Human Pro-Matrix Metalloproteinase 13 (Pro-MMP-13)

CATALOG #: 7785-10

AMOUNT: 10 µg

SOURCE: *Sf9* cells

PURIFIED PROTEIN: recombinant full-length human MMP-13 (**EC 3.4.24.--**)

PURITY: >95% by SDS-PAGE

FORM: Liquid, 50 mM Tris pH 6.5, 250 mM NaCl, 5 mM $CaCl_2$, 1 mM $ZnCl_2$

CONCENTRATION: 100 µg/ml, >200 munits/mg (international unit 1 mole/min/mg)

MOLECULAR WEIGHT: 53.820 kDa [**471** amino acid residues [1-mhpgvlaaf ------ rvmpansilw c-471]

NOTE:
This product contains neither an N- nor C-terminal tag. Swiss Prot# P45452.

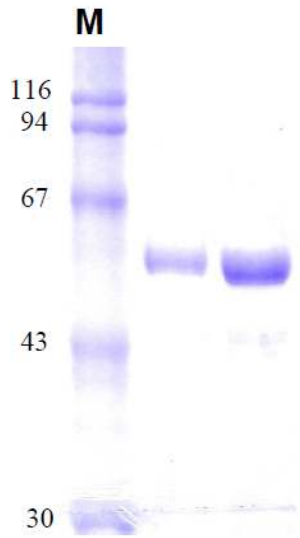
STORAGE CONDITIONS:
MMP-13 is very stable if aliquoted and stored (prevents auto-activation) at -70°C. Repeated freezing and thawing should be avoided. Dilute and activate only the amount of enzyme you need, do not store enzyme in reaction buffer.

DESCRIPTION:
MMP-13 (Collagenase-3) was first identified in human mammacarcinoma (Freije et al., 1994, Willmroth et al. 1998) - probably induced by IL1- alpha and IL-1 beta - and shown to be glycosylated and the inactive zymogen displaying a relative molecular weight of 60 kDa. Cleavage of the 84 residue propeptide can be catalyzed by other MMPs such as MMP-2, MMP-3 and MMP-14, or by factors like plasmin. The proenzyme activated by APMA (paminohenylmercuric acteate) or leads to the active enzyme with a relative molecular weight of app. **48 kDa** which easily autodegrades into a 30 kDa form. This highly active 30 kDa form still retains the characteristics of the app. **48 kDa** form. MMP-13 also plays a central role in the MMP activation cascade, both activating and being activated by several MMPs (Leeman et al., 2002).

ACTIVATION:
It has been shown that the proform of MMP-13 can be activated by plasmin and by the two matrix metalloproteinases MMP-2 and MMP-14. Extended plasmin-activation can deactivate active MMP-13. The proenzyme activated by APMA (p-aminophenylmercuric acetate), yields the active enzyme with a relative molecular weight of 48 kDa which easily autodegrades into a 30 kDa form. This highly active 30 kDa form still retains the characteristics of the 48 kDa form. Indeed, it cleaves the type II collagen, displays the gelatinolytic activity and is inhibited by the tissue inhibitor of matrix metalloproteinases (TIMP-1, 2, and 3) and by EDTA.

INHIBITORS:
N,N'-bisaryl-pyrimidine-4,6-dicarboxamide derivatives are indicated to be selective for MMP-13 inhibition (Engel et al., 2005). N-Hydroxy-3-hydroxy-4-arylsulfonyltetrahydropyranyl-3-carboxamides were designed as novel inhibitors of MMP-13 and aggrecanase based on known endocyclic hydroxamate inhibitors of matrix metalloproteinases (Noe et al., 2004). The activated MMP-13 is inhibited by tissue inhibitors of matrix metalloproteinase-1, -2, and -3 and by chelators of divalent cations like EDTA or o-phenanthroline.

IMAGE:



RELATED PRODUCTS:
- MMP-13 Antibody: **(Cat# 3533-100)**
- MMP-13 Blocking Peptide: **(Cat# 3533BP-50)**

FOR RESEARCH USE ONLY! Not to be used on humans.

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