



Product Information Sheet

Product Name:	Human MMP-1
Catalog Number:	72004
Amount:	100 µL, 10 µg/mL
Activity (Unit/µg):	Provided on the label
Unit definition:	One unit of protease hydrolyzes 1 picomole of 5-FAM-Pro-Leu-Ala-Nva-Dap(QXL™520)-Ala-Arg-NH ₂ (AnaSpec Cat#60571) per minute at pH 7.5 at 25° C.
Storage:	Store at -80°C. Avoid multiple thaw-freeze cycles.

Instruction:

Matrix metalloproteinases (MMP's) belong to a family of secreted or membrane-associated zinc endopeptidases capable of digesting extracellular matrix components^{1,2}. MMP-1 (collagenase-1) is involved in tumor development and metastasis^{3,4} and rheumatoid arthritis⁵. It is proposed as a therapeutic target for these diseases. Native pro-MMP-1 is prepared from culture medium of human rheumatoid synovial fibroblasts. MMP-1 is secreted as pro-enzyme, which consists of a propeptide of 80 amino acids, a catalytic domain of 162 amino acids, a 16-residue linker region, and a hemopexin domain of 189 amino acids⁶. The native pro-MMP-1 has a major Mr 52-kDa unglycosylated and a minor Mr 57-kDa glycosylated form. The proteolytic activation of the 57/52-kDa species will form 47/42-kDa active collagenase⁶, and a 22-kDa C-terminal fragment⁷.

The apparent Mr on SDS-PAGE is approximately 56kDa/52 kDa.

The pro-MMP-1 can be fully activated by incubating with 1 mM APMA at 37°C for 3 hr. Its activity can be measured by FRET peptides (AnaSpec Cat#71128, Cat#71150). 10-20 ng of enzyme is sufficient for FRET-based assay.

The MMP-1 is stored in 0.1M Tris, pH 7.5, 0.1M NaCl, 10 mM CaCl₂, 0.05% Brij 35, 2mM sodium azide, 1 mg/mL BSA.

References

1. J. F. Woessner, Jr. and C. J. Taplin, *J.Biol.Chem.* 263, 16918-16925 (1988).
2. J. F. Woessner, Jr., *FASEB J.* 5, 2145-2154 (1991).
3. G. I. Goldberg et al., *Ann.N.Y.Acad.Sci.* 580, 375-384 (1990).
4. W. G. Stetler-Stevenson, S. Aznavoorian, L. A. Liotta, *Annu.Rev.Cell Biol.* 9, 541-573 (1993).
5. E. M. Gravallese, J. M. Darling, A. L. Ladd, J. N. Katz, L. H. Glimcher, *Arthritis Rheum.* 34, 1076-1084 (1991).
6. G. I. Goldberg et al., *J.Biol.Chem* 261, 6600-6605 (1986).
7. B. Birkedal-Hansen, W. G. Moore, R. E. Taylor, A. S. Bhowan, H. Birkedal-Hansen, *Biochemistry* 27, 6751-6758 (1988).
8. N. S. Templeton et al., *Cancer Res.* 50, 5431-5437 (1990).