APA099Ra61 10μg
Active Matrix Metalloproteinase 13 (MMP13)
Organism Species: Rattus norvegicus (Rat)
Instruction manual

FOR RESEARCH USE ONLY
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Eukaryotic expression.
Host: 293F cell
Residues: Leu14~Cys466
Tags: N-terminal His-tag
Purity: >98%
Endotoxin Level: <1.0EU per 1μg (determined by the LAL method).
Buffer Formulation: PBS, pH7.4, containing 5% Trehalose.
Original Concentration: 70μg/mL
Applications: Cell culture; Activity Assays.
(May be suitable for use in other assays to be determined by the end user.)
Predicted isoelectric point: 5.1
Predicted Molecular Mass: 53.4kDa
Accurate Molecular Mass: 60kDa as determined by SDS-PAGE reducing conditions.
Phenomenon explanation:
The possible reasons that the actual band size differs from the predicted are as follows:

1. Splice variants: Alternative splicing may create different sized proteins from the same gene.
2. Relative charge: The composition of amino acids may affects the charge of the protein.
3. Post-translational modification: Phosphorylation, glycosylation, methylation etc.
4. Post-translation cleavage: Many proteins are synthesized as pro-proteins, and then cleaved to give the active form.
5. Polymerization of the target protein: Dimerization, multimerization etc.

[USAGE]

Reconstitute in ddH_2O to a concentration of 0.1-0.5 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.
Store at 2-8°C for one month.
Aliquot and store at -80°C for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

LPLPYGD DDDDDLSEED LEFAEHYLKS YYHPVTLAGI
LKKSTVTSTV DRLREMQSFF GLDVTGKLDD PTLDIMRKPR CGVPDVGVYN
VFPRTLKWSQ TNLTYRIVNY TPDISHSEVE KAFRKAFKVW SDVTPLNFTR
IHDGTADIMI SFGTKEHGDF YPFDGPSGLL AHAFPPGPNL GGDAHFDDDE
TWTSSSKGYN LFIVAAHELG HSLGLDHSKD PGALMFPIYT YTGKSHFMLP
DDDVQGIQSL YGPGDEDPNP KHPKTPEKCD PALSLDAITS LRGETMIFKD
RFFWRLHPQQ VEPELFLTKS FWPELPNHVD AAYEHPSRDL MFIFRGRKFW
ALNGYDIMEG YPRKISDLGF PKEVKRLSAA VHFEDTGKTL FFSGNHVWSY
DDANQTMDKD YPRLIEEEFP GIGDKVDAVY EKNGYIYFFN GPIQFEYSIW
SNRIVRVMPT NSLLWC

[ACTIVITY]

Matrix Metalloproteinase 13 (MMP13) is a member of the matrix metalloproteinase (MMP) family. MMP13 has been proposed to participate in aggrecan degradation associated with osteoarthritis and cleavage of type II collagen in osteoarthritic cartilage explants and in tumor progression and metastasis. In addition, it can cleave type I, III, IV, IX, X and XIV collagens and fibronectin. MMP13 is likely to play a crucial role in the modulation of extracellular matrix degradation and cell-matrix interactions. Although gelatin zymography is mainly used for the detection of the MMP2 and MMP9, it also can be used for MMP13 dection.

Briefly, various concentrations of MMP13 (1000ng, 500ng, 250ng, 125ng) were denatured by SDS loading buffer, electrophoresed through sodium dodecylsulphat- polyacrylamide gel (SDS-PAGE; 10% gels) containing gelatin (1mg/mL) with nonreducing conditions. After renaturation, incubation and CCB-stained, active MMP13 would hydrolyze gelatin nearby, which was indicated by the white bands on the gel. In this experiment we use heat-denatured MMP13 protein as negative control, and blood sample as positive control. Result: Gelatin hydrolysis by recombinant rat MMP13 was shown in figure 1.

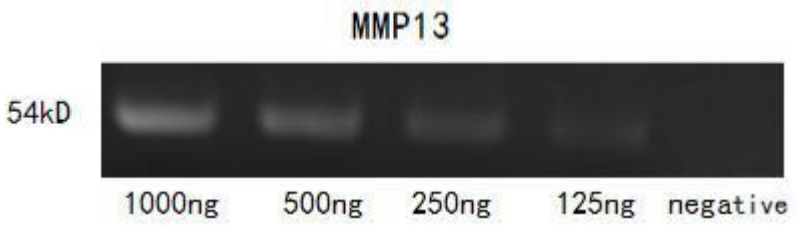

Figure 1. Gelatin hydrolysis by recombinant rat MMP13.

[IDENTIFICATION]

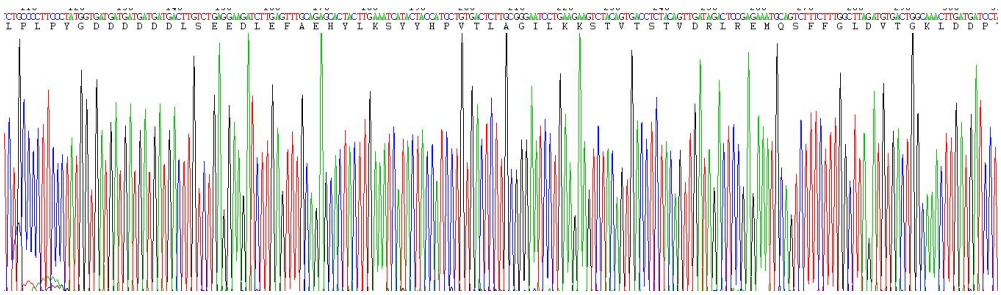

Figure 2. Gene Sequencing (extract)

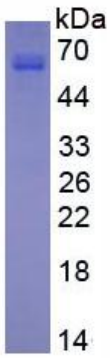

Figure 3. SDS-PAGE

Sample: Active recombinant MMP13, Rat

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.