

**AF8410****Monoclonal Antibody to MMP-14 / MT1-MMP - Purified****Alternate names:**

MMP-X1, MMP14, Matrix metalloproteinase-14, Membrane-type-1 matrix metalloproteinase

**Quantity:**

0.1 mg

**Concentration:**

0.5 mg/ml

**Background:**

Matrix metalloproteinases (MMPs) are a family of enzymes that are responsible for the degradation of extracellular matrix components. Of the sixteen proteins reported to date, ten are normally found as soluble molecules. Several of the MMP proteins have been shown to be integral membrane proteins and have been named MT-MMPs for membrane bound MMP. The MT-MMP family is now known to contain at least three members, MT1-MMP, MT2-MMP and MT3-MMP, also known as MMP14, MMP15, and MMP16 respectively. While each of these proteins contain a C-terminal transmembrane domain allowing localization to the cell surface they are independent in expression. These proteins also differ from the other members of the MMP family in that they contain an 8 amino acid insert in the catalytic domain. The MT1-MMP protein is encoded by a 4.5 kb mRNA species giving rise to a protein with a molecular weight of 60-66 kDa by SDS-PAGE. MT1-MMP is responsible for cleaving progelatinase A (MMP-2, 72 kDa Type IV collagenase) and progelatinase B to their active forms. MT1-MMP itself requires an activation step that is the result of the activity of the membrane plasmin cascade. MT1-MMP functions by binding TIMP-2 and then the COOH terminal end of MMP-2 resulting in a 105 kDa trimer which effects the cleavage of pro-MMP-2 to the biologically active form. The order of the binding of pro-MMP-2 and TIMP-2 to MT1-MMP is critical as TIMP-2 will also inhibit the activity of MMP-2 when present in a soluble form.

**Uniprot ID:**[P50281](#)**NCBI:**[NP\\_004986.1](#)**GeneID:**[4323](#)**Host / Isotype:**

Mouse / IgG3

**Recommended Isotype Controls:**

AM03097PU-N

**Clone:**

113-5B7

**Immunogen:**

Oligopeptide of CDGNFDTVAMLRGEM (residue 319-333) on Human Membrane type 1 Matrix Metalloproteinase (hMT1-MMP).

**Genename:** MMP14**Format:****State:** Liquid purified IgG fraction**Buffer System:** 0.1M Sodium Phosphate buffer, pH 7.0**Preservatives:** None**Stabilizers:** 0.5% Protease-free BSA

### Applications:

**Western Blot:** 10 µg/ml.

**Immunoprecipitation** (See *Sato T. et al.* 1994).

**Immunohistochemistry on Frozen Sections.**

**Immunohistochemistry on Paraffin Sections:** 2-4 µg/ml.

Heat induced antigen retrieval with citrat buffer, pH 6.2 using a pressure cooker was preformed. Sections were blocking using a commercially available casein solution. Signal was generated using a commercially available polymer HRP detection system and DAB.

Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

### Molecular Weight:

~59-69 kDa

### Specificity:

This monoclonal *113-5B7* antibody specifically reacts with Human MT1-MMP and cross-reacts with Mouse MT1-MMP. It slightly cross-reacts with Human MMP-3

**Species:** Human, Mouse, Rat and Rabbit.

Other species not tested.

### Storage:

Upon receipt, store undiluted (in aliquots) at -20°C.

Avoid repeated freezing and thawing.

Shelf life: one year from despatch.

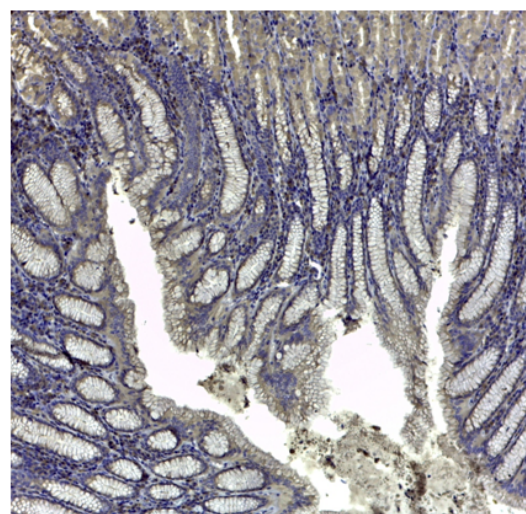
### General Readings:

1. Sato, H. et al., *Nature* 370. 61-65, 1994.
2. Yamada, T. et al., *Acta Neuropathol.*, 90. 421-424, 1995.
3. Sato, T. et al., *J. Cell Sei.*, 110. 589-596, 1997.
4. Kinoh, H. et al. *J. Cell Sci.*, 109. 953-959, 1996.

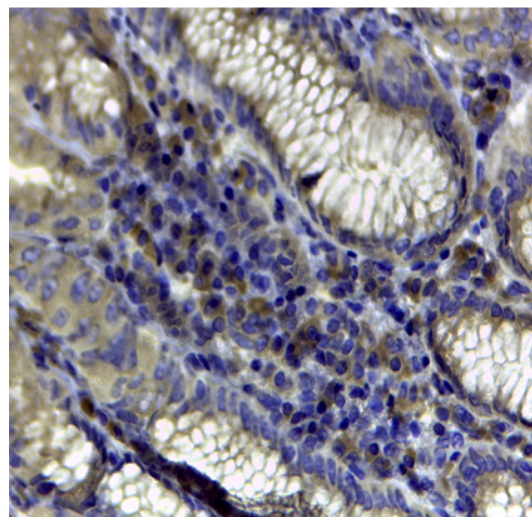
### Pictures:

Staining of Human gastric fundus with MMP-14 Antibody Cat.-No AF8410 (Clone 113-5B7) at 2 µg/ml.

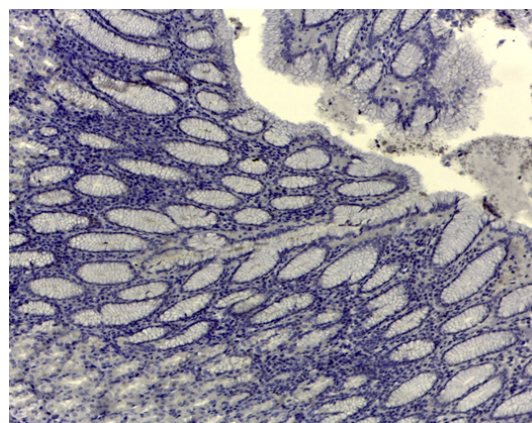
Antibody detects cytoplasmatic membranous expression of MMP-14 in stromal cells. 10x



Staining of Human gastric fundus with MMP-14 Antibody Cat.-No AF8410 (Clone 113-5B7) at 2 µg/ml. Antibody detects cytoplasmatic membranous expression of MMP-14 in stromal cells. 40x



Human gastric fundus: Negative Control. Da Vinci Green 10x



Recombinant  $\Delta$ MT1-MMP (lacking the TM domain) (expressed in CHO cells) stained with MMP-14 Antibody Cat.-No AF8410 (Clone 113-5B7) at 10 µg/ml (2 µg protein/Lane). HRP conjugated Goat anti Mouse IgG as Secondary antibody.

