Revision 4

Store at -20C

#13130

MT1-MMP (D1E4) Rabbit mAb

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M	Endogenous	50, 62	Rabbit IgG	#P50281	4323

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

MT1-MMP (D1E4) Rabbit mAb recognizes endogenous levels of total MT1-MMP protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Met293 of human MT1-MMP protein.

Background

The matrix metalloproteinase (MMP) family of proteases are a group of zinc-dependent enzymes that target extracellular proteins, including growth factors, cell surface receptors, adhesion molecules, and other proteases (1). Matrix metalloproteinases can be broadly categorized based on function and cellular localization, and include six distinct membrane-type (MT) metalloproteinases that share a transmembrane domain and short cytoplasmic tail (2). Membrane type-1 matrix metalloproteinase (MT1-MMP, MMP14) is involved in regulating development, angiogenesis, tissue remodeling, and tumor progression (3-6). MT1-MMP and other metalloproteinases promote tumor cell invasion by accumulating in specialized structures known as invadopodia, which remodel the ECM and allow tumor cells to breach the basement membrane (7). The abundance and presence of MT1-MMP at the cell surface is controlled by targeted endocytosis, which may be regulated by the MT1-MMP cytoplasmic domain (8). MT1-MMP protease activity can be further regulated through homodimer formation, autocatalytic processing, domain shedding, and the interaction with inhibitory proteins. Activation of the MT1-MMP proenzyme results from cleavage of full-length MT1-MMP by furin in the trans-Golgi network, which removes the inhibitory propeptide domain (9). At the cell surface, MT1-MMP can be found in a protein complex with the soluble metalloproteinase MMP2 and the MMP inhibitor TIMP2. MT1-MMP mediated cleavage and activation of MMP2 generate the active MMP2 collagenase, which plays important roles in ECM remodeling and tumor invasion (10). MT1-MMP interacts with a large number of substrates in addition to MMP2, including interstitial collagens, adhesive glycoproteins (i.e., laminin), and cell surface receptors (11).

Background References

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4. van Hinsbergh, V.W. and Koolwijk, P. (2008) *Cardiovasc Res* 78, 203-12.
5. Rowe, R.G. and Weiss, S.J. (2008) *Trends Cell Biol* 18, 560-74.
6. Tang, Y. et al. (2013) *Dev Cell* 25, 402-16.
7. Poincloux, R. et al. (2009) *J Cell Sci* 122, 3015-24.
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9. Osenkowski, P. et al. (2004) *J Cell Physiol* 200, 2-10.
10. Sato, H. and Takino, T. (2010) *Cancer Sci* 101, 843-7.
11. Barbolina, M.V. and Stack, M.S. (2008) *Semin Cell Dev Biol* 19, 24-33.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse

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