Anti-Human MMP-9 Antibody [PSH04-23] - BSA and Azide free (Capture)

HA722106

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human
Applications:	ELISA(Cap)
Molecular Wt:	Predicted band size: 78.5 kDa
Clone number:	PSH04-23

Description: MMP-9 (also referred to as gelatinase B, 92 kDa type IV collagenase, 92 kDa gelatinase, and type V collagenase) is secreted as a glycosylated proenzyme. Activation of the proenzyme involves proteolytic removal of the N-terminal pro region, resulting in the 82 kDa active enzyme. Active human MMP-9 shares 72% and 74% amino acid sequence identity with mouse and rat MMP-9, respectively. In addition to the zinc-binding site, the catalytic domain also contains three contiguous fibronectin type II homology units responsible for binding gelatin. A proline-rich hinge region links the catalytic domain to the C-terminal hemopexin-like domain. In vitro treatment of the proenzyme with 4-aminophenylmercuric acetate (APMA) produces not only the active enzyme but also a C-terminal truncated form with activity comparable to that of the active form. MMP-9 degrades components of the ECM with high specific activity for denatured collagens (gelatin). It can cleave native collagens of type III, IV, V, and XI, as well as Elastin, Nidogen-1, and Vitronectin. MMP-9 can also cleave a variety of chemokines and growth factors (e.g. IL-1 beta, CXCL8/IL-8, CXCL7, CXCL4, CXCL1, Latent TGF-beta, membrane bound TNF-alpha, VEGF, and FGF basic), Amyloid beta peptide, Substance P, and Myelin Basic Protein. This action can increase or decrease the biological activity of soluble factors and can also liberate them from association with the ECM. MMP-9 can also trigger signaling through various transmembrane proteins or inhibit signaling by inducing their shedding from the cell surface (e.g. CD44, E-Cadherin, Integrins, ICAM-1, and IL-2 R alpha).

Immunogen:	Recombinant protein within Human MMP9 aa 20-707 (P14780).
Positive control:	Recombinant Human MMP9 protein (HA210698).
Subcellular location:	Secreted, extracellular space, extracellular matrix.
Database links:	SwissProt: P14780 Human
Recommended Dilutions:	
ELISA(Cap)	Use at an assay dependent concentration. Can be paired for Sandwich ELISA with Rabbit monoclonal [PSH04-24] to Human MMP9 (Detector) (HA722107) and recombinant standard Human MMP9 protein (HA210698). The reference range value is 20.6-5000 pg/ml.
Storage Buffer:	PBS (pH7.4).
Storage Instruction:	Store at +4℃ after thawing. Aliquot store at -20℃. Avoid repeated freeze / thaw cycles.
Purity:	Protein A affinity purified.

Images

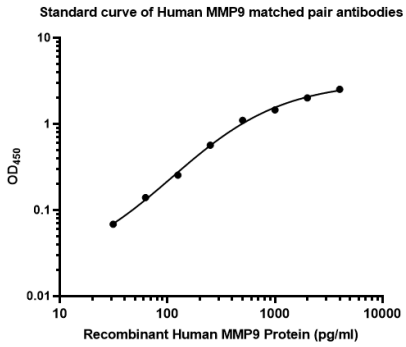

Fig1: Sandwich ELISA analysis of Human MMP9 matched pair antibodies

Elisa assay was performed by coating wells of a 96-well plate with 100 µl per well of capture antibody (HA722106) diluted in carbonate/bicarbonate buffer, at a concentration of 2 µg/ml overnight at 4℃. Wells of the plate were washed, blocked with 150 µl 0.05% tween-20 1% BSA blocking buffer, and incubated with serial diluted Recombinant Human MMP9 protein (HA210698) starting from 4000 pg/ml to 0 pg/ml and detect antibody (HA722107) (Biotin-conjugated, 0.2 µg/ml) for 1 hour at 30℃ with shaking. Then the plate was washed and incubated with 100 µl per well of SA-HRP for 0.5 hour at 30℃ with shaking. Detection was performed using an Ultra TMB Substrate for 10 minutes at room temperature in the dark. The reaction was stopped with sulfuric acid and absorbances were read on a spectrophotometer at 450 nm.

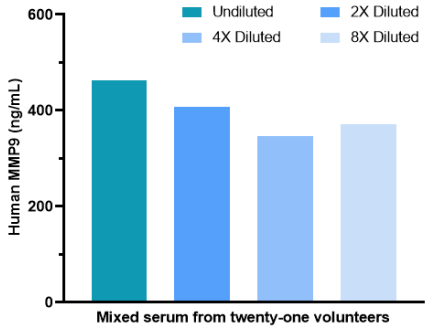

Fig2: The concentrations of MMP9 were interpolated from the MMP9 standard curves and corrected for sample dilution. Undiluted samples are mixed serum from twenty-one volunteers 0.5%. The mean MMP9 concentration was determined to be 397.2 ng/ml in mixed serum from twenty-one volunteers.

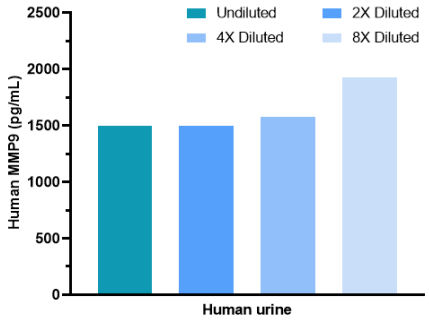

Fig3: The concentrations of MMP9 were interpolated from the MMP9 standard curves and corrected for sample dilution. Undiluted samples are human urine 100%. The mean MMP9 concentration was determined to be 1624.2 pg/ml in human urine.

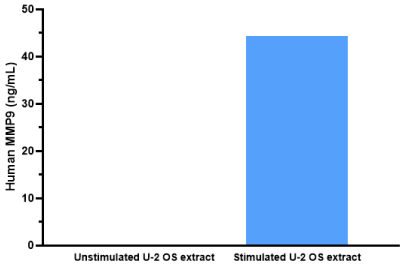

Fig4: U-2 OS cells were stimulated with 200nM TPA or vehicle control in McCoy's 5a+10%FBS medium and incubated for 48 hours.The concentrations of MMP9 were interpolated from the MMP9 standard curves and corrected for sample dilution.Undiluted samples are TPA stimulated U-2 OS cell extract 2.5% and unstimulated U-2 OS cell extract 2.5%. The mean MMP9 concentration was determined to be 44.3 ng/ml in TPA stimulated U-2 OS cell extract and undetectable in the unstimulated U-2 OS control.

Background References

1. Zhang H et al. MMP9 protects against LPS-induced inflammation in osteoblasts. Innate Immun. 2020 May
2. Nandi SS et al. MMP9 inhibition increases autophagic flux in chronic heart failure. Am J Physiol Heart Circ Physiol. 2020 Dec