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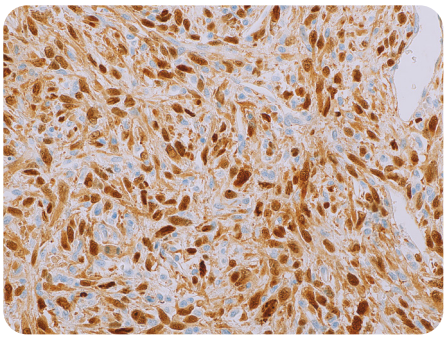
Cell Marque™ Tissue Diagnostics

New Products - CDK4, MDM2, PAX-7, and more



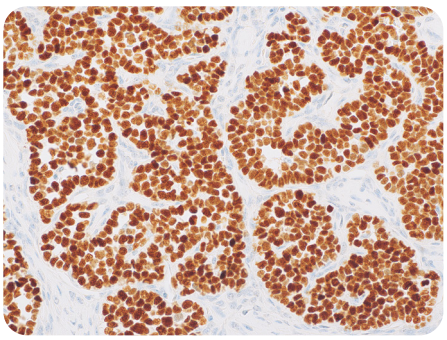
CDK4 (DCS-13)

Well-differentiated liposarcoma is a malignant, non-metastasizing tumor that can present with similar histological characteristics as benign lipoma lesions and has a higher recurrence rate. The CDK4 protein is frequently overexpressed in well-differentiated liposarcoma due to gene amplification of the 12q13-15 chromosomal region that harbors the CDK4 gene, but amplification and subsequent overexpression is rarely observed in lipomas. Due to CDK4 protein expression differences between these lesions, anti-CDK4 antibody can be used in an immunohistochemistry panel as an aid in the differential diagnosis between well-differentiated liposarcoma and lipoma.[1,2,3]

Description	Cat. No.
0.1 mL concentrate	**478M-94**
0.5 mL concentrate	**478M-95**
1.0 mL concentrate	**478M-96**
1.0 mL predilute	**478M-97**
7.0 mL predilute	**478M-98**

References:

1. Thway K, et al. *Am J Surg Pathol*. 2012; 36(3):462-9.
2. Aleixo PB, et al. *J Clin Pathol*. 2009; 62(12):1127-35.
3. Binh MBN, et al. *Am J Surg Pathol*. 2005; 29(10):1340-7.



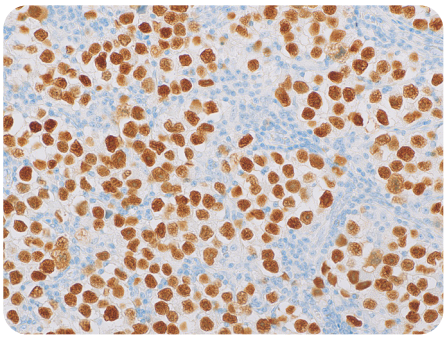
INSM1 (MRQ-70)

Insulinoma-associated protein 1 (INSM1) is a transcriptional factor with a zinc finger DNA-binding domain that is involved in neuroendocrine cell differentiation as a transcriptional repressor.[1] INSM1 expression has been observed during embryonic development in the cerebellum, spinal cord, olfactory epithelium, pancreas, and gastrointestinal tract;[2-4] however, expression in healthy adult tissues is limited to neuroendocrine cells. INSM1 is over expressed in neuroendocrine neoplasms including carcinoids, small cell carcinomas, and neuroendocrine carcinomas. This helps in identification of neuroendocrine tumors and their distinction from other lesions, such as adenocarcinomas, which exhibit little to no INSM1 expression.[5-6]

Description	Cat. No.
0.1 mL concentrate	**475R-94**
0.5 mL concentrate	**475R-95**
1.0 mL concentrate	**475R-96**
1.0 mL predilute	**475R-97**
7.0 mL predilute	**475R-98**

References:

1. Lan MS, et al. *FASEB J.* 2009;23(7):2024-2033.
2. Farkas LM, et al. *Neuron.* 2008;60:40-55.
3. Rosenbaum JN, et al. *Neural Dev.* 2011;6:6.
4. Gierl MS, et al. *Genes Dev.* 2006;20(17):2465-78.
5. Rosenbaum JN, et al. *Am J Clin Pathol.* 2015;144:579-591.
6. Mukhopadhyay S, et al. *Mod Path.* 2018;32:100-109.



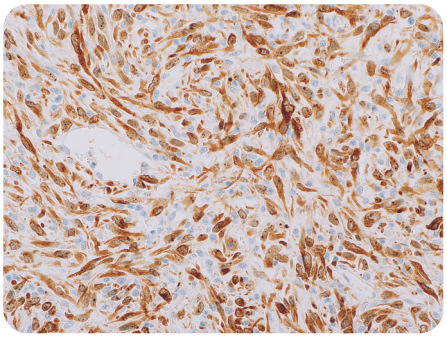
MAGEC2 (EP405)

Melanoma-associated antigen C2 (MAGEC2), encoded by the testis cancer gene CT10, belongs to a family of proteins that bind E3 RING ubiquitin ligases via a common MAGE homology domain.[1-3] The MAGE-RING complexes that are formed enhance the activity of the ubiquitin ligase binding partners. *In vitro* studies suggest that MAGEC2, which binds to TRIM28, is involved in tumorigenesis through the increased degradation of p53.[4] In germ cell tumors, aberrant expression of MAGEC2 is exhibited in seminomas, but is absent in yolk sac tumor and embryonal carcinoma.[5-7]

Description	Cat. No.
0.1 mL concentrate	**477R-14**
0.5 mL concentrate	**477R-15**
1.0 mL concentrate	**477R-16**
1.0 mL predilute	**477R-17**
7.0 mL predilute	**477R-18**

References:

1. Güre AO, et al. *Int J Cancer.* 2000;85(5):726-32.
2. Lee AK, et al. *J Mol Bio.* 2017;429(8):1114-1142.
3. Doyle JM, et al. *Mol Cell.* 2010;39(6):963-974.
4. Zhuang R, et al. *Cancer Immun.* 2006;6:7.
5. Bode PK, et al. *Mod Path.* 2011;24:829-835.
6. Chen YT, et al. *Hum Reprod.* 2011;26(12):3232-43.
7. Weissferdt A, et al. *Hum Pathol.* 2015;46(3):376-83.



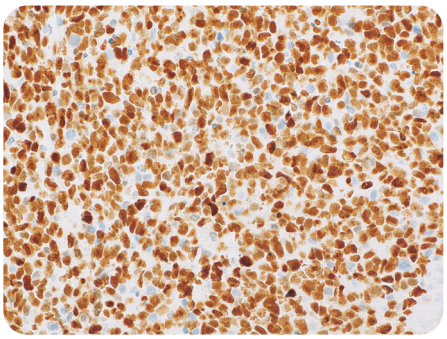
MDM2 (IF2)

Mouse double minute protein 2 (MDM2) is a gene encoded on the 12q13-14 chromosomal sequence.[1-5] It encodes for a 483 amino acid residue protein which binds to the amino-terminal transcription region of p53.[2,5] MDM2 has been shown to negatively regulate the tumor-suppressor activity of p53 by three mechanisms: Blocking p53 transcription, binding to p53 causing it to be exported from the nucleus, and accelerating the destruction of p53.[1] MDM2 up-regulation has been shown in liposarcoma while being absent in lipoma.[2,4] Therefore, anti-MDM2 has been demonstrated to be a potentially useful tool in distinguishing well-differentiated liposarcoma (atypical lipomatous tumor) from lipoma, with the neoplastic cells positive in the former lesion and negative in lipoma.[2,4]

Description	Cat. No.
0.1 mL concentrate	**479M-94**
0.5 mL concentrate	**479M-95**
1.0 mL concentrate	**479M-96**
1.0 mL predilute	**479M-97**
7.0 mL predilute	**479M-98**

References:

1. Uhrinova S, et al. *J Mol Biol.* 2005; 350:587-98.
2. Arici A, et al. *Indian J Cancer.* 2013; 50:164-9.
3. Ware PL, et al. *Am J Clin Pathol.* 2014; 141:334-41.
4. Binh MB, et al. *Am J Clin Pathol.* 2006; 125:693-7.
5. Momand J, et al. *Nucleic Acids Res.* 1998; 26:3453-9.



PAX-7 (MRQ-69)

The paired-box (PAX) family of proteins are key transcriptional regulators involved in early critical development.[1] The PAX-7 transcription factor has important functions in mammalian myogenesis and early neural development, with a particularly crucial role in specification and self-renewal of skeletal muscle tissue.[2,3] The expression of PAX-7 is highly restricted in normal adult tissues as demonstrated by nuclear immunoreactivity only being identified in rare, scattered satellite cells of the skeletal muscle and absent in both visceral smooth muscle and cardiac muscle as well as in a broad anatomical range of other non-neoplastic tissues. The assessment of soft tissue tumors and small round cell tumors is a persistent diagnostic challenge because of overlapping morphological features and insufficient molecular characterization in these groups of neoplasms. A high frequency of strong PAX-7 nuclear expression has been identified predominantly in rhabdomyosarcomas, preferentially in the embryonal subtype, and Ewing's sarcoma, with reactivity being absent in related malignancies such as leiomyosarcoma, lymphoblastic lymphoma, neuroblastoma, carcinoid tumor, gastrointestinal stromal tumor, and small cell lung carcinoma. Immunohistochemical detection of PAX-7 protein can be used as a tool in distinguishing embryonal rhabdomyosarcoma and Ewing's sarcoma from histologic mimics.[4,5]

Description	Cat. No.
0.1 mL concentrate	**481M-94**
0.5 mL concentrate	**481M-95**
1.0 mL concentrate	**481M-96**
1.0 mL predilute	**481M-97**
7.0 mL predilute	**481M-98**

References:

1. Blake, JA et al. *The Company of Biologists.* 2014; 141:737-751.
2. Kawakami, A et al. *Mechanisms of Development.* 1997; 66:119-130.
3. Olguin, HC et al. *Dev Biol.* 2004; 275(2):375-88.
4. Charville, GW et al. *Am J Surg Path.* 2016; 40(10):1305-1315.
5. Toki, S et al. *Histopathology.* 2018; 73:645-652.

Intended Use: These products herein are intended for laboratory use in the detection of their respective proteins in formalin-fixed, paraffin-embedded tissue stained in qualitative immunohistochemistry (IHC) testing. These products are not a stand-alone diagnostic, and cannot be used for diagnosis, treatment, prevention, or mitigation of disease.

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