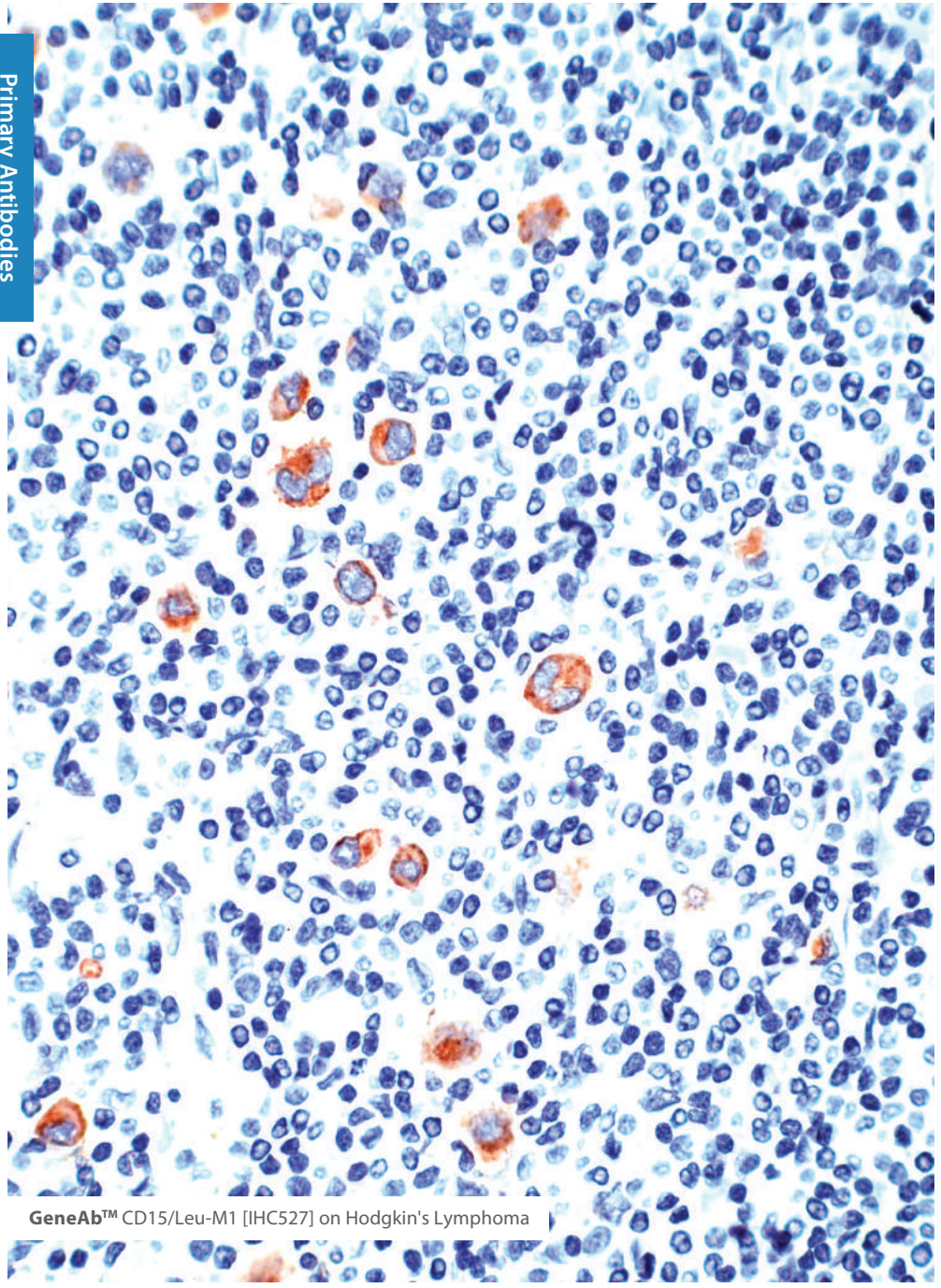
GeneAb™

CD15/Leu-M1

Clone: IHC527 | **Source:** Mouse Monoclonal | **Positive Control:** Hodgkin's Lymphoma

Primary Antibodies



GeneAb™ CD15/Leu-M1 [IHC527] on Hodgkin's Lymphoma

Description

Cluster of differentiation 15 (CD15) is a carbohydrate adhesion molecule. Positive staining for CD15 and negative staining for leukocyte common antigen or other B- or T-cell lineage markers helps recognize Reed Sternberg cells (RSC) in Classical Hodgkin's Lymphoma (CHL), and distinguishes it from Hodgkin-like neoplasms. CD15 does not stain mesotheliomas and is therefore most useful for distinguishing epithelial mesothelioma from adenocarcinoma.

References

1. Li F, et al. Cell Res. 2007; 17:3-14. 2. Ponta H, et al. Nat Rev Mol Cell Biol. 2003; 4:33-45.

Reference Panels

- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC527-100
1 ml, Concentrate	IHC527-1
7 ml, Pre-dilute	IHC527-7
3 Positive Control Slides	IHC527-PC

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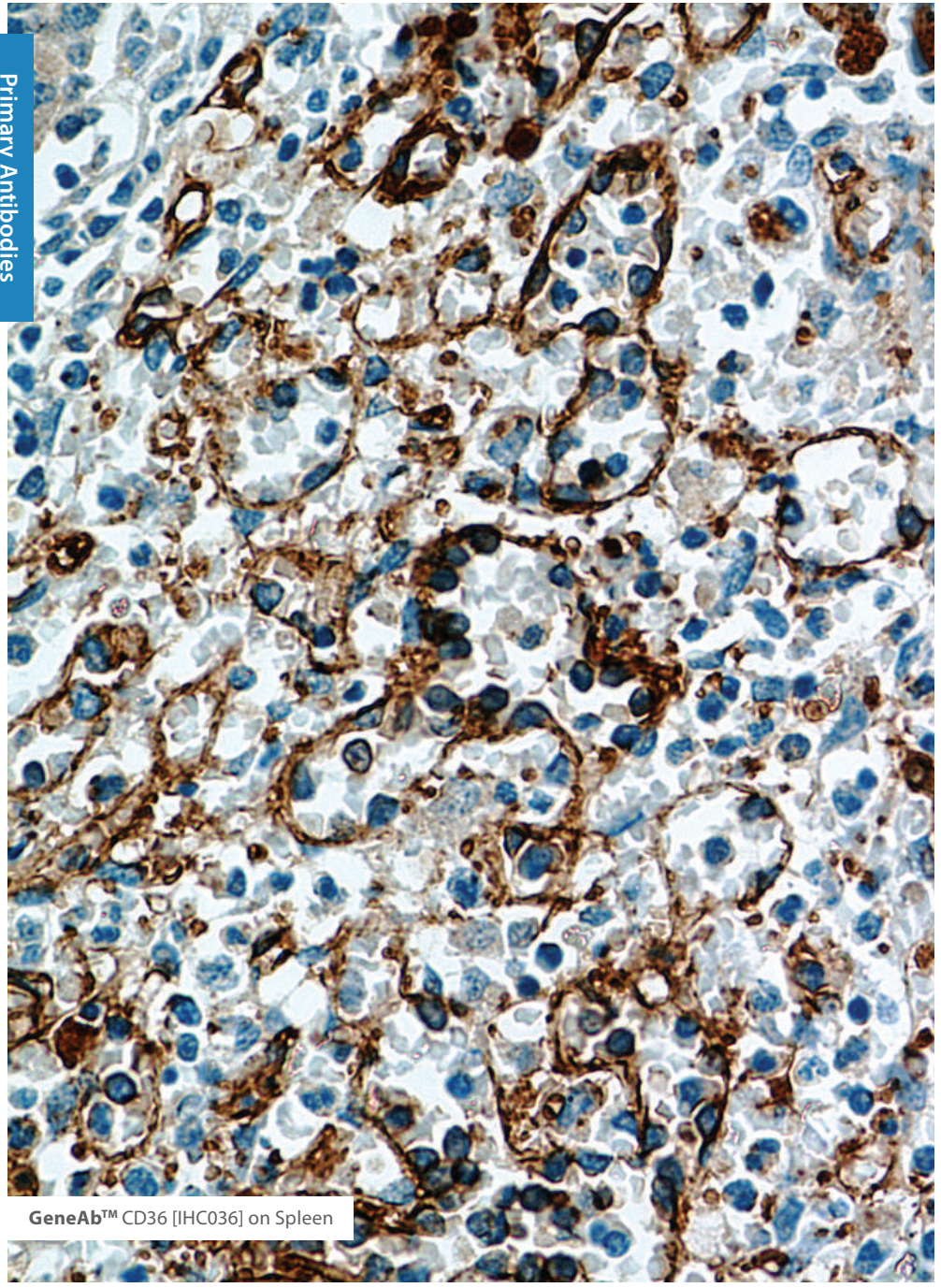
GeneAb™

CD36

Clone: IHC036 | **Source:** Mouse Monoclonal | **Positive Control:** Heart

Primary Antibodies



GeneAb™ CD36 [IHC036] on Spleen

Description

Cluster of differentiation 36 (CD36) is a surface glycoprotein present on platelets, mononuclear phagocytes, adipocytes, hepatocytes, myocytes, and some epithelia, which plays a role in angiogenesis, immunity, and metabolism. During Plasmodium falciparum infection, CD36 is present on endothelial cells and erythrocytes. CD36 is used as an early marker of bone marrow and erythroid differentiation, and Anti-CD36 is also reactive with endothelial cells and adipocytes.

References

1. Silverstein RL, et al. Oxford University Press. 1995; 1269-71. 2. Knapp W, et al. Oxford University Press. 1989. 3. Silverstein RL, et al. Sci Signal. 2009; 2:re3. 4. Yildirim A, et al. Saudi Med J. 2004; 25:308-312.

Reference Panels

- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC036-100
1 ml, Concentrate	IHC036-1
7 ml, Pre-dilute	IHC036-7
3 Positive Control Slides	IHC036-PC

Designations

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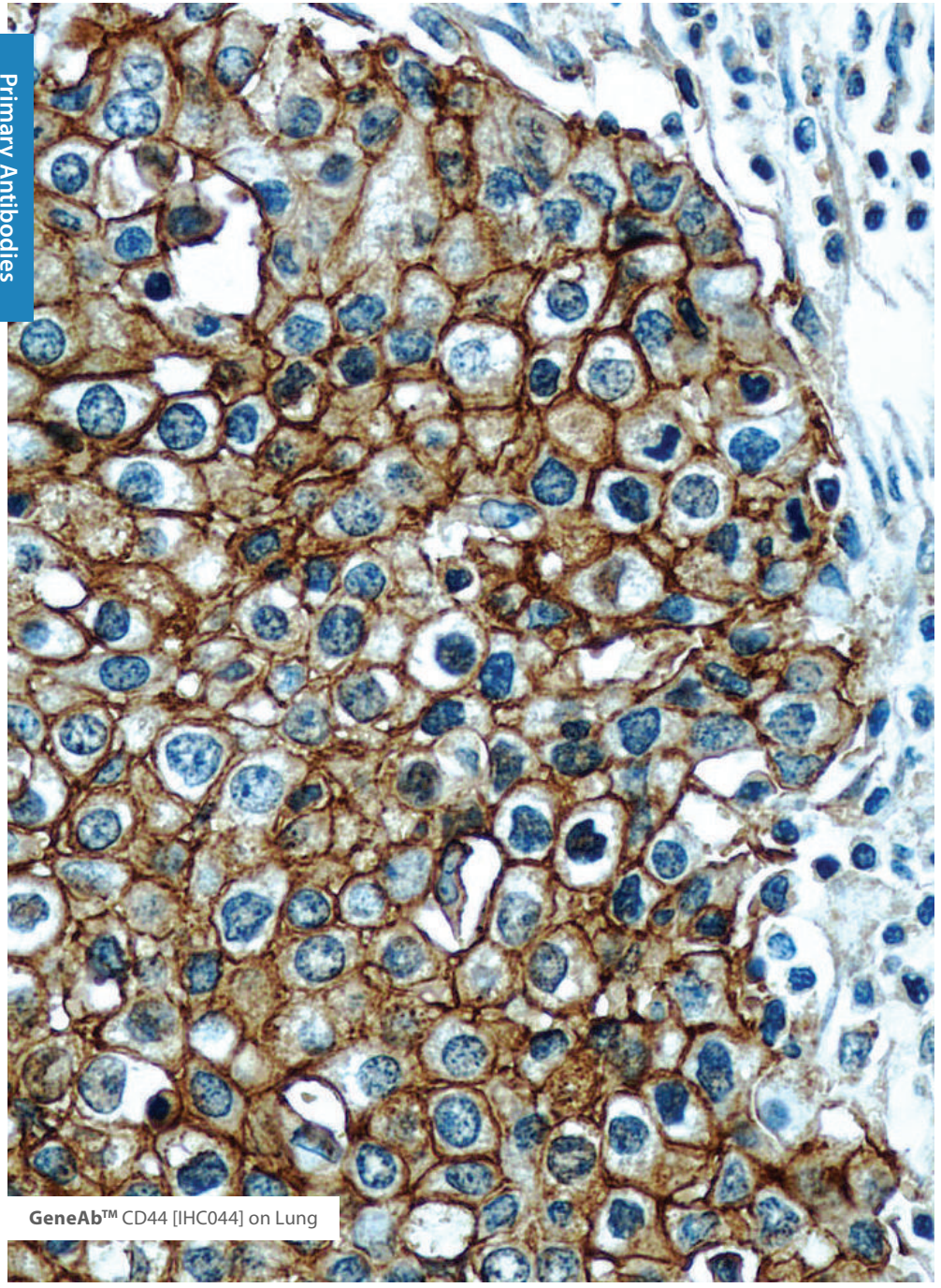
GeneAb™

CD44

Clone: IHC044 | **Source:** Mouse Monoclonal | **Positive Control:** Benign Urothelium

Primary Antibodies



GeneAb™ CD44 [IHC044] on Lung

Description

Cluster of differentiation 44 (CD44) is a glycoprotein receptor for hyaluronic acid, which plays a fundamental role in cellular adhesion, stromal binding, migration, and cell-cell interactions. Studies have suggested that the CD44-hyaluronate interaction is central to tumor invasiveness. Positive staining with Anti-CD44 is implicated in a multitude of different cancer types, including breast, prostatic, renal cell, colonic, hepatocellular, and genitourinary carcinomas, as well as Non-Hodgkin's Lymphoma, metastatic melanoma, gastric cancer, and some soft tissue tumors. It has also been demonstrated that there is a positive correlation between tumor progression and increased expression of CD44v, a high molecular weight CD44 isoform that has been described in epithelial cells. Given the expression of CD44 in a wide range of cancers, the most practical application of CD44 immunostaining is its use in discriminating between urothelial transitional cell carcinoma in situ from non-neoplastic changes in the urothelium.

References

1. Li F, et al. Cell Res. 2007; 17:3-14. 2. Ponta H, et al. Nat Rev Mol Cell Biol. 2003; 4:33-45.

Reference Panels

- Genitourinary (GU)
- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC044-100
1 ml, Concentrate	IHC044-1
7 ml, Pre-dilute	IHC044-7
3 Positive Control Slides	IHC044-PC

Designations

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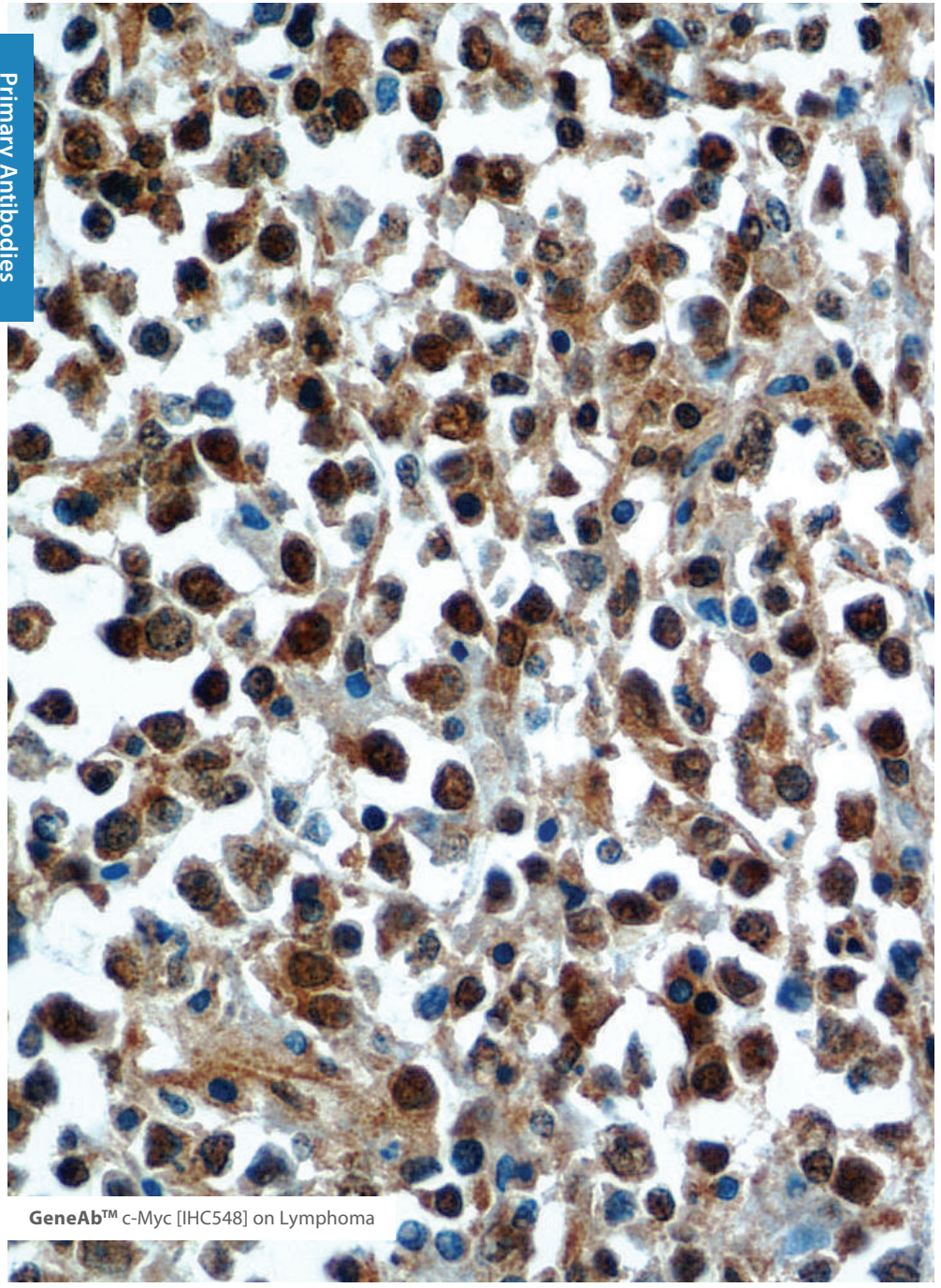
GeneAb™

c-Myc

Clone: IHC548 | **Source:** Mouse Monoclonal | **Positive Control:** Breast Carcinoma

Primary Antibodies



GeneAb™ c-Myc [IHC548] on Lymphoma

Description

c-Myc is a phosphoprotein involved with cell proliferation and di erentiation. It is a useful marker for differentiation between Burkitt Lymphoma (BL) and diffuse large B-cell lymphoma (DLBCL) since, despite morphologically similarities between the two B-cell lymphomas Anti-c-Myc stains all BL and only a few DLBCL cases. A panel of antibodies against c-Myc, CD10, BCL2, and Ki-67 is useful for cases where MYC FISH analysis is warranted or can be omitted. Nuclear c-Myc overexpression is common in luminal cells of prostate intraepithelial neoplasia, many primary carcinomas, and metastatic disease.

References

1. Green TM, et al. Am J Surg Pathol. 2012; 36:612-9. 2. Aukema SM, et al. Blood. 2011; 117:2319-31. 3. Gurel B, et al. Mod Pathol. 2008; 21:1156-67.

Reference Panels

- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC548-100
1 ml, Concentrate	IHC548-1
7 ml, Pre-dilute	IHC548-7
3 Positive Control Slides	IHC548-PC

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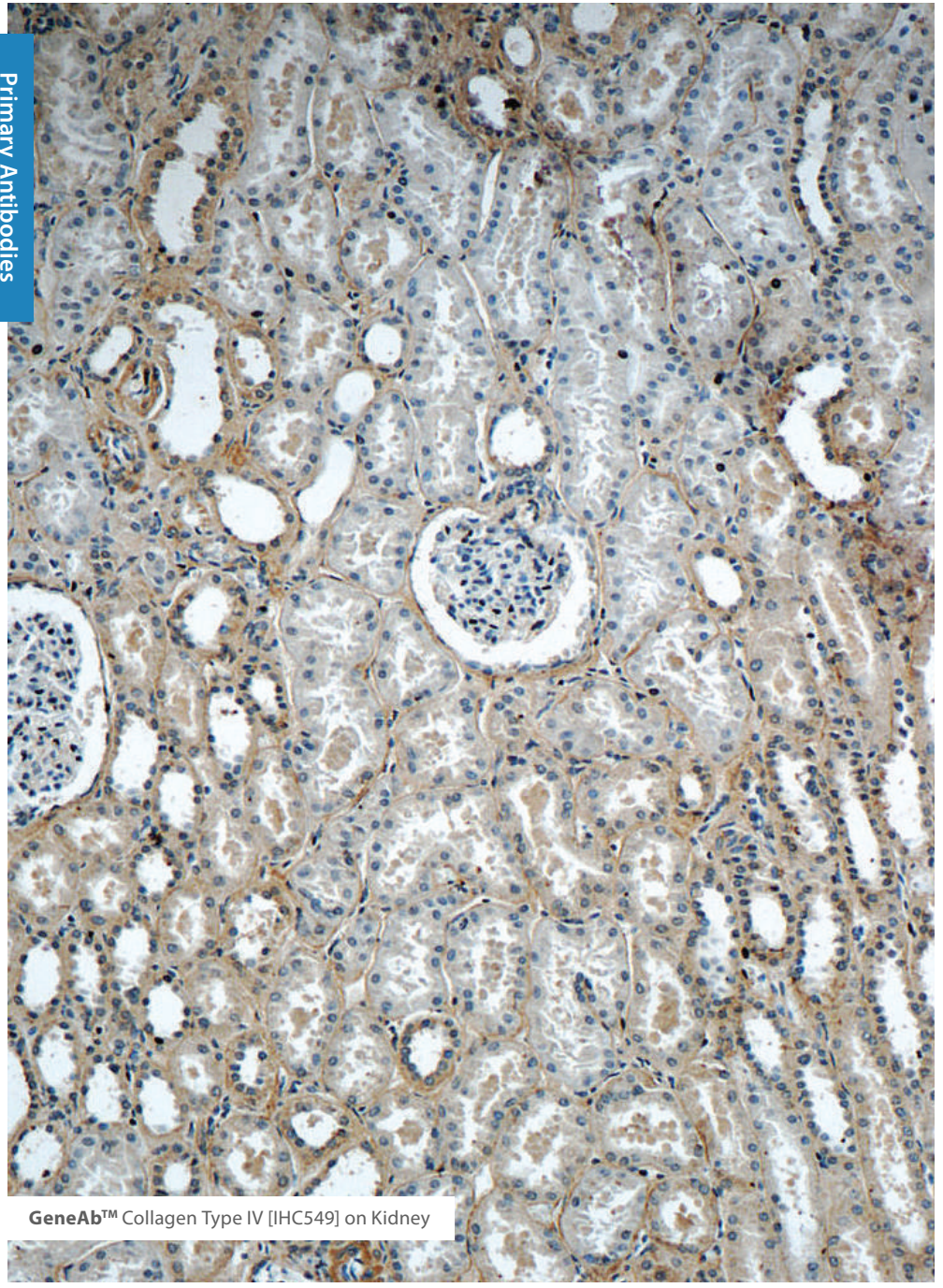
GeneAb™

Collagen Type IV

Clone: IHC549 | **Source:** Mouse Monoclonal | **Positive Control:** Lung, Muscle

Primary Antibodies



GeneAb™ Collagen Type IV [IHC549] on Kidney

Description

Collagen Type IV is a primary component in the basal lamina that is used as a marker to observe the presence of the lamina and examine its structure. In addition to the epithelial basal lamina, Anti-Collagen Type IV stains mesenchymal components. It is useful for identifying soft tissue cancers including schwannomas and leiomyomas. Anti-Collagen Type IV frequently reacts with these tissues after becoming well-differentiated and malignant. The use of Anti-Collagen Type IV produces more reliable results than non-specific silver reticulum stains when investigating the vascular elements of neoplasms, hemangiopericytoma, angiosarcoma and epithelioid hemangioendothelioma.

References

1. Gould VE, et al. Pathol Annul. 1976; 11:353-86. 2. McArdle JP, et al. Int J Cancer. 1984; 34:633-8. 3. Sakr WA, et al. Hum Pathol. 1987; 18:1043-50. 4. Barsky SH, et al. Am J Surg Pathol. 1983; 7:667-77. 5. De Iorio P, et al. Anticancer Res. 2001; 21:1395-9. 6. Maatta M, et al. J Histochem Cytochem. 2001; 49:711-26. 7. Schmehl K, et al. Int J Colorectal Dis. 2000; 15:39-48. 8. Felix A, et al. Hum Pathol. 1999; 30:964-9. 9. Damiani S, et al. Virchows Arch. 1999; 434:227-34.

Reference Panels

- Dermatopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC549-100
1 ml, Concentrate	IHC549-1
7 ml, Pre-dilute	IHC549-7
3 Positive Control Slides	IHC549-PC

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GeneAb™

Cytokeratin 7 & 17

Clone: IHC017 | **Source:** Mouse Monoclonal | **Positive Control:** Bladder, Colon Carcinoma, Colon, Thyroid Carcinoma

Primary Antibodies

Coming Soon

Description

Cytokeratin 17 (CK17) forms intermediate filaments found in the intracytoplasmic cytoskeleton of epithelial tissue and provides mechanical support. Anti-Cytokeratin 19 stains epithelia and epithelial malignancies such as carcinomas of the colon, stomach, pancreas, biliary tract, liver, and breast. Cytokeratin 19 is a useful marker for distinguishing hepatocellular carcinoma from intrahepatic cholangiocarcinoma. This differentiation is improved when stained in combination with Cytokeratin 7, CAM5.2, Ber-EP4/MOC31, Hep-Par1 and TTF1. Cytokeratin 19 staining can also be used to recognize thyroid papillary carcinomas.

References

1. Jain R, et al. Appl Immunohistochem Mol Morphol. 2010; 18:9-15. 2. Rosai J. Tumori. 2003; 89:517-9. 3. de Matos LL, et al. Diagn Pathol. 2012; 7:97.

Reference Panels

- Cytopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC017-100
1 ml, Concentrate	IHC017-1
7 ml, Pre-dilute	IHC017
3 Positive Control Slides	IHC017-PC

Designations

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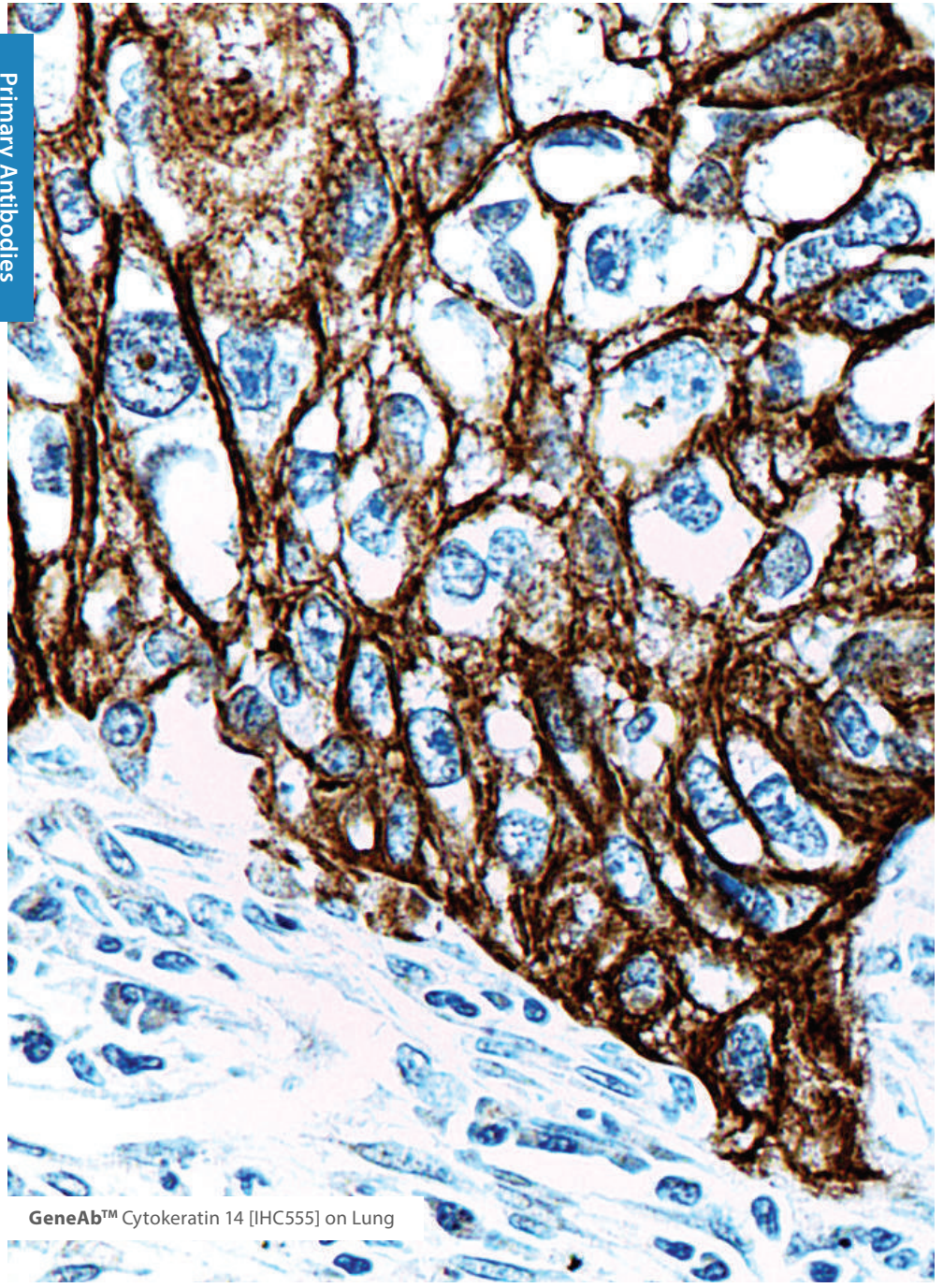
GeneAb™

Cytokeratin 14

Clone: IHC555 | **Source:** Mouse Monoclonal | **Positive Control:** Squamous Cell Carcinoma

Primary Antibodies



GeneAb™ Cytokeratin 14 [IHC555] on Lung

Description

Cytokeratin 14 (CK14) is found in squamous epithelial basal cells, myoepithelium, some glandular epithelia, and mesothelial cells. Anti-Cytokeratin 14 is useful for distinguishing squamous cell carcinomas from other epithelial tumors, and for classifying metaplastic breast carcinomas.

References

1. Reis-Filho JS, et al. Appl Immunohistochem Mol Morphol. 2003; 11:1-8. 2. Chu PG, et al. Histopathology. 2001; 39:9-16.
3. Chu PG, et al. Histopathology. 2001; 39:455-62. 4. Reis-Filho JS, et al. Appl Immunohistochem Mol Morphol. 2003; 11:1-8.
5. Dabbs David J. Diagnostic Immunohistochemistry. Churchill-Livingstone. 2002; 166-176.

Reference Panels

- Genitourinary (GU)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC555-100
1 ml, Concentrate	IHC555-1
7 ml, Pre-dilute	IHC555-7
3 Positive Control Slides	IHC555-PC

Designations

IVD: RUO:

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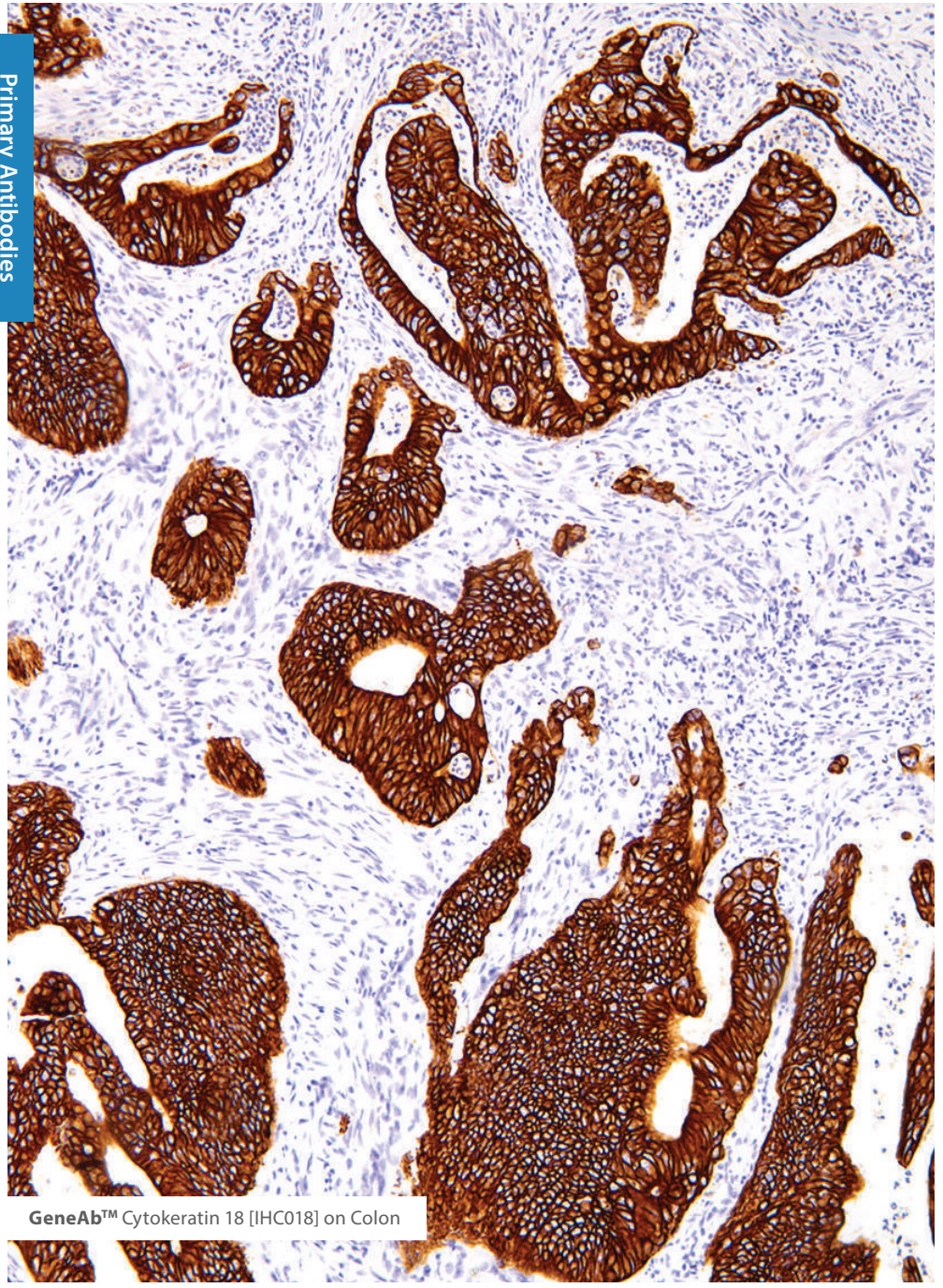
GeneAb™

Cytokeratin 18

Clone: IHC018 | **Source:** Mouse Monoclonal | **Positive Control:** Breast, Breast Carcinoma

Primary Antibodies



GeneAb™ Cytokeratin 18 [IHC018] on Colon

Description

Cytokeratin 18 (CK18) is present in simple, glandular, and transitional epithelial cells, but is absent in stratified epithelial cells. CK18 usually multimerizes with Cytokeratin 8, and Anti-Cytokeratin 18 is useful for detecting adenocarcinomas of simple and glandular epithelium origin, as well as poorly differentiated squamous carcinoma cells.

References

1. Moll R. Subcell Biochem. 1998; 31:205-62. 2. Ku NO, et al. J Clin Invest. 1997; 99:19-23. 3. Woelfle U, et al. Clin Cancer Res. 2004; 10:2670-4.

Reference Panels

- Breast/Gynecological
- Gastrointestinal (GI)
- Genitourinary (GU)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC018-100
1 ml, Concentrate	IHC018-1
7 ml, Pre-dilute	IHC018-7
3 Positive Control Slides	IHC018-PC

Designations

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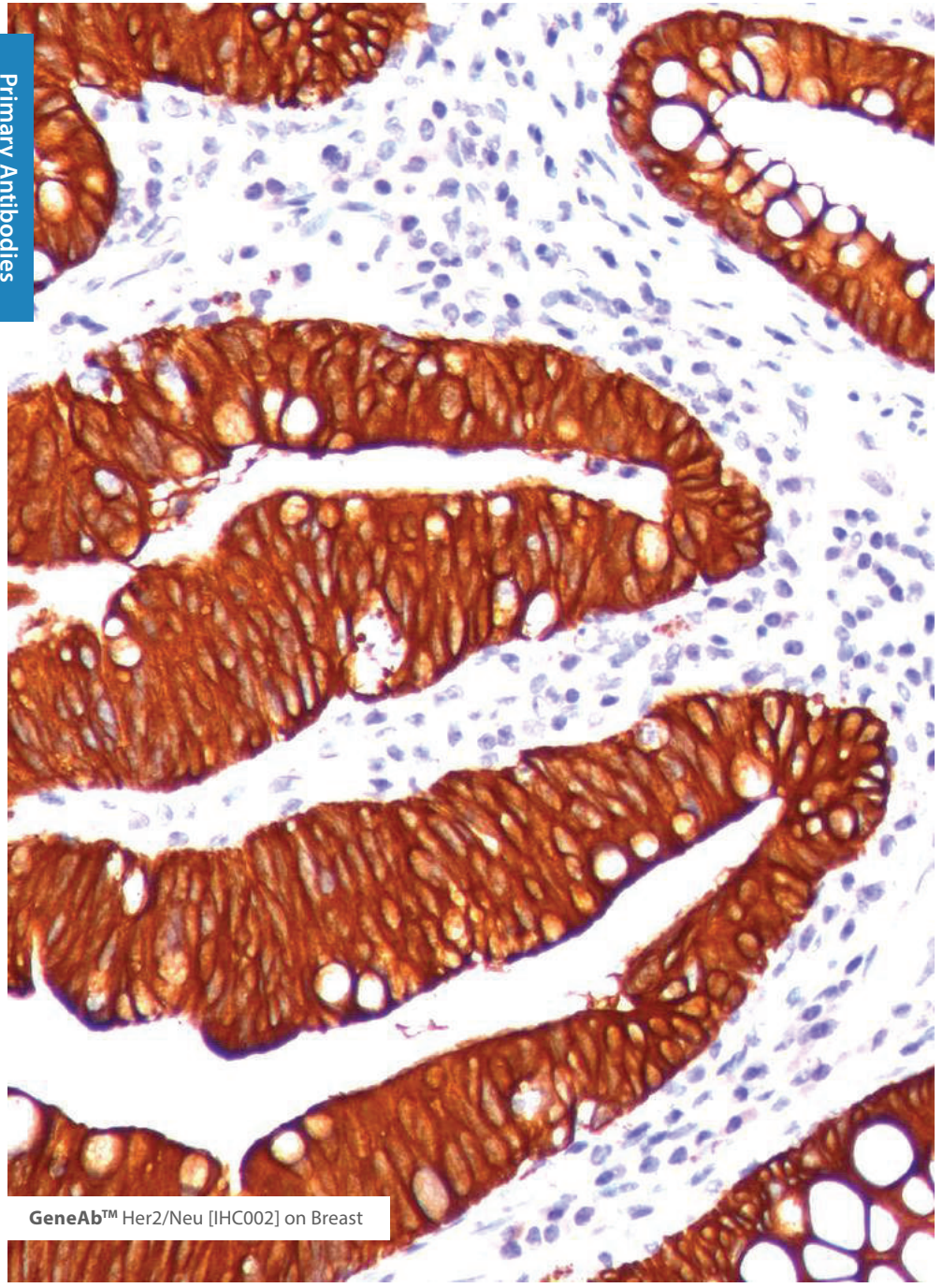
GeneAb™

Cytokeratin 19

Clone: IHC019 | **Source:** Mouse Monoclonal | **Positive Control:** Bladder, Colon Carcinoma, Colon, Thyroid Carcinoma

Primary Antibodies



GeneAb™ Her2/Neu [IHC002] on Breast

Description

Cytokeratin 19 (CK19) forms intermediate filaments found in the intracytoplasmic cytoskeleton of epithelial tissue and provides mechanical support. Anti-Cytokeratin 19 stains epithelia and epithelial malignancies such as carcinomas of the colon, stomach, pancreas, biliary tract, liver, and breast. Cytokeratin 19 is a useful marker for distinguishing hepatocellular carcinoma from intrahepatic cholangiocarcinoma. This differentiation is improved when stained in combination with Cytokeratin 7, CAM5.2, Ber-EP4/MOC31, Hep-Par1 and TTF1. Cytokeratin 19 staining can also be used to recognize thyroid papillary carcinomas.

References

1. Jain R, et al. Appl Immunohistochem Mol Morphol. 2010; 18:9-15. 2. Rosai J. Tumori. 2003; 89:517-9. 3. de Matos LL, et al. Diagn Pathol. 2012; 7:97.

Reference Panels

- Cytopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC019-100
1 ml, Concentrate	IHC019-1
7 ml, Pre-dilute	IHC019-7
3 Positive Control Slides	IHC019-PC

Designations

IVD: RUO:

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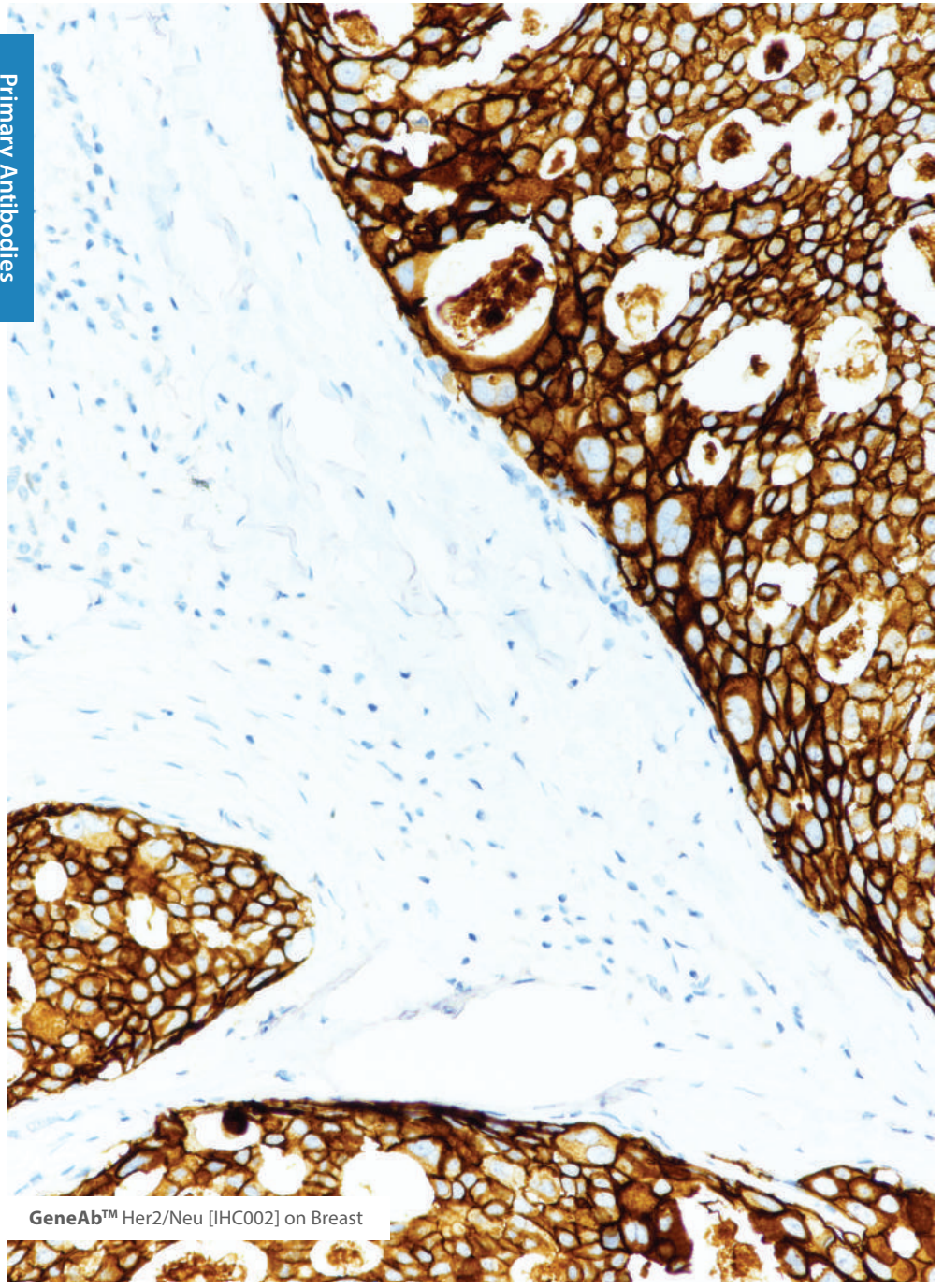
GeneAb™

Her2/Neu

Clone: IHC002 | **Source:** Mouse Monoclonal | **Positive Control:** Breast Carcinoma

Primary Antibodies



GeneAb™ Her2/Neu [IHC002] on Breast

Description

The **Her2/Neu** (c-erbB-2) proto-oncogene is a transmembrane receptor tyrosine kinase that is clinically indicated in a number of carcinomas. Overexpression of the c-erbB-2 protein has been associated with ductal breast cancer, as well as pulmonary and gastric adenocarcinomas. A correlation between Her2 and p53 has also been documented, as overexpression of both proteins has been associated with early invasion and metastasis in bladder cancer.

References

1. Suthipintawong C, et al. Diagn Cytopathol. 1997; 17:127-33. 2. Alexiev BA, et al. Gen Diagn Pathol. 1997; 142:271-9. 3. Fernández Aceñero MJ, et al. Gen Diagn Pathol. 1997; 142:289-96. 4. Koeppen HKW, et al. Histopathology. 2001; 38:96-104. 5. Moch H, et al. Virchows Arch A Pathol Anat Histopathol. 1993; 423:329-34. 6. Cetin B, et al. Transl Gastroenterol Hepatol. 2016; 1:59.

Reference Panels

- Breast/Gynecological

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC002-100
1 ml, Concentrate	IHC002-1
7 ml, Pre-dilute	IHC002-7
25 ml, Pre-dilute	IHC002-25
3 Positive Control Slides	IHC002-PC

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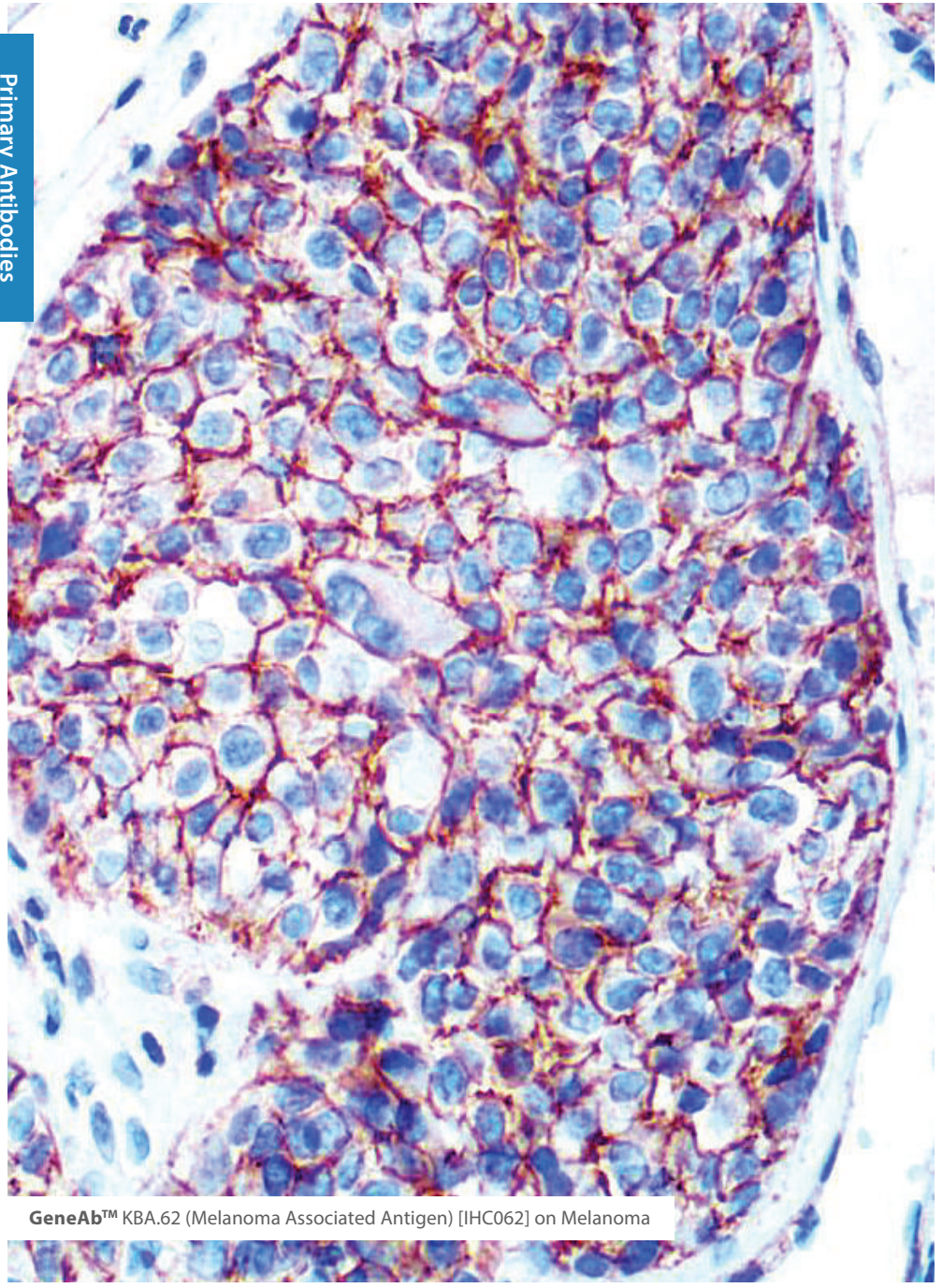
GeneAb™

KBA.62 (Melanoma Associated Antigen)

Clone: IHC062 | **Source:** Mouse Monoclonal | **Positive Control:** Melanoma

Primary Antibodies



GeneAb™ KBA.62 (Melanoma Associated Antigen) [IHC062] on Melanoma

Description

KBA.62, also known as **Melanoma Associated Antigen**, is used to detect an antigen present in melanocytic tumors, such as melanomas, due to its proven sensitivity and specificity. The antibody can also be used to distinguish between junctional nevus and intradermal nevus cells, and fetal melanocytes versus normal adult melanocytes. Studies have shown KBA.62 to be highly useful in differentiating between metastatic amelanotic melanoma and a number of poorly differentiated carcinomas, large cell lymphomas, sarcomas, and spindle cell carcinomas.

References

1. Kaufmann O, et al. Mod Pathol. 1998; 11:740-6. 2. Gown AM, et al. A J Path. 1986; 123:195. 3. Kocan P, et al. Cesk Patol. 2004; 40:50-6. 4. Pagès C, et al. Hum Pathol. 2008; 39:1136-42. 5. Wick MR, et al. Arch Path Lab. 1988; 112:616-20. 6. Cohen-Knafo E, et al. J Clin Pathol. 1995; 48:826-31. 7. Leong ASY, et al. Surg Path. 1989:2:137.

Reference Panels

- Dermatopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC062-100
1 ml, Concentrate	IHC062-1
7 ml, Pre-dilute	IHC062-7
3 Positive Control Slides	IHC062-PC

Designations

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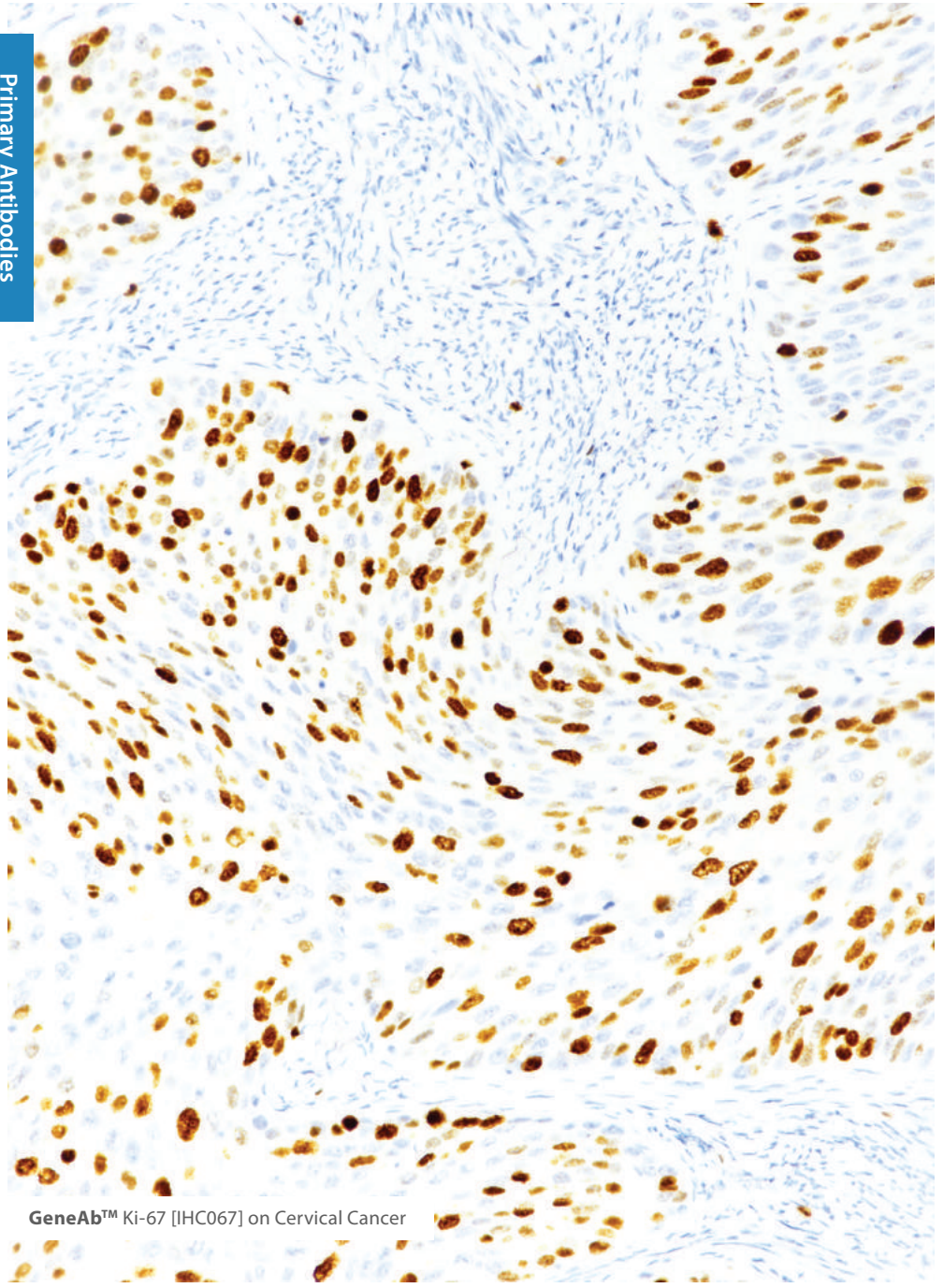
GeneAb™

Ki-67

Clone: IHC067 | **Source:** Mouse Monoclonal | **Positive Control:** Tonsil

Primary Antibodies



GeneAb™ Ki-67 [IHC067] on Cervical Cancer

Description

Ki-67 is a nuclear, non-histone protein that is expressed only during active phases of the cell cycle (G1, S, G2 and M), but not in the resting phases (G0 and G1 early phase). Although the antigen has also been associated with ribosomal RNA transcription, it is strongly linked to cell proliferation and has thus been indicated as an effective marker in grading the proliferation rate of tumors, including those of the brain, breast, cervix, and prostate.

References

1. Mckeever P, et al. J Neuropathol Exp Neurol. 1998; 57:931-6. 2. Coons SW, et al. Neurosurgery. 1997; 41:878-84. 3. Allegra CJ, et al. J Clin Oncol. 2003; 21:241-50. 4. Pathmanathan N, et al. J Clin Pathol. 2013; 66: 512-6. 5. Jansen R, et al. Br J Cancer 1998; 78:460-5. 6. Goodson WH, et al. Breast Cancer Res Treat. 1998; 49:155-64. 7. Rossi S, et al. Am J Clin Pathol. 2005; 124: 295-302. 8. Pena LL, et al. J Vet Diag Invest. 1998; 10:237-46. 9. Gibbons D, et al. Comparison Mod Pathol. 1997; 10:409-13.

Reference Panels

- Breast/Gynecological
- Genitourinary (GU)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC067-100
1 ml, Concentrate	IHC067-1
7 ml, Pre-dilute	IHC067-7
25 ml, Pre-dilute	IHC067-25
3 Positive Control Slides	IHC067-PC

Designations

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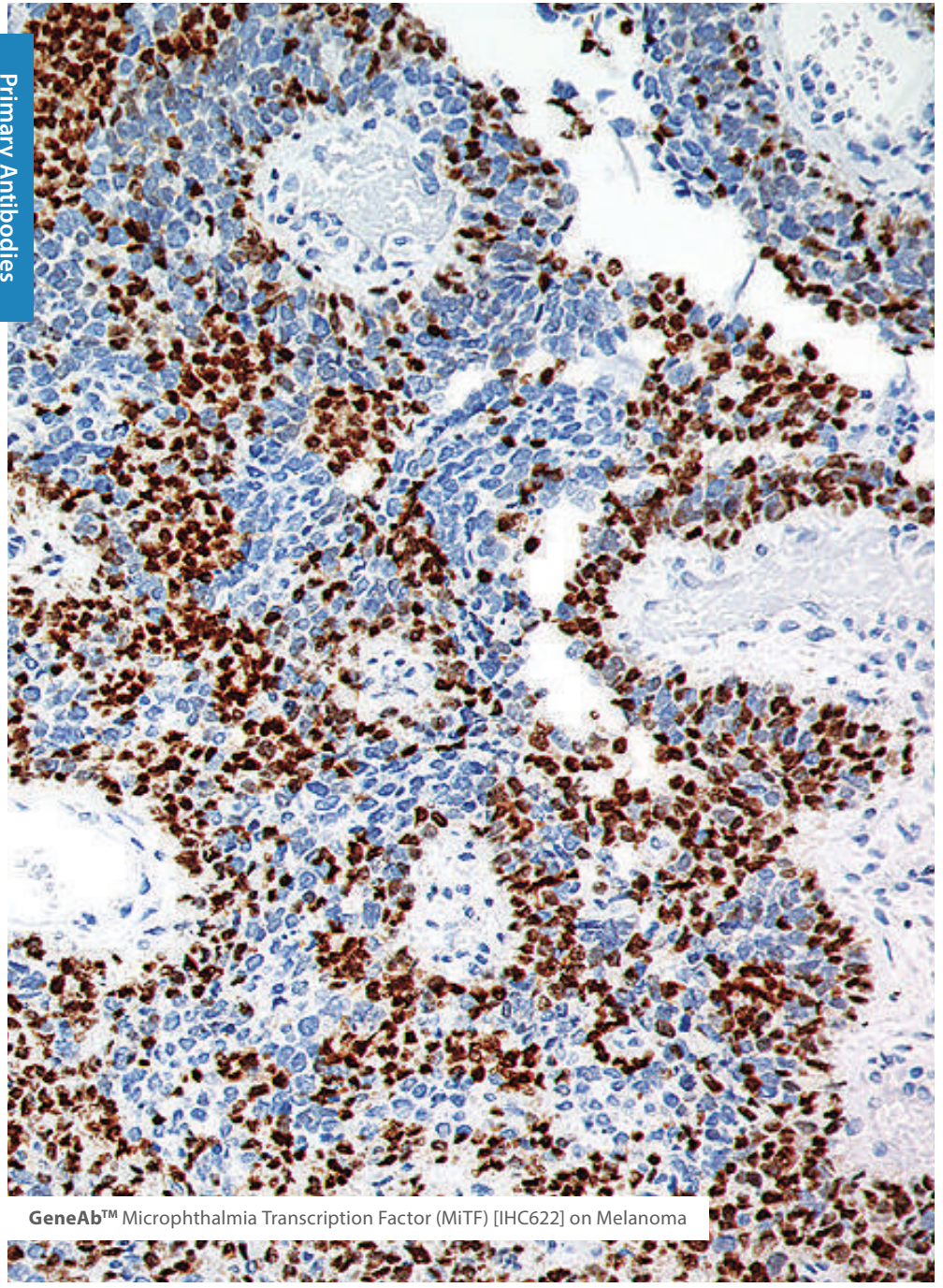
GeneAb™

Microphthalmia Transcription Factor (MiTF)

Clone: IHC622 | **Source:** Mouse Monoclonal | **Positive Control:** Melanoma

Primary Antibodies



GeneAb™ Microphthalmia Transcription Factor (MiTF) [IHC622] on Melanoma

Description

Microphthalmia-associated Transcription Factor (MiTF) is a transcription factor involved in the differentiation of a number of cell types including mast cells, osteoclasts, neural crest-derived melanocytes, and optic cup-derived retinal pigment epithelium. Mutations in the MiTF gene are clinically indicated in auditory pigmentary syndromes including Waardenburg syndrome type II, type IIa, and Tietze syndrome. MiTF has been reported as a highly specific and sensitive marker for malignant melanoma, including some spindle-cell variants, as well as a relatively rare class of tumors known as PEComas, which are tumors showing perivascular epithelioid cell differentiation. Anti-MiTF is also able to recognize serine phosphorylated and non-phosphorylated melanocytic isoforms of microphthalmia.

References

1. Liegl B, et al. Am J Surg Pathol. 2008; 32:608-14. 2. Righi A, et al. Int J Surg Pathol. 2008; 16:16-20. 3. Weinreb I, et al. Virchows Arch. 2007; 450:463-70. 4. Ohsie SJ, et al. J Cutan Pathol. 2008; 35:433-44. 5. Hornick JL, et al. Am J Surg Pathol. 2008; 32:493-501. 6. Sheffield MV, et al. Am J Clin Pathol. 2002; 118:930-6. 7. Dorvault CC, et al. Cancer. 2001; 93:337-43. 8. O'Reilly FM, et al. J Am Acad Dermatol. 2001; 45:414-9. 9. Miettinen M, et al. Am J Surg Pathol. 2001; 25:205-11. 10. Levy C, et al. Trends Mol Med. 2006; 12:406-14. 11. Smith SD, et al. J Med Genet. 2000; 37:446-8. 12. Zhuang L, et al. Mod Pathol. 2007; 20:416-26.

Reference Panels

- Dermatopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC622-100
1 ml, Concentrate	IHC622-1
7 ml, Pre-dilute	IHC622-7
25 ml, Pre-dilute	IHC622-25
3 Positive Control Slides	IHC622-PC

Designations

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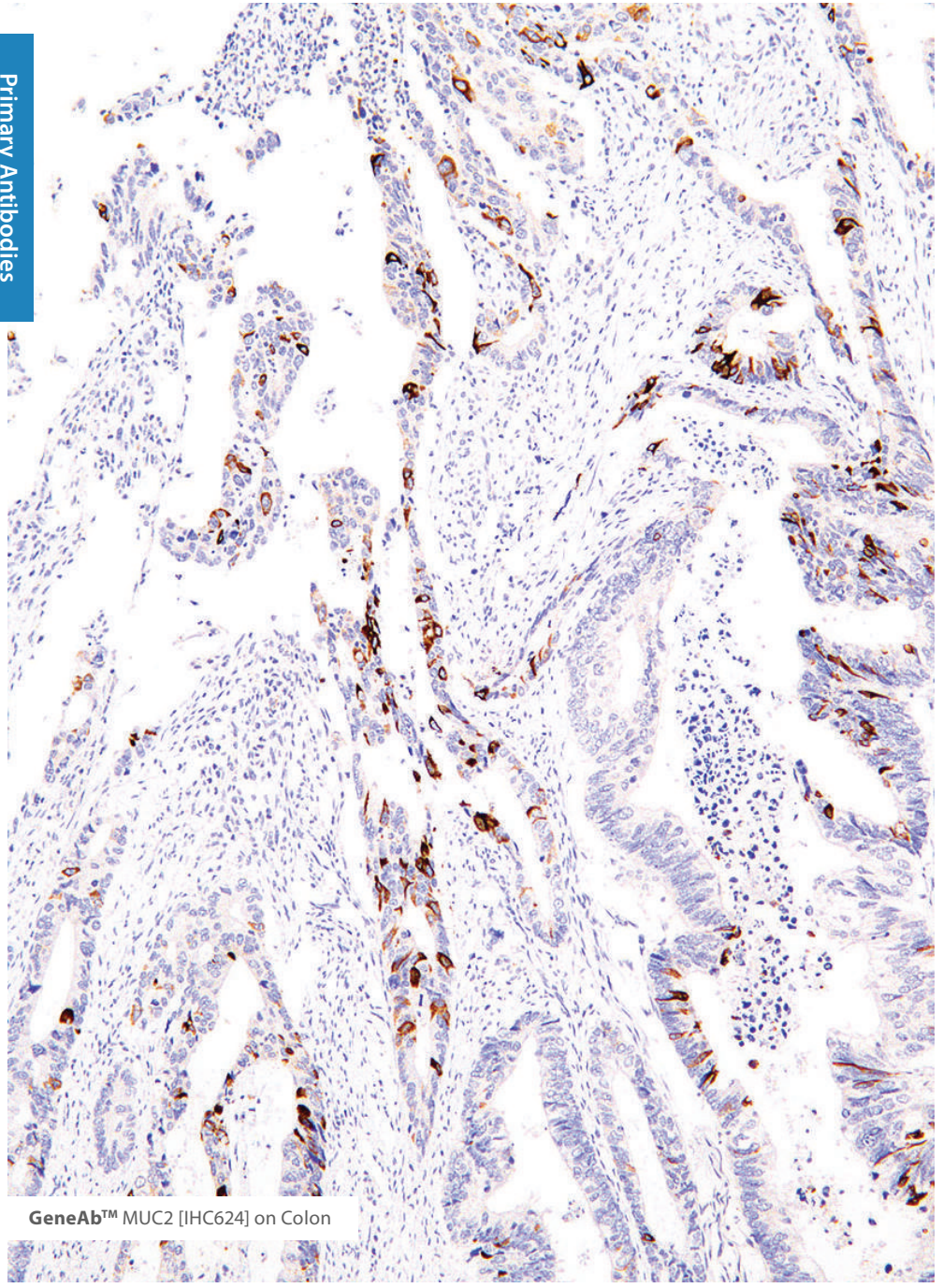
GeneAb™

MUC2

Clone: IHC624 | **Source:** Mouse Monoclonal | **Positive Control:** Colon

Primary Antibodies



GeneAb™ MUC2 [IHC624] on Colon

Description

Mucin 2 (MUC2) is an intestinal glycoprotein that functions to protect the gut lumen by forming an insoluble mucous barrier. The expression of MUC2 is also found in the colon, breast, and prostate, as well as in gastrointestinal, colonic, breast and prostate neoplasia. Anti-MUC2 stains goblet cells of the colon and colonic carcinomas, normal and neoplastic breast tissues, and prostate adenocarcinoma.

References

1. Allen A, et al. Int J Biochem Cell Biol. 1998; 30:797-801. 2. Byrd JC, et al. Cancer Metastasis Rev. 2004; 23:77-99. 3. Leteurtre E, et al. World J Gastroenterol. 2006; 12:3324-31. 4. Rakha EA, et al. Mod Pathol. 2005; 18:1295-304.

Reference Panels

- Gastrointestinal (GI)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC624-100
1 ml, Concentrate	IHC624-1
7 ml, Pre-dilute	IHC624-7
3 Positive Control Slides	IHC624-PC

Designations

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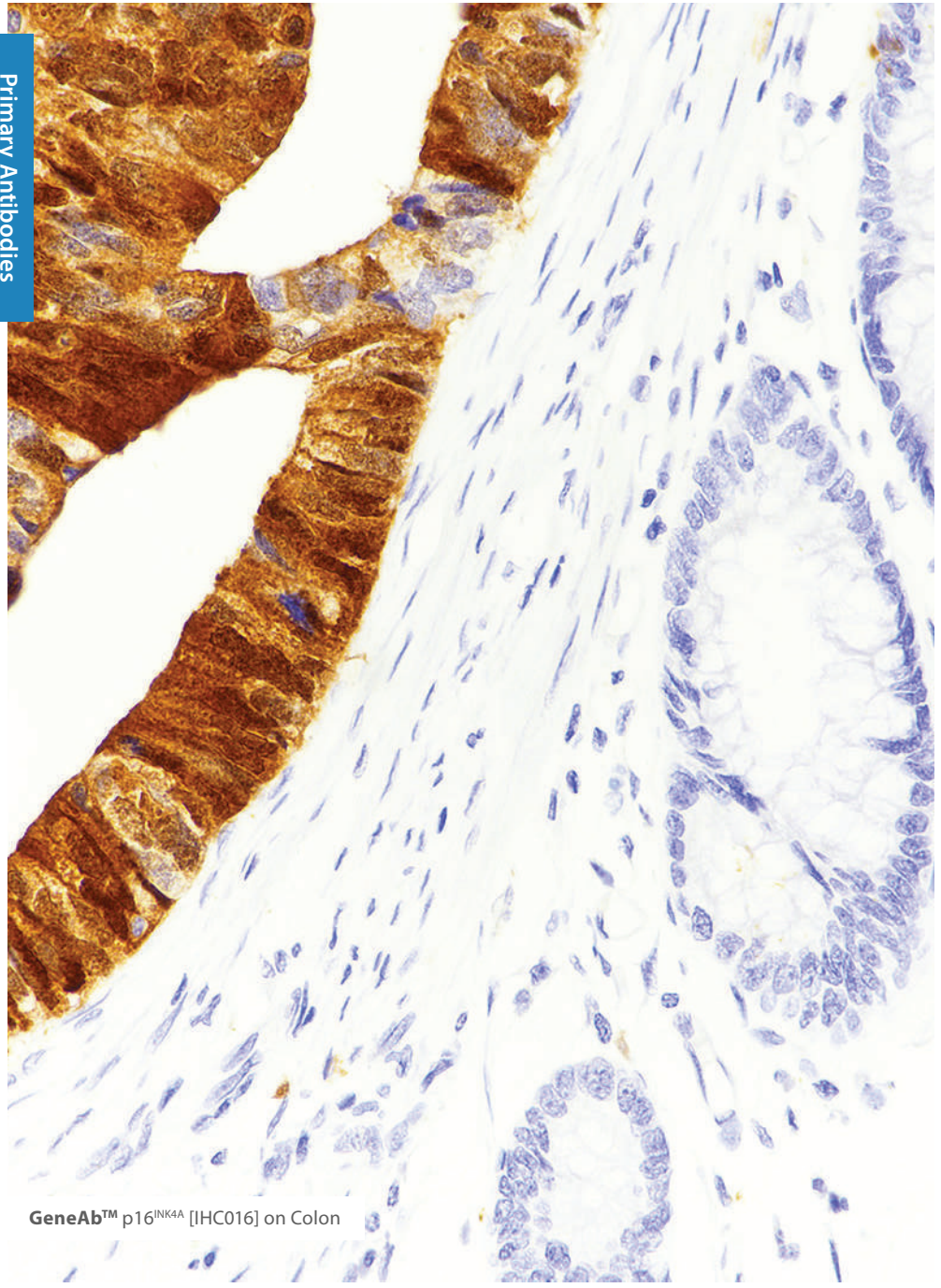
GeneAb™

p16^{INK4A}

Clone: IHC016 | **Source:** Mouse Monoclonal | **Positive Control:** Normal Pancreas, Normal Tonsil, Cervical Carcinoma

Primary Antibodies



GeneAb™ p16^{INK4A} [IHC016] on Colon

Description

The p16 (p16^{INK4A}) protein is a cyclin-dependent kinase inhibitor that plays an important regulatory role in the cell cycle. By controlling the transition between the G1 and S phases through regulation of retinoblastoma protein, p16 decelerates cellular differentiation and therefore acts as a tumor suppressor, making it the key marker in several human cancers including head and neck cancer, perianal lesions, melanomas, gliomas, lymphomas, and some types of leukemia. p16 is also clinically indicated in carcinomas of the esophagus, pancreas, lung, biliary tract, liver, colon, and urinary bladder.

References

1. Sano T, et al. Am J Pathol. 1998; 153:1741-48. 2. Ago SN, et al. Mod Pathol. 2003; 16:665-73. 3. Negri G, et al. Am J Surg Pathol. 2003; 27:187-93. 4. Klaes R, et al. Int J Cancer. 2001; 92:276-84. 5. Klaes R, et al. Am J Surg Pathol. 2002; 26:1389-99. 6. Negri G, et al. Virchows Arch. 2004; 445:616-20.

Reference Panels

- Breast/Gynecological
- Gastrointestinal (GI)
- Genitourinary (GU)
- Head and Neck

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC016-100
1 ml, Concentrate	IHC016-1
7 ml, Pre-dilute	IHC016-7
3 Positive Control Slides	IHC016-PC

Designations

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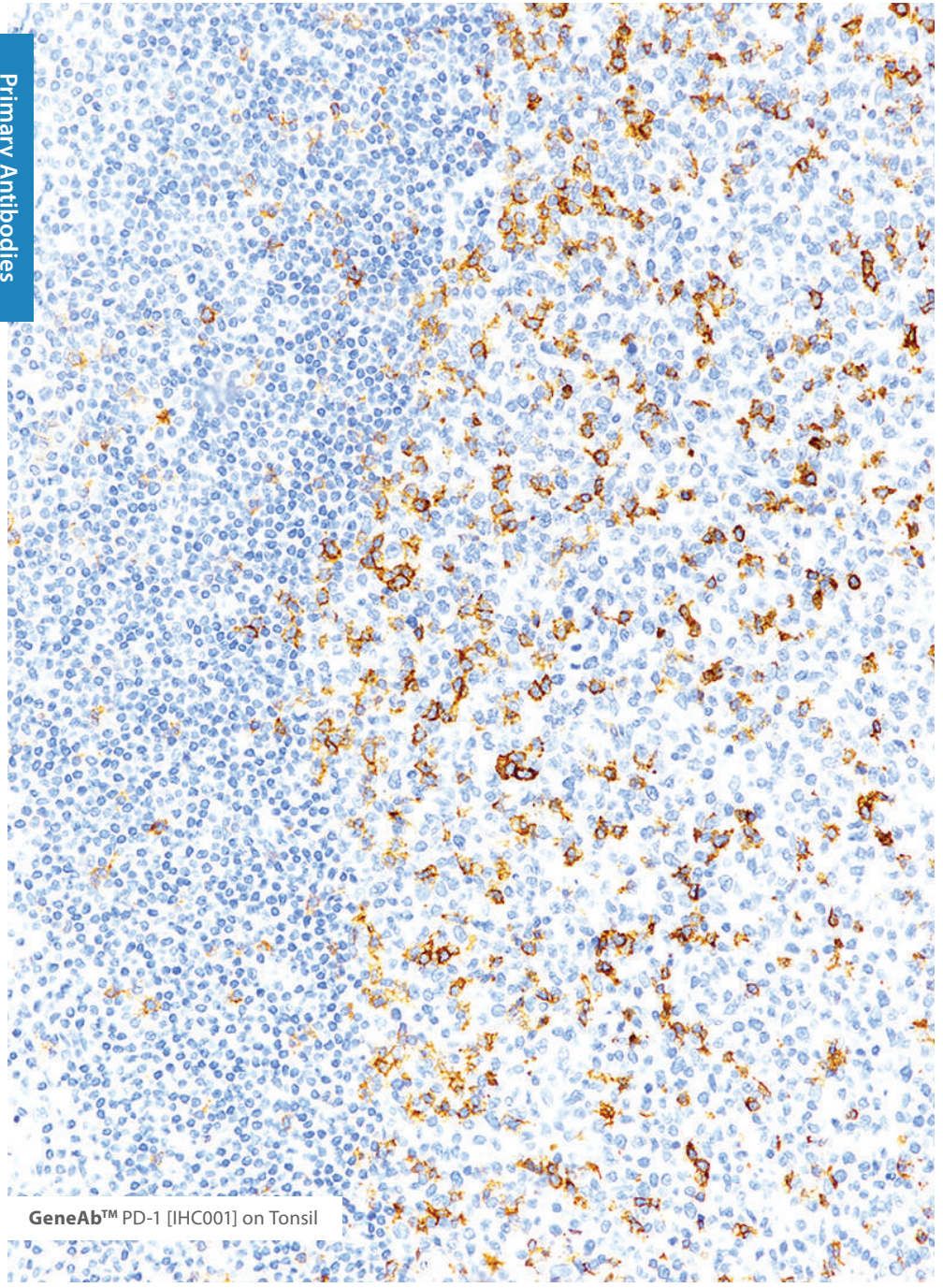
GeneAb™

PD-1

Clone: IHC001 | **Source:** Mouse Monoclonal | **Positive Control:** Tonsil, Lymph Node

Primary Antibodies



GeneAb™ PD-1 [IHC001] on Tonsil

Description

Programmed Death 1 (PD-1) is a member of the CD28/CTLA-4 family of T-cell regulators, expressed as a co-receptor on the surface of activated T-cells, B-cells, and macrophages. New studies have suggested that the PD-1/PD-L1 signaling pathway may be linked to anti-tumor immunity, as PD-L1 has been shown to induce apoptosis of activated T cells or inhibit activity of cytotoxic T cells. In comparison to CD10 and Bcl-6, PD-1 is expressed by fewer B cells and has therefore been considered a more specific and useful diagnostic marker for angioimmunoblastic T-cell lymphoma. Therapies targeted toward the PD-1 receptor have shown remarkable clinical responses in patients with various types of cancer, including non–small-cell lung cancer, melanoma, and renal-cell cancer.

References

1. Dorfman DM, et al. Am J Surg Pathol. 2006; 30:802-10. 2. Hamanishi J, et al. Proc Natl Acad Sci USA. 2007; 104:3360-5. 3. Kobayashi M, et al. J Rheumatol. 2005; 32:2156-63. 4. Konishi J, et al. Clin Cancer Res. 2004; 10:5094-100. 5. Mataki N, et al. Am J Gastroenterol. 2007; 102:302-12. 6. Kim JW, et al. Oncology (Williston Park). 2014; 28:15-28. 7. Tumeh PC, et al. Nature. 2014; 515:568-71. 8. D'Incecco A, et al. Br J Cancer. 2015; 112:95-102. 9. Tykodi SS. Onco Targets Ther. 2014; 7:1349-59.

Reference Panels

- Hematopathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC001-100
1 ml, Concentrate	IHC001-1
7 ml, Pre-dilute	IHC001-7
3 Positive Control Slides	IHC001-PC

Designations

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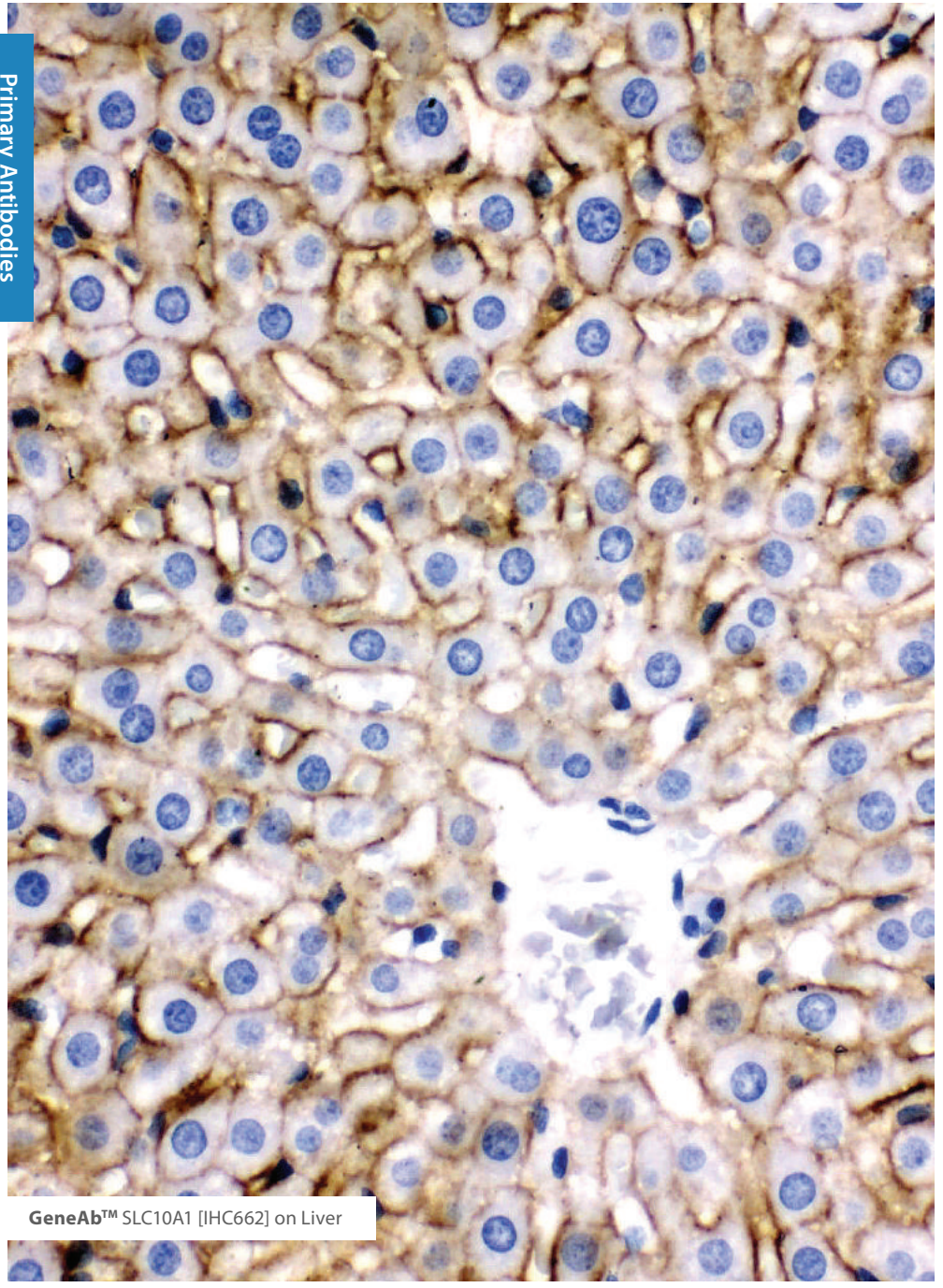
GeneAb™

SLC10A1

Clone: IHC662 | **Source:** Mouse Monoclonal | **Positive Control:** Liver

Primary Antibodies



GeneAb™ SLC10A1 [IHC662] on Liver

Description

Solute Carrier family 10 member 1 (SLC10A1), also known as Na^+-Taurocholate Cotransporting Polypeptide (NTCP), is an integral membrane glycoprotein mainly expressed in the liver. This transporter is involved in enterohepatic circulation of bile salts, as well as cellular entry of the Hepatitis B and D viruses (HBV and HDV). Mutations in the SLC10A1 gene have been linked to increased risk of chronic infection with HBV, which in turn elevates the risk for developing liver cirrhosis and hepatocellular carcinoma. SLC10A1 has also been associated with hypercholanemia.

References

1. Yang J, et al. BMC Cancer. 2016; 16:211. 2. Watashi K, et al. Int J Mol Sci. 2014; 15:2892-905. 3. Vaz FM, et al. Dig Dis. 2017; 35:259-60. 4. Deng M, et al. Exp Ther Med. 2016; 12:3294-300.

Reference Panels

- Gastrointestinal (GI)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC662-100
1 ml, Concentrate	IHC662-1
7 ml, Pre-dilute	IHC662-7
3 Positive Control Slides	IHC662-PC

Designations

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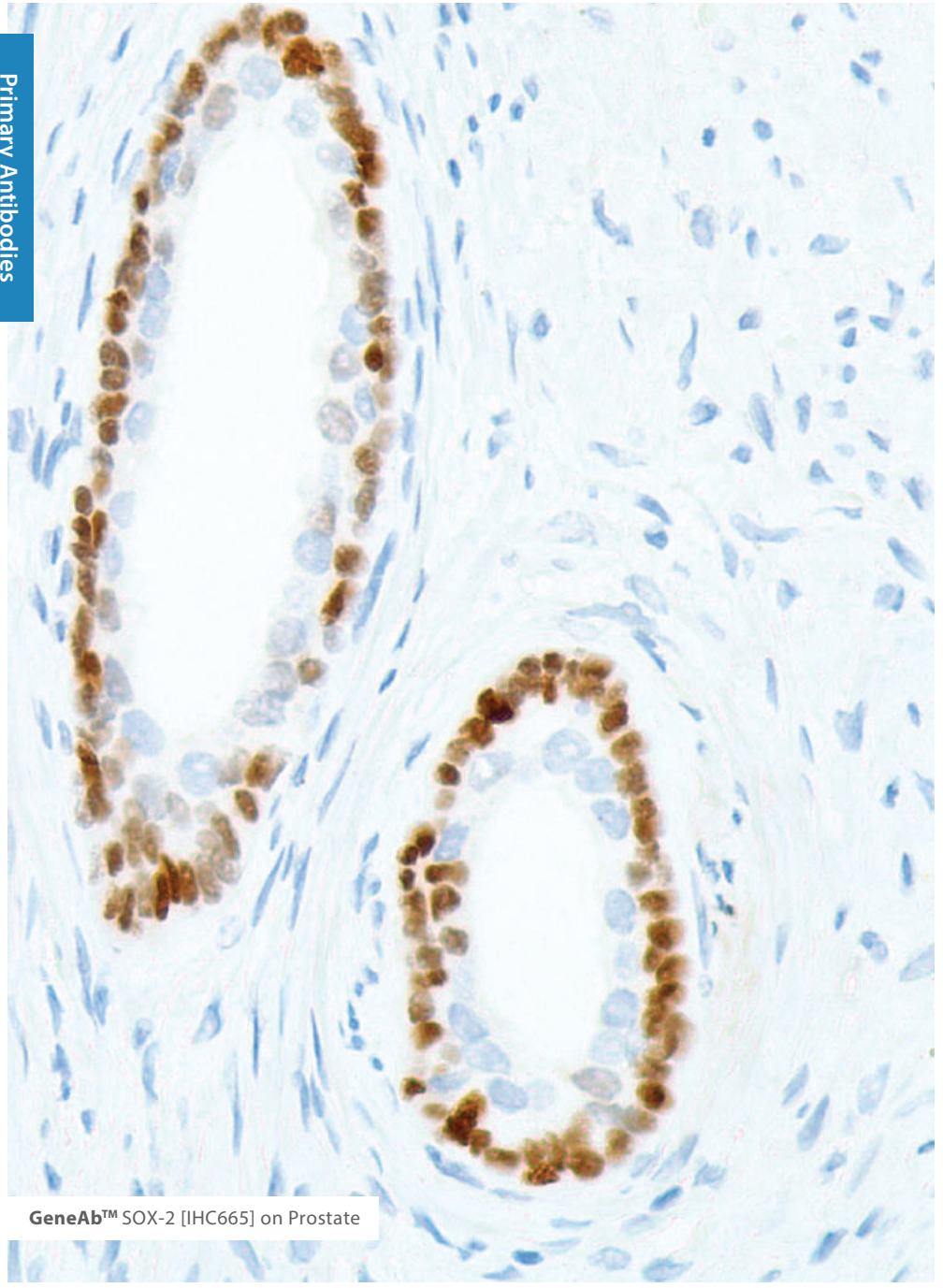
GeneAb™

SOX-2

Clone: IHC665 | **Source:** Mouse Monoclonal | **Positive Control:** Lung Squamous Carcinoma

Primary Antibodies



GeneAb™ SOX-2 [IHC665] on Prostate

Description

SRY (Sex Determining Region Y)-Box 2 (SOX-2) is a transcription factor that acts to regulate pluripotency of undi erentiated embryonic stem cells, and to regulate gene expression in the stomach. SOX-2 has been indicated as a marker for melanoma, testicular germ cell tumor, cervical carcinoma, lung cancer, breast cancer with basal cell phenotype, and teratoma of the central nervous system. SOX-2 has been reported as a predictor of poor outcome in stage I lung adenocarcinomas. Anti-SOX-2 is also used to recognize squamous cell carcinomas of the lung and gastrointestinal tract, and may be useful for detecting embryonal carcinoma.

References

1. Rizzino A, et al. Wiley Interdiscip Rev Syst Biol Med. 2009; 1:228-36. 2. Laga AC, et al. Am J Pathol. 2010; 176:903-13. 3. Ji J, et al. Hum Pathol. 2010; 41:1438-47. 4. Rodriguez-Pinilla SM, et al. Mod Pathol. 2007; 20:474-81. 5. Long KB, et al. Hum Pathol. 2009; 40:1768-73. 6. Sholl LM, et al. Appl Immunohistochem Mol Morphol. 2010; 18:55–61. 7. Tsuta K, et al. J Thorac Oncol. 2011; 6:1190-9. 8. Gopalan A, et al. Mod Pathol. 2009; 22:1066-74.

Reference Panels

- Pulmonary

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC665-100
1 ml, Concentrate	IHC665-1
7 ml, Pre-dilute	IHC665-7
3 Positive Control Slides	IHC665-PC

Designations

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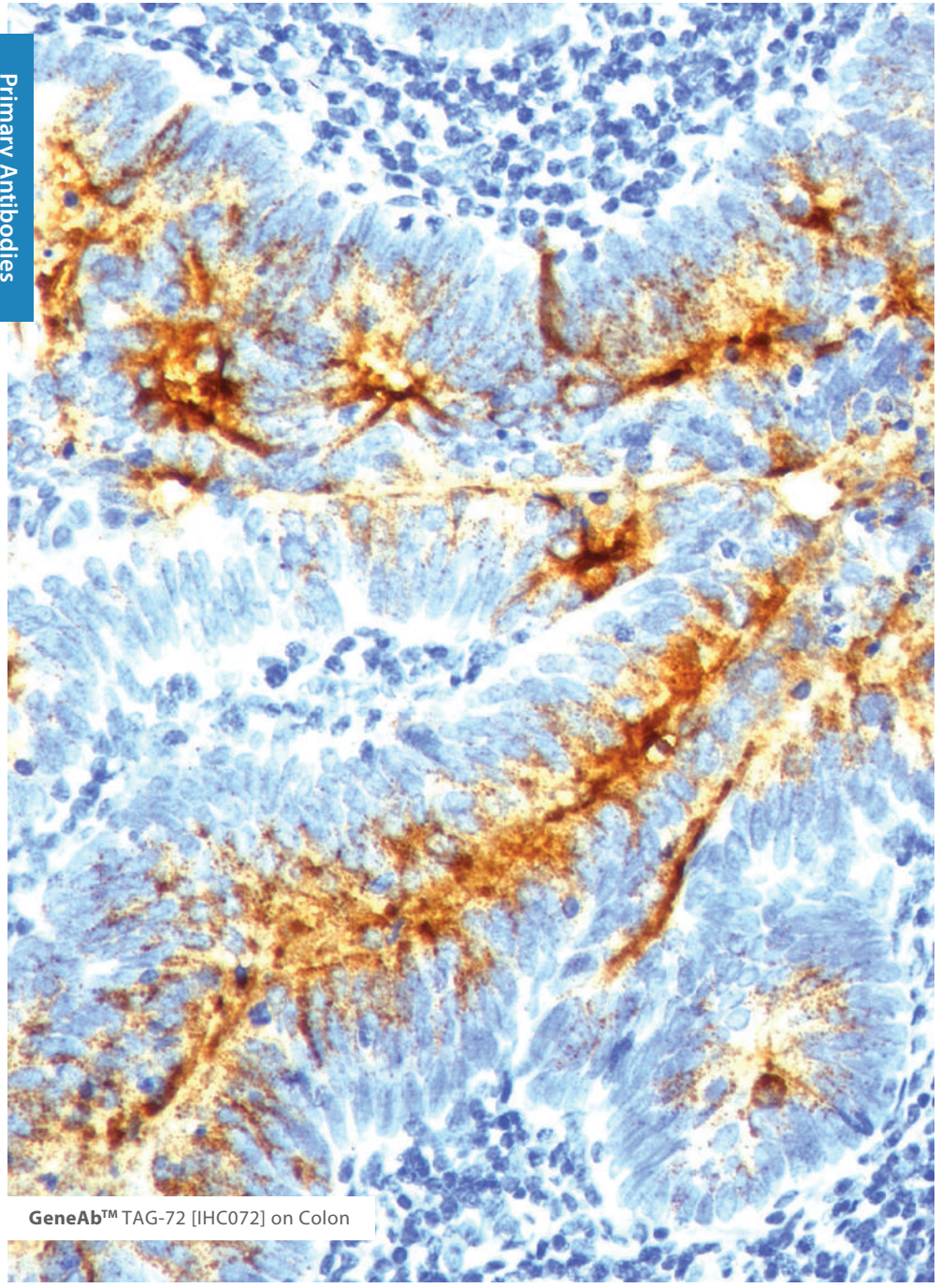
GeneAb™

TAG-72

Clone: IHC072 | **Source:** Mouse Monoclonal | **Positive Control:** Lung Adenocarcinoma

Primary Antibodies



GeneAb™ TAG-72 [IHC072] on Colon

Description

Tumor-Associated Glycoprotein 72 (TAG-72) is a glycoprotein found on the surface of many cancer pathologies. TAG-72 is found in adenocarcinomas and non-neoplastic tissues, to a lesser extent. TAG-72 is useful for identifying adenocarcinomas in positive staining, but in mesotheliomas no staining is observed.

References

1. Thor A, et al. Cancer Res. 1986; 46:3118. 2. Osteen KG, et al. Int J Gynecol Pathol. 1992; 11:216-20. 3. Johnston WW, et al. Hum Pathol. 1986; 17:501-13. 4. Lundy J, et al. Ann Aurg. 1986; 203:399-402. 5. Kline TS, et al. Cancer. 1989; 63:2253-6. 6. Chieng DC, et al. Hum Pathol. 2003; 34:1016-21. 7. Ordonez NG. Am J Surg Pathol. 1998; 22:1203-14. 8. Ordóñez NG. Am J Surg Pathol. 2003; 27:1031-51.

Reference Panels

- Pulmonary

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC072-100
1 ml, Concentrate	IHC072-1
7 ml, Pre-dilute	IHC072-7
3 Positive Control Slides	IHC072-PC

Designations

IVD: RUO:

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GeneAb™

Tau

Clone: IHC007 | **Source:** Mouse Monoclonal | **Positive Control:** Salivary Gland, Lung Adenocarcinoma

Primary Antibodies

Coming Soon

Description

Cytokeratin 7 (CK7) is a type II keratin which is present in transitional, ductal, glandular, and biliary duct epithelial cells. Cytokeratin 7 is a useful marker for distinguishing between carcinomas of the lung, breast, endometrium, and urothelia (positive stain) from carcinomas of the colon and prostate (negative stain). Cytokeratin 7 is present is nearly all primary lung adenocarcinomas, and is a useful marker in the differential diagnosis of ovarian neoplasms. Anti-Cytokeratin 7 does not stain intermediate filament.

References

1. Jerome MV, et al. Histopathology. 2004; 45:125-34. 2. Murray SK, et al. Am J Surg Pathol. 2004; 28:1154-62. 3. Chu P, et al. Mod Pathol. 2000; 13:962-72. 4. Logani S, et al. Am J Surg Pathol. 2003; 27:1434-41. 5. Ramalingam P, et al. Ann Diagn Pathol. 2003; 7:112-9. 6. Roy S, et al. Arch Pathol Lab Med. 2011; 135:1601-5. 7. Han AC, et al. Cancer. 1999; 86:2327-30. 8. McCluggage WG, et al. Histopathology. 2005; 47:231-47.

Reference Panels

- Breast/Gynecological
- Dermatopathology
- Gastrointestinal (GI)
- Genitourinary (GU)

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC007-100
1 ml, Concentrate	IHC007-1
7 ml, Pre-dilute	IHC007-7
25 ml, Pre-dilute	IHC007-25
3 Positive Control Slides	IHC007-PC

Designations

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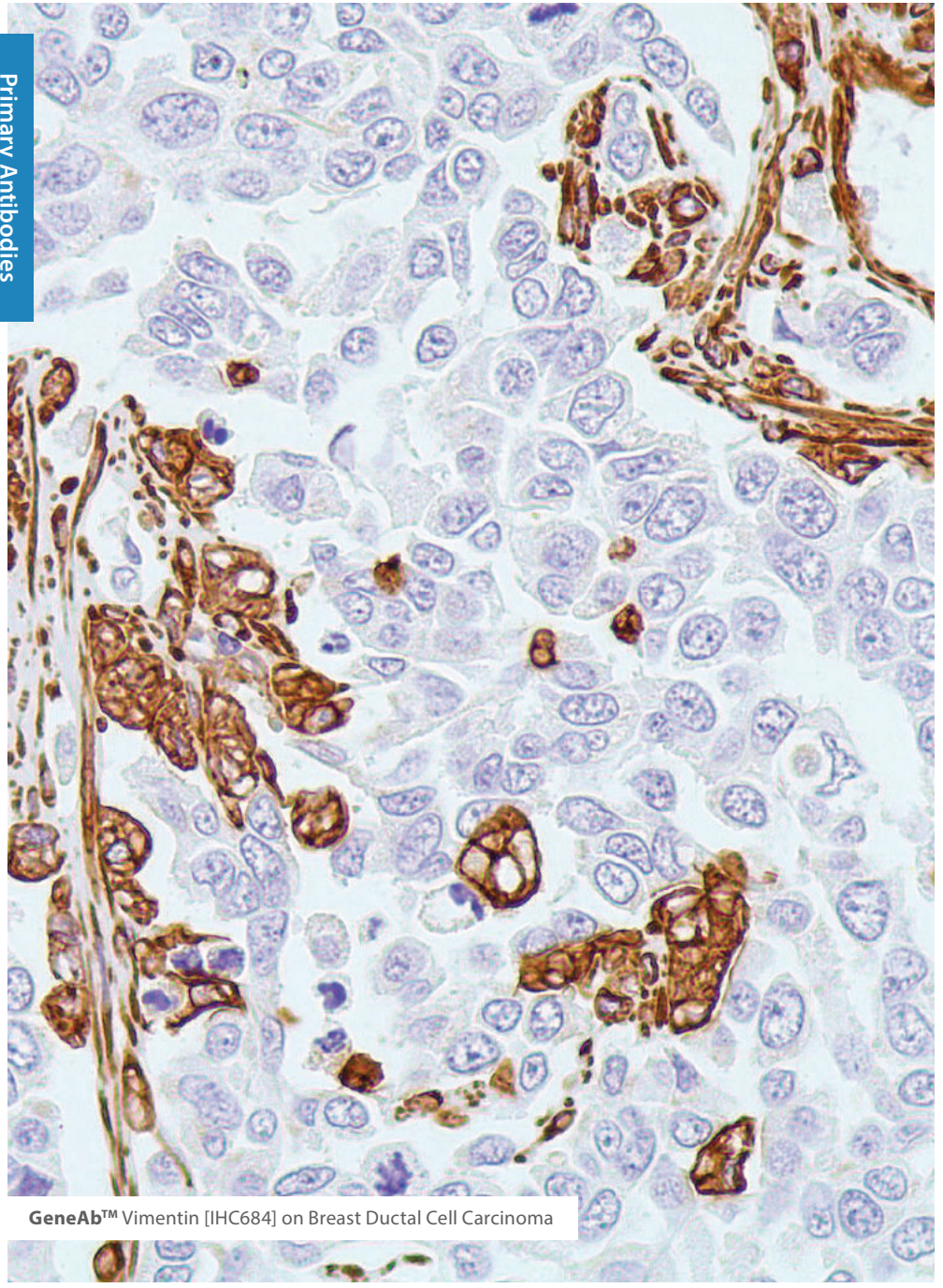
GeneAb™

Vimentin

Clone: IHC684 | **Source:** Mouse Monoclonal | **Positive Control:** Tonsil, Lymph Node

Primary Antibodies



GeneAb™ Vimentin [IHC684] on Breast Ductal Cell Carcinoma

Description

Vimentin is a component of intermediate filament in mesenchymal cells, such as endothelial cells, fibroblasts, lymphocytes, and melanocytes. Anti-Vimentin is useful for assessing whether tissue samples have been processed and preserved properly. A panel of Anti-Vimentin and Anti-Keratin is useful for differentiating melanomas from large cell lymphomas and undifferentiated carcinomas. Anti-Vimentin stains melanomas and schwannomas, as well as Endometrial endometrioid adenocarcinomas.

References

1. Dabbs DJ, et al. Hum Pathol. 1996; 27:172-7. 2. Dabbs DJ, et al. Am J Surg Pathol. 1986; 10:568-76. 3. Yaziji H, et al. Int J Gynecol Pathol. 2001; 20:64-78.

Reference Panels

- Breast/Gynecological
- Dermatopathology
- Genitourinary (GU)
- Hematopathology
- Neuropathology
- Soft Tissue

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC684-100
1 ml, Concentrate	IHC684-1
7 ml, Pre-dilute	IHC684-7
25 ml, Pre-dilute	IHC684-25
3 Positive Control Slides	IHC684-PC

Designations

IVD: RUO:

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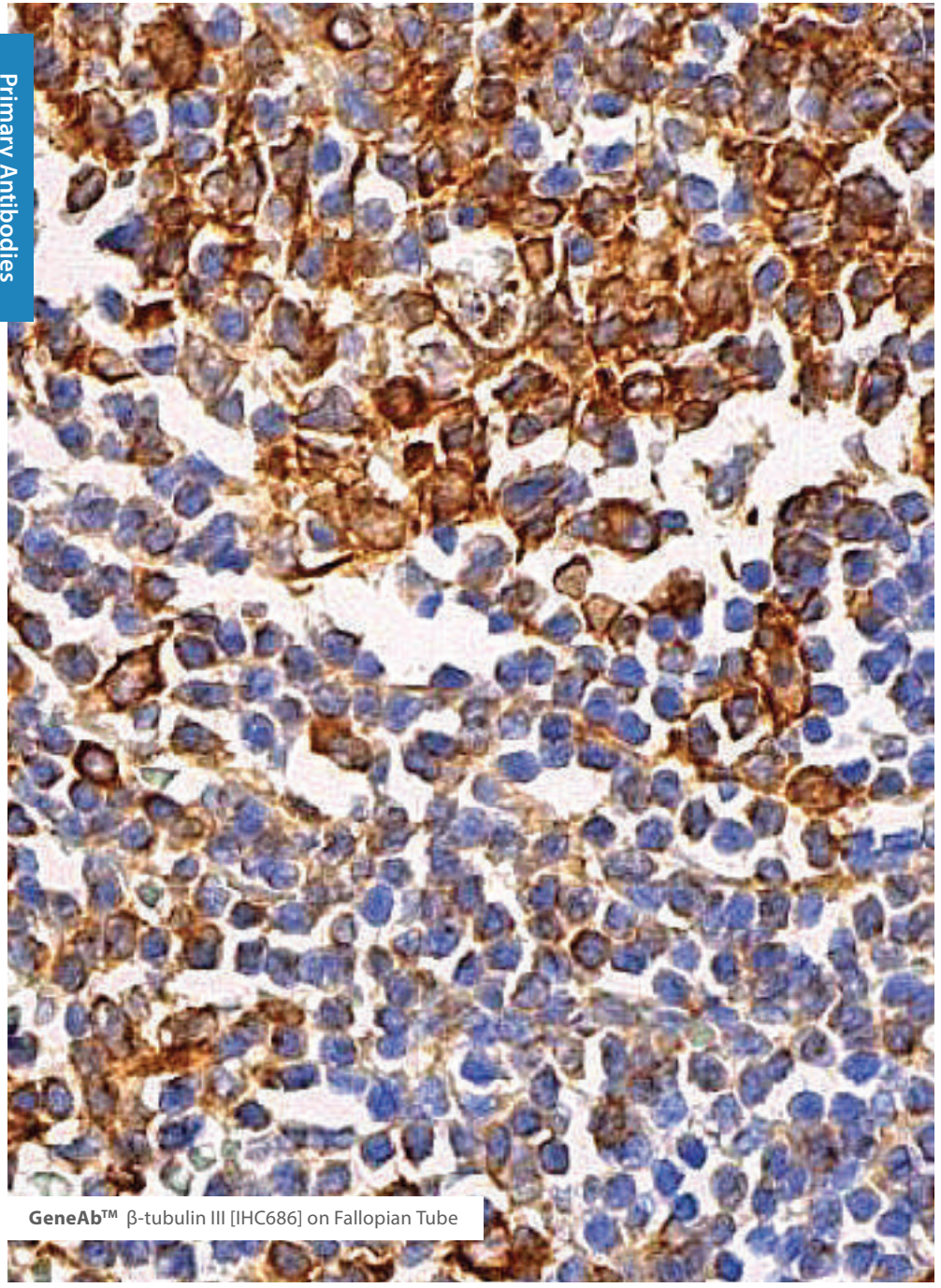
GeneAb™

β-tubulin III

Clone: IHC686 | **Source:** Mouse Monoclonal | **Positive Control:** Skin, Lung

Primary Antibodies



GeneAb™ β-tubulin III [IHC686] on Fallopian Tube

Description

β-tubulin III is a component of microtubules and is present in neurons, but not glial cells. β-tubulin III has been indicated as a prognostic factor correlated with chemotherapy response, patient survival, and tumor aggressiveness in various cancers including breast, colorectal, gastric, lung, and ovarian carcinomas.

References

1. Ferrandina G, et al. Clin Cancer Res. 2006; 12:2774-9. 2. Karki R, et al. Expert Opin Ther Targets. 2013; 17:461-72.

Reference Panels

- Neuropathology

Order Information

Format	Cat. No.
0.1 ml, Concentrate	IHC686-100
1 ml, Concentrate	IHC686-1
7 ml, Pre-dilute	IHC686-7
3 Positive Control Slides	IHC686-PC

Designations

IVD: RUO:

Helvetica Health Care Sàrl – PO Box 1158 - CH – 1211 Geneva 5 AP - SWITZERLAND
Fax +41 22 594 85 07 - Tel +41 22 534 97 03 - mail@h-h-c.com - www.h-h-c.com

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Reference Panels

Breast/Gynecological Pathology

Breast Carcinoma

	CA15-3	CA 19-9	CK 5	CK 7	CK 20	ER/PR	p63	CD117
Infiltrating Ductal Carcinoma	+	-	-	+	-	+	-	-
Adenoid Cystic Carcinoma	+	+	+	+	-	-	+	+

Cervix

	BCL2	CK 17	Ki-67	MCM3
Cervical Intraepithelial Neoplasia	-	-	+	+
Tubo-Endometrial Metaplasia	+	+	-	-
Microglandular Hyperplasia	-	-	-	-

Cervix Neoplasia

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

Ovarian Carcinoma

	CA-125	CEA	PAX-8	WT1
Ovarian CA, Serous	+	+	+	+
Ovarian CA, Mucinous	-	-	-	-
Ovarian CA, Endometrioid	+	-	+	-
Ovarian CA, Clear Cell	+	-	+	-

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

	CK OSCAR	hCG	hPL	p57	PLAP	Vimentin
Partial Mole	+	-/+	-/+	+	+	-
Complete Mole	+	+	-/+	-	-/+	-
Choriocarcinoma	+	+	-/+	-	-/+	-/+
Placental Site Tumor	+	+/-	+	+	+	+

Sex Cord Stromal Tumors

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

Uterus: Trophoblastic Proliferations

	CK Cocktail	hCG	hPL	p57	PLAP	Vimentin
Partial Mole	Strong, diffuse	Weak, diffuse	Weak, diffuse	+	+	-
Complete Mole	Strong, diffuse	Strong, diffuse	Weak, focal	-	Weak, focal	-
Choriocarcinoma	Strong, diffuse	Strong, diffuse	Weak, focal	-	Weak, focal	-/+
Placental Site Tumor	Strong, diffuse	Strong, focal	Strong, diffuse		Strong, diffuse	Strong, diffuse

Dermatopathology

Cutaneous Neoplasm

	AR	BCL2	CD10	CD34	CK 15	CK 19	CK 20	Ber-EP4
Basal Cell Carcinoma	+	+	+	-	-	+	-	+
Trichoepithelioma	-	+	-	+	+	+	+	+
Merkel Cell Carcinoma	-	+	-	-	-	+	+	+
Microcystic Adnexal Carcinoma	-	+	+/-	-	+	+	-	-/+
Sebaceous Carcinoma	+	+/-	+/-	-		-	-	+
Sebaceous Adenoma	+	+	-	-		-	-	+

Melanomas

	Nestin	SOX-10	HMB-45	S-100
Desmoplastic Melanoma	+	+	-	+
Conventional Melanoma	+	+	+	+

Merkel Cell Carcinoma vs. Cutaneous Small Cell Tumors

	CD117	CK Cocktail	CK 5&6	CK 20	Vimentin	Chromo-granin A
Merkel Cell Carcinoma	+	+	-	+	-	+
Small Cell Carcinoma	+/-	+	-	-	-	+
Lymphoma	-	-	-	-	+/-	-
Small Cell Melanoma	+	-	-	-	+	-
Squamous Cell Carcinoma	-	+	+	-	-	-

Merkel Cell Carcinoma vs. Cutaneous Small Cell Tumors (cont.)

	HMB-45	Neuro-filament	Synap-tophysin	TTF-1	CD45	S-100
Merkel Cell Carcinoma	-	+	+	-	-	-
Small Cell Carcinoma	-	-	+	+	-	-
Lymphoma	-	-	-	-	+	-
Small Cell Melanoma	+	-	-	-	-	+
Squamous Cell Carcinoma	-	-	-	-	-	-

Skin Adnexal Tumors

	CD15	CK 7	CK 20	EMA	BRST-2	S-100
Merkel Cell Carcinoma	-	-	+	+	-	-
Sebaceous Tumor	+	+	-	-	-	-
Apocrine Tumor	+/-	+	-	+/-	+	-
Eccrine Tumor	-	+	-	+	-	+

Skin: Basal vs. Squamous Cell Carcinoma

	BCL2	CK 8&18	CK Cocktail	EMA	Ep-CAM	MOC-31	UEA-1
Basal Cell Carcinoma	+	-/+	+	-	+	+	-
Squamous Cell Carcinoma	-	-	+	+	-	-	+

Skin: Dermatofibrosarcoma Protuberans (DF-SP) vs. Dermatofibroma Fibrous Histiocytoma (DFFH)

	CD10	CD34	CD163	CK Cocktail	Desmin	Factor XIIIa	NGFR	p63	S-100
DF-SP	+/-	+	-	-	-	-	+	-	-
DF-FH	+	-	-	-	-	+	-	-	-

Skin: Pagetoid Tumors

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

Skin: Spindle Cell Tumors

	MS Actin	SM Actin	ALD-H1A1	BG8	CD10	CD31	CD34	CD99	Collagen IV	CK 8&18
Angiosarcoma	-	-	-	-	-	+	+	-	+/-	-
Atypical Fibroxanthomas	+	+	+	-	+	-	-	+	-	-
Dermatofibroma Fibrous Histiocytoma	-	-	-		+		-	-	-	
Dermatofibrosarcoma Protuberans	-	-	-		+/-		+	-	-	
DF-FH	-	-	-		+	-	-	-	-	-
DF-SP	-	-	-	-	+/-	-	+	-	-	-
Glomus Tumor	+	+	-		-	-	+/-	-	+	-
Hemangioma	-	+	-	+	-	+	+	-	+	-
Hemangiopericytoma	-	-	+		-	+	+		-	
Kaposi's Sarcoma	-	+	-	-	-	+	+	-	+/-	-
Kaposiform Hemangioendothelioma	-	-	-	-	-	+	+	-	-	+
Peripheral Nerve Sheath	+	-	+	-	-	-	-	+	+	
Smooth Muscle	+	+	+		-	-	-	-/+	-	-
Solitary Fibrous Tumor	-	-	+	-	-	-	+	+/-	-	-
Spindle Cell Melanoma	-	-	-	-	-	-	-	-	-	-
Spindle Squamous Cell Carcinoma	-	-	-	-	-	-	-	-	-	+
Squamous Cell Carcinoma	-	-	-		-	-	-	-	-	

Skin: Spindle Cell Tumors (cont.)

	CK Cocktail	Factor VIII	Factor XIIIa	FLI-1	HHV-8	NGFR	D2-40	S-100	STAT6
Angiosarcoma	-	+		+	-	-	+/-	-	-
Atypical Fibroxanthomas	-	-	+/-	-	-	-	-	-	+
Dermatofibroma Fibrous Histiocytoma			+	-		-	-	-	-
Dermatofibrosarcoma Protuberans			-			+	-	-	-
DF-FH		-	+	-	-	-	-	-	-
DF-SP		-	-	-	-	+	-	-	-
Glomus Tumor		-	-	-	-	-	-	-	-
Hemangioma	-	+		+	-	-	-	-	-
Hemangiopericytoma		-		+	-	-	-	-	+
Kaposi's Sarcoma		+	+/-	+	+	-	+	-	-
Kaposiform Hemangioendothelioma		-	-	+	-	-	-	-	-
Peripheral Nerve Sheath	-	-	-	-	-	+	+	+/-	-
Smooth Muscle	-	-	-	-	-	-	-	-	-
Solitary Fibrous Tumor		-	-	-/+	-	-	-	-	+
Spindle Cell Melanoma	-	-	-	+	-	+	+	+	-
Spindle Squamous Cell Carcinoma	+	-		-	-	-	+	-	-
Squamous Cell Carcinoma		-	-	-	-	-	+	-	-

Gastrointestinal (GI) Pathology

Ampullary Cancer

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

GIST Mutation vs. Wild Type

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

Pancreas / Pancreatic Tumors

	β-Catenin	CA 19-9	CD10	CD56	CDX-2	Synaptophysin	CK 7	CK 19	E-cadherin
Ductal Adenocarcinoma / Ductal Carcinoma	+/-	+	+/-	-	-	-	+	-	+/-
Pancreatic Adenocarcinoma	-	+	+/-	-		-		+	-
Pancreatic Endocrine Tumor					-	+	-		
Acinar Cell Carcinoma	+	-/+	+/-	-	-	-	-	+	+
Pancreatoblastoma	+	-	-	+		+		-	-
Neuroendocrine Tumor	+	+/-	-	+		+		+/-	-
Solid Pseudopapillary Tumor	+	-	+	+		-		-	+ (nuclear)
Islet Cells	+	-	-	+		+		-	-
Pancreatic Ducts	-	-	-	-	-	-	+	-	-

Genitourinary (GU) Pathology

Bladder Tissue

	SM Actin	MS Actin	Cal-ponin	Smooth-elin
Muscularis Mucosae	+	+	+	-
Muscularis Propria	+	+	+	+

Bladder: Dysplasia vs. Reactive

	CD44	CK 20	CK 5&6	Ki-67	MCM3	p53
Carcinoma-*in-situ*	-	+	-	+	+	+
Reactive Atypia	+	-	+	+	+	-
Normal Urothelium	+	+	-/+	-/+	-/+	-

Carcinomas

	CD10	CD117	CK 7	CK, HMW	Ksp-cad-herin	RCC	S100P	TFE3
Xp11 Tr RCC	+		-/+		+	+	-	+
Clear Cell RCC	+	-	-/+	-	-/+	+	-	-
Papillary RCC	+	-	+	+/-	-/+	+	-	-
Chromophobe RCC	+/-	+	+	-	+	+	-	-
Oncocytoma	+	+	-/+	-/+	+	-	-	-
Urothelial Carcinoma	+	+/-	+	+/-	-	-	+	-

Germ Cell Tumors

	AFP	CD30	CD117	CK Cocktail	EMA	GPC-3	hCG	hPL	Inhibin
Seminoma (Seminoma/Dysgerminoma)	-	-	+	-	-	-	-	-	-
Embryonal Carcinoma	-	+	-	+	-	-	-	-	-
Choriocarcinoma	-	-	-	+	+	+	+	+	-
Yolk Sac Tumor	+	-	-/+	+	-	+	-	-	-
Granulosa Cell Tumor	-	-	-	-	-	-	-	-	+
Hypercalcaemic Small Cell Carcinoma	-	-	-	+	+	-	-	-	-
Mature Teratoma	+/-	-	-	+	+	-	-	-/+	
Immature Teratoma	-	-	+/-	+	+	-	+/-	-/+	
Carcinoid	-	-	-	+	-	-	-	-	-

Germ Cell Tumors (cont.)

	Oct-4	PLAP	D2-40	SALL4	SOX-2	Synap-tophysin	Vimentin
Seminoma (Seminoma/Dysgerminoma)	+	+	+	+	-	-	+
Embryonal Carcinoma	+	+	-	+	+	-	-
Choriocarcinoma	-	+	-	-	-	-	-/+
Yolk Sac Tumor	-	-/+	-	+	-	-	-
Granulosa Cell Tumor	-	-	+/-	-		-	+
Hypercalcaemic Small Cell Carcinoma	-	-	+			-	-
Mature Teratoma	-	+/-	-	-	+/-	-	+
Immature Teratoma	-	-	-	+/-	+	-	+
Carcinoid	-	-	-	-	-	+	+

Gonads: Germ Cell Tumors vs. Somatic Adenocarcinoma

	AFP	CD30	CD117	CK Cocktail	EMA	GPC-3	hCG	hPL	Inhibin
Seminoma	-	-	+	-	-	-	-	-	-
Embryonal Carcinoma	-	+	-	+	-	-	-	-	-
Choriocarcinoma	-	-	-	+	+	+	+	+	-
Yolk Sac Tumor	+	-	-	+	-	+	-	-	-
Somatic Carcinoma	-	-	-	+	+	-	-	-	-
Granulosa Cell Tumor	-	-	-	-	-	-	-	-	+
Hypercalcaemic Small Cell Carcinoma	-	-	-	+	+	-	-	-	-

Gonads: Germ Cell Tumors vs. Somatic Adenocarcinoma (cont.)

	Oct-4	PLAP	D2-40	Vimentin
Seminoma	+	+	+	+
Embryonal Carcinoma	+	+	-	-
Choriocarcinoma	-	+	-	-/+
Yolk Sac Tumor	-	+	-	-
Somatic Carcinoma	-	-	-/+	-
Granulosa Cell Tumor	-	-	+/-	+
Hypercalcaemic Small Cell Carcinoma	-	-	+	-

Head and Neck Pathology

Differential Diagnosis of Parathyroid vs. Thyroid Tumors

	Calci-tonin	PAX-8	Chromo-granin A	PTH	S-100	Galec-tin-3	Synap-tophysin	TTF-1
Parathyroid Tumors	-	+	+	+	-	-	+	-
Follicular Thyroid Tumors	-	+	-	-	+/-	+	-	+
Medullary Thyroid Cacinoma	+	+	+	-	-	-	+	+

Hematopathology

B-cell Lymphomas

	Annex-in AI	BCL2	BCL6	BOB.1	CDS	CD10	CD11c	CD20	CD23	CD25
Burkitt Lymphoma	-	-	+	+	-	+		+	-	
CLL/SLL	-	+	-	-/+	+	-	-/+	+	+	
Diffuse Large Cell Lymphoma	-	+	+/-	+	-/+	-/+		+	-	
Follicular	-	+	+	+	-	+		+	-	-
Hairy Cell Leukemia	+	+	-		-	-	+	+	-	+
Lymphoplasmacytic	-	+	-	+	-	-	-	+	-	-
Malt Lymphoma		+	-/+			-		+	-	
Mantle Cell	-	+	-	-/+	+	-	-	+	-	+
Marginal Zone	-	+	-		-	-	+	+	-	-
Marginal Zone BCL	-	+	-	-/+	-	-		+	-	
Splenic Marginal Zone	-	+	-		-	-			-	

Kidney: Renal Epithelial Tumors

	CD10	CD117	Ep-CAM	Ksp-cad-herin	Parval-bumin	PAX-2	RCC	S100A1	Vimentin
Clear Cell RCC	+	-	-	-	-	+	+	+	+
Chromophobe RCC	-/+	+	+	+	+	+	-/+	-	-
Papillary RCC	+	+		-/+	-		+	+	+
Oncocytoma	+/-	+	-	+/-	+	+	-	+	-

Prostate: Malignant vs. Benign

	AR	CK 34βE12	CK 5&6	CK 14	p63	p504s	PSA	PSAP
Prostate Carcinoma	+	-	-	-	-	+	+	+
Benign Prostate	+	+	+	+	+	-/+	+	+

Renal Cell Carcinoma vs. Hemangioblastoma

	CD10	Cal-retinin	CK Cocktail	Inhibin	D2-40	PAX-2
Metastatic RCC	+	-	+	-	-	+
Hemangioblastoma	-	+	-	+	+	-

Squamous Cell Carcinoma vs. Urothelial Carcinoma

	COX-2	CK 34βE12	CK 5	CK 14	CK 7	CK 20	Desmo-glein 3	GATA3	URO III
Squamous Carcinoma	-	+	+	+	-	-	+	-	-
Urothelial Carcinoma	+	+	-/+	-	+	+	-	+	+

B-cell Lymphomas (cont.)

	CD43	CD45	CD79a	Cyclin D1	FoxP1	IgD	Kappa	Lambda	MUM1	Oct-2
Burkitt Lymphoma		+	+	-	+	-	+/-	-/+	-	-
CLL/SLL	+	+	+	-	-	+	+/-	-/+	+	+
Diffuse Large Cell Lymphoma	-	+	+	-	+	-	+/-	-/+	+/-	+
Follicular		+	+	-	-	+	+/-	-/+	-	+
Hairy Cell Leukemia	-	+	+	+(weak)/-		-	+/-	-/+		+(weak)/-
Lymphoplasmacytic		+	+	-	-	-	+/-	-/+	+	-
Malt Lymphoma			+	-	+				-	
Mantle Cell	+	+	+	+	-	+	-/+	-/+	-	+
Marginal Zone	+	+	+	-		+	-/+	-/+	+	+
Marginal Zone BCL			+	-		-/+			+	+
Splenic Marginal Zone			+	-	-				+/-	+

B-cell Lymphomas (cont.)

	p27	PAX-5	PD-1	PU.1	TRAcP	ZAP-70
Burkitt Lymphoma	-	+	-		-	-
CLL/SLL	+	+	-	+	-	+/-
Diffuse Large Cell Lymphoma	-	+	-	+	-	-
Follicular	+	+	+	+	-	-
Hairy Cell Leukemia	-	+	-		+	-
Lymphoplasmacytic	+		-		-	-
Malt Lymphoma						
Mantle Cell	+	+	-	+	-	-
Marginal Zone		+	-	+	+/-	-
Marginal Zone BCL	+	+		+	+/-	
Splenic Marginal Zone		-				

c-Myc in DLBCL

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

Erythroid

	CD71	Glyco-phorin A	Hemo-globin A	Spectrin
Erythroid Hyperplasia	+	+	+	+
Erythroid Hypoplasia	+	+	+	+
Acute Erythroid Leukemia	+	+	+	+
Extramedullary Hematopoiesis	+	+	+	+
Mature Erythrocytes	-	+	+	+

Histiocytic Proliferation

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

Hodgkin vs. Non-Hodgkin Lymphomas

	ALK	BCL6	BOB.1	CD15	CD30	CD45	CD79a
Anaplastic Large Cell Lymphoma	+	+/-		-	+	+	-
Angioimmunoblastic T-cell Lymphoma	-	+		-	-	+	-
Hodgkin Lymphoma, Classic	-	-	-	+	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	-	+	+	-	-	+	+
T-cell Rich B-cell Lymphoma	-	+	+	-	-	+	+/-
T-cell Rich LBCL	-	+	+	-	-	+	+

Hodgkin vs. Non-Hodgkin Lymphomas (cont.)

	EMA	Fascin	Gran-zyme B	MUM1	Oct-2	PU.1
Anaplastic Large Cell Lymphoma	+	-	+	-	-	-
Angioimmunoblastic T-cell Lymphoma	-	-	-	-	-	-
Hodgkin Lymphoma, Classic	-	+	-	+	-	-
Hodgkin Lymphoma, Nodular Lymphocyte Predominant	+	-	-	-/+	+	+
T-cell Rich B-cell Lymphoma	-/+	-	-	+	+	-
T-cell Rich LBCL	-	-	-	+	+	-

Immunoglobulin, Heavy and Light Chain

	IgA	IgD	IgG	IgM	Kappa	Lambda
Cutaneous Lymphoma	-	-	-	-	+/-	-/+
Myeloma	+	-/+	+	-/+	+/-	-/+
Diffuse LBCL	-	-	+	+	+/-	-/+
Marginal Zone Lymphoma	-	-/+	-	+	+/-	-/+
SLL/CLL	-	+	-	+	+/-	-/+

Leukemia

	CD13	CD14	CD16	CD33	CD34	CD38	CD71	CD117	CD163	MPO
Acute Myeloid Leukemia with Minimal Differentiation	+	+	-	+	+	+	-	+	-	-
Acute Myeloid Leukemia without Maturation	+	-	-	+	+	-	-	+	-	+
Acute Myeloid Leukemia with Maturation	+	-	-	+	+	-	-	+	-	+
Acute Myelomonocytic Leukemia	+	+	+	+	+/-	-	-	+	+	+
Acute Monoblastic and Monocytic Leukemia	+	+	+	+	-/+	-	-	+/-	+	+
Acute Erythroid Leukemia	-	-	-	-	-/+	-	+	+/-	-	-
Acute Megakaryoblastic Leukemia	+/-	-	-	+/-	-	-	-	-	-	-
Acute Basophilic Leukemia	+	-	-	+	+/-	-	-	-	-	-
Acute Panmyelosis with Myelofibrosis	+	-	-	+	+	-	-	+	-	-

Lymph Node

	CD1a	CD14	CD21	CD35	CD68	CD163	Lyso-zyme	PD-1	S-100
Reactive Histiocytosis	-	+	-	-	+	-	+	-	-
Langerhans Cell Histiocytosis	+	+	-	-	+	+	+	-	+
Sinus Histiocytosis with Massive Lymphadenopathy	-	+	-	-	+	+	+	-	+
Follicular Dendritic Cell Sarcoma	+/-	-	+	+	-	-	-	-	-
Dermatopathic Lymphadenitis	+	-	-	-	-	+	+	-	+

Lymph Node

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

Lymphoblastic Lymphomas, BCL vs. TCL

	CD1a	CD3	CD5	CD7	CD10	CD19	CD20	CD74	CD117	PAX-5	TdT
Lymphoblastic BCL	-	-	-	-	+/-	+	+/-	+	-	+	+
Lymphoblastic TCL	+/-	+	+/-	+	+	-	-	-	-	-	+

Lymphoma

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

Lymphoma

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

Lymphomas

	Gran-zyme B	Perforin	TIA-1
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	-	-	-
Marginal Zone	-	-	-
Marginal Zone BCL	+	+	+

Lymphomas

	BCL2	BCL6	CD15	CD30	Cyclin D1	Gran-zyme B	IMP3	MUM1
Classical Hodgkin's Lymphoma	+	-	+	+	-	-	+	+
Lymphocyte Predominant Hodgkin Lymphoma	+	+	-	-	-	-	+	-/+

Lymphomas (cont.)

	PAX-5	SOX-11
Classical Hodgkin's Lymphoma	+	-
Lymphocyte Predominant Hodgkin Lymphoma	+	-

Mastocytosis

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

Mature B-cell Lymphomas

	Annex-in A1	BCL2	CD5	CD10	CD20	CD23	HGAL	LMO2	Cyclin D1
Follicular Lymphoma	-	+/-	-	+/-	+	-	+	+	-
Diffuse Large B-cell Lymphoma	-	+	-/+	+/-	+	-	+	+	-
Small Lymphocytic Lymphoma	-	+	+	-	+	+	-	-	-
Mantle Cell Lymphoma	-	+	+	-	+	-	-	-	+
Marginal Zone Lymphoma	-	+	-	-	+	-	-	-	-
Hairy Cell Leukemia	+	+	-	-	+	-			-

Mature B-cell Neoplasms

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

NK Cell Leukemia/Lymphoma

	CD2	CD3	CD16	CD56	CD57	Gran-zyme B	Perforin	TIA-1
Aggressive NK-Cell Leukemia	+	+	+	+	-	+	+	+
T-Cell Large Granular Lymphocytic Leukemia	+	+	+	-	+	+	+	+
Extranodal NK/T-Cell Lymphoma, Nasal Type	+	+	-	+	-	+	+	+

Non-Hodgkin Lymphomas

	CD5	CD10	CD20	CD23	Cyclin D1	SOX-11
MCL	+	-	+	-	+	+
FL	-	+	+	-	-	-
SLL/CLL	+	-	+	+	-	-
MZL	-	-	+	-	-	-
LBL	-	+/-	+	-	-	+
BL	-	-	+	-	-	-/+
CD5+ DLBCL	+	+	+	-	-	-
Blastoid Variant MCL	+	-	+	-	+	+

Plasma Cell Neoplasm and Lymphoproliferative Neoplasms

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

Splenic Hematopoietic Proliferations in Neoplastic and Benign Disorders

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

T-cell Lymphomas

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

T-cell Lymphomas (cont.)

	CD56	CD57	Gran-zyme B	PD-1	Perforin	TCL1
Angioimmunoblastic			-	+		
Lymphoblastic			+/-	-		
Subcutaneous Panniculitis-Like	-		+	-	+	
NK/T-cell Lymphoma	+	+/-	+	-	+	+
Cutaneous			+	-/+	+	
Peripheral, NOS	-	-		-		
Mycosis Fungoides	-		+/-	-	-	

Neuropathology

Brain: CNS Tumors 1

	EMA	CK, pan	GFAP	Vimentin	Olig2	S-100
Astrocytoma	-	-	+	+	+/-	+
Oligodendrocytoma	-	-	-	+	+	-
Glioblastoma	-	+	+/-	+	+	+
Ependymoma	-	+	+/-	-	-	+
Meningloma	+	-	+/-	+	+/-	-/+

Brain: CNS Tumors 2

	CK Cocktail	EMA	GFAP	INI-1	NGFR	Neuro-filament	PR	S-100	Synap-tophysin	Vimentin
Astrocytoma	-	-	+	+	+	-	-	+	-	+
Glioblastoma	-	-	+	+	-	-	-	+	-	+
Oligodendriglioma	-	-	-	+	-	-	-	+	-	+
Ependymoma	- (+ AE1 & AE3)	-	+	+	+	-	-	+	-	-/+
Choroid Plexus Carcinoma	+	-	-/+	+	-	-	-	+	+	+/-
Central Neurocytoma	-	-	-	+	+	-	-	-	+	-
Neuroblastoma	-	-	+/-	+	+	+	-	+/-	+	+
Pineocytoma	-	-	-	+	-	-	-	-	+	
Meningloma	-	+	-	+	-	-	+	-	-	+
Schwannoma	-	-	+	+	+	-	-	+	-	+
Rhabdoid Tumors	+	+	-	-		+/-		+/-	+/-	+
Metastatic Carcinoma	+	+	-	+	-	-	-/+	-	-	-/+

Meningiomas from Histologic Mimics

	ALD-H1A1	CD34	Claudin-1	EMA	E-cad-herin	GFAP	S-100	STAT6
Meningothelial Meningioma	-	-	+	+	+	-	-	-
Atypical Meningioma	-	+	+	+	+	-	-	-
Fibrous Meningioma	-	-	-	+	+	-	+	-
Solitary Fibrous Tumor	+	+	-	-	-	-	-	+
Meningeal Hemangiopericytoma	+	+	-	-	-	-	-	-/+
Schwannoma		-	+/-	-	+	+	+	-

Retroperitoneal Neoplasms

	CD99	Chromo-granin A	GFAP	MBP	Neuro-filament	NSE	PGP 9.5	S-100	Synap-tophysin
Neuroblastoma	-	+	+/-	-	+	+	+	-	+
Ganglioneuroblastoma	-	+	+	-/+	+	+	+	+	+
Ganglioneuroma	-	+	+	+	+	+	+	+	+

Pediatric Pathology

Histiocytic Proliferation

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

Retroperitoneal Lesions

	Chromo-granin A	CD99	GFAP	Neuro-filament	NSE	PGP 9.5	S-100	Synap-tophysin
Neuroblastoma	+	-	-/+	+	+	+	-	+
Ganglioneuroblastoma	+	-	+	+	+	+	+	+
Ganglioneuroma	+	-	+	+	+	+	+	+
Leiomyosarcoma	-	-	-	-	-/+	-/+	-	-
Rhabdomyosarcoma	-	-	-	-	-	+	-	-
Synovial Sarcoma	-	+/-	-	-	-		-/+	-

Pulmonary Pathology

Lung Adenocarcinoma vs. Mesothelioma

	BGB	Caldes-mon	Cal-retinin	CEA	CK 5&6	Ber-EP4
Adenocarcinoma	+	-	-	+	-	+
Mesothelioma	-	+	+	-	+	-

Lung Adenocarcinoma vs. Mesothelioma (cont.)

	E-cad-herin	HBME-1	D2-40	TAG-72	TTF-1
Adenocarcinoma	+	-	-	+	+
Mesothelioma	-	+	+	-	-

Lung Squamous Cell Carcinoma vs. Adenocarcinoma

	CK 5&6	Desmo-collin3	Napsin A	p63	SOX-2	TTF-1
Lung Adenocarcinoma	-	-	+	-/+	-/+	+
Lung Squamous Cell Carcinoma	+	+	-	+	+	-

Pleura: Adenocarcinoma vs. Mesothelioma

	Caldes-mon	Cal-retinin	CEA	CK 5	CK 5&6	Ep-CAM	E-cad-herin	HBME-1	Napsin A	D2-40
Adenocarcinoma	-	-	+	-	-	+	+	-	+	-
Mesothelioma	+	+	-	+	+	-	-	+	-	+

Pleura: Adenocarcinoma vs. Mesothelioma (cont.)

	TAG-72	TTF-1	TBM	WT1
Adenocarcinoma	+	+	-	-
Mesothelioma	-	-	+	+

Soft Tissue Pathology

Histiocytic/Dendritic Cell Lesions

	CD1a	CD21	CD23	CD35	CD68	CD163	Lan-gerin	Lyso-zyme	S-100
Langerhans Cell Histiocytosis	+	-	-	-	+	+	+	+/-	+
Rosai-Dorfman Disease	-	-	-	-	+	+	-	+	+
Follicular Dendritic Cell Sarcoma	-	+	+	+	+/-	+/-	-	-	-
Interdigitating Dendritic Cell Sarcoma	-	-	-	-	+/-	+	-	+	+
Histiocytic Sarcoma	-	-	-	-	+	+	-	+	+/-
Juvenile Disseminated Xanthogranuloma	-	-	-	-	+	+	-	+	+/-

Muscle Malignant Tumors

	SM Actin	MS Actin	Myo-genin	PGP 9.5	Caldes-mon	Myo-globin	Cal-ponin	Vimentin	INI-1
Leiomyosarcoma	+	+	-	-	+	-	+	+	
Rhabdomyosarcoma	-/+	-/+	+	+	-	+	-	+	+

Small Blue Round Cell Tumors

	MS Actin	SM Actin	Caldes-mon	Cal-ponin	CD45	CD57	CD99	CK Cocktail	FLI-1
Lymphoblastic Lymphoma	-	-	-		+	-	+	-	+
Leiomyosarcoma	+	+	+	+	-	+/-	-	-/+	-
Rhabdomyosarcoma	+	-	-	-	-	-	-	-	-
Neuroblastoma	-	-	-		-	+	-	-	-
Embryonal Carcinoma	-	-			-	+	-	+	-
PNET/ES	-	-		+	-	+	+	-/+	+
DSRCT	-	-			-	+/-	-	+	+
Medulloblastoma	-	-			-	+	-	-	-

Small Blue Round Cell Tumors (cont.)

	INI-1	Myo-genin	Myo-globin	PGP 9.5	Vimentin	WT1
Lymphoblastic Lymphoma	+	-	-		+	-
Leiomyosarcoma		-	-	-	+	-
Rhabdomyosarcoma	+	+	+	+	+	-
Neuroblastoma	+	-	-	+	+	-
Embryonal Carcinoma	+	-	-	+	-	-
PNET/ES	+	-	-	+	+	-
DSRCT	+	-	-	-	+	+
Medulloblastoma	+	-			-	

Soft Tissue Neoplasms

	MS Actin	SM Actin	Cal-retinin	CD34	CD56	CK Cocktail	Desmin	HMB-45	S-100	TFE3
Alveolar Soft Part Sarcoma	+	+	-	-	-	-	-	-	-	+
Clear Cell Sarcoma	-	-	-	-	-	-	-	+	+	-
Leiomyosarcoma	+	+	-	-/+	+	-/+	+	-	-	-
PEComa	-	+	+	-	+	-	-	+	+	-

Soft Tissue Sarcoma

	MS Actin	SM Actin	Cal-ponin	Cal-retinin	CD34	CD56	CD99	CK Cocktail	Desmin	EMA
Alveolar Soft Part Sarcoma	+	+		-	-	-	-	-	-	-
Clear Cell Sarcoma	-	-		-	-	-	-	-		
Desmoplastic Small Round Cell	-	-		-	-	-	-	+		
Epithelioid Sarcoma	-/+	-	-	-	+	-	-	+	-	+
Leiomyosarcoma	+	+			-/+	+		-/+	+	-/+
Mesenchymal Chondrosarcoma	-	-		+	-/+	-	+	-		
Myxoid Chondrosarcoma	-		+/-	+	-/+	-		-		-
PEComa	-	+		+	-	-	-	-		
PNET/ES	-	-		-	-	-	+	-/+		
Rhabdomyosarcoma	-/+	-/+			-	+		-	+	-
Synovial Sarcoma	-	-	-	+/-	-	+	+	+	-	+

Soft Tissue Sarcoma (cont.)

	Myo-genin	S-100	TFE3	TLE1
Alveolar Soft Part Sarcoma	-	-	+	-
Clear Cell Sarcoma		+	-	-
Desmoplastic Small Round Cell		-	-	-
Epithelioid Sarcoma	-		-	-
Leiomyosarcoma	-		-	
Mesenchymal Chondrosarcoma		+/-	-	-
Myxoid Chondrosarcoma				-
PEComa		-	-	-
PNET/ES		+	-	-
Rhabdomyosarcoma	+		-	
Synovial Sarcoma	-	-/+	-	+

Soft Tissue Tumor

	MS Actin	SM Actin	ALK	Cal-ponin	CD34	CD99	CK Cocktail	Desmin	EMA	FLI-1
Alveolar Soft Part Sarcoma	+	+	-		-	-	-	-		
Clear Cell Sarcoma	-	-	-		-	-	-			
Desmoplastic Small Round Cell	-	-	-		-	-	+	+	-	
Epithelioid Sarcoma	-/+	-	-		+	-	+	-	+	
Fibrous Histiocytoma	-	+	-			-	-	-		
Inflammatory Myofibroblastic Tumor	+	+	+		-	-	-			
Leiomyosarcoma	+	+		+		-	-/+			-
Myxoid Chondrosarcoma	-	-	-		-/+		-	-	-	
PEComa	-	+	-			-	-	+/-		
PNET/ES	-	-	-	-	-	+	-/+	-		+
Rhabdomyosarcoma	-/+	-/+		-		-	-			-
Synovial Sarcoma	-	-	-		-	+	+	-	+	

Soft Tissue Tumor (cont.)

	INI-1	Myo-genin	PGP 9.5	S-100	TFE3	TLE1
Alveolar Soft Part Sarcoma				-	+	-
Clear Cell Sarcoma				+	-	-
Desmoplastic Small Round Cell				-	-	-
Epithelioid Sarcoma				-	-	-
Fibrous Histiocytoma				-	-	-
Inflammatory Myofibroblastic Tumor				-	-	-
Leiomyosarcoma		-	-			
Myxoid Chondrosarcoma				+/-	-	-
PEComa				-	-	-
PNET/ES	+	-	+	+	-	-
Rhabdomyosarcoma	+	+	+			
Synovial Sarcoma				-	-	+

Vascular Tumors

	CD34	ERG	Factor VIII	FLI-1	HHV-8	D2-40
Hemangioma	+	+	+	+	-	-
Kaposi's Sarcoma	+	+	+	+	+	+
Hemangioendothelioma	+	+	-	+	-	-
Angiosarcoma	+	+	+	+	-	+/-
Colorectal Adenocarcinoma	-	-	-	-/+	-	-
Invasive Ductal Carcinoma		-	--	-/+	-	-

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