

DESCRIPTION	
Species Reactivity	Human
Specificity	Detects human MMP-1 in ELISAs and Western blots. In sandwich immunoassays, less than 0.5% cross-reactivity with recombinant human (rh) MMP-2, rhMMP-3, rhMMP-7, rhMMP-8, rhMMP-9, rhMMP-10, rhMMP-12, rhMMP-13, and rhMMP-16 is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant human MMP-1 Phe20-Asn469 Accession # P03956
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

APPLICATIONS		
Please Note: Optimal dilutions should be determined by each laboratory for each application. <i>General Protocols</i> are available in the <i>Technical Information</i> section on our website.		
	Recommended Concentration	Sample
Western Blot	1 µg/mL	See Below
Immunohistochemistry	5-15 µg/mL	See Below
Human MMP-1 Sandwich Immunoassay		Reagent
ELISA Capture	0.2-0.8 µg/mL	Human MMP-1 Antibody (Catalog # AF901)
ELISA Detection Standard	2.5-10 ng/mL	Human MMP-1 Biotinylated Antibody (Catalog # BAF901) Recombinant Human MMP-1 (Catalog # 901-MP)
Knockout Validated	MMP-1 is specifically detected in PC-3 human prostate cancer parental cell line but is not detectable in MMP-1 knockout PC-3 cell line.	

DATA

Western Blot

Detection of Human MMP-1 by Western Blot. Western blot shows lysates of PC-3 human prostate cancer cell line and HEK001 human epidermal keratinocyte cell line. PVDF membrane was probed with 1 µg/mL of Goat Anti-Human MMP-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF901) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for MMP-1 at approximately 50 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunohistochemistry

MMP-1 in Human Ovarian Cancer Tissue. MMP-1 was detected in immersion fixed paraffin-embedded sections of human ovarian cancer tissue using 15 µg/mL Goat Anti-Human MMP-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF901) overnight at 4 °C. Tissue was stained with the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

Immunohistochemistry

MMP-1 in Human Prostate Tissue. MMP-1 was detected in immersion fixed paraffin-embedded sections of human prostate tissue using Goat Anti-Human MMP-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF901) at 10 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

Knockout Validated

Western Blot Shows Human MMP-1 Specificity by Using Knockout Cell Line. Western blot shows lysates of PC-3 human prostate cancer parental cell line and MMP-1 knockout PC-3 cell line (KO). PVDF membrane was probed with 1 µg/mL of Goat Anti-Human MMP-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF901) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for MMP-1 at approximately 50 kDa (as indicated) in the parental PC-3 cell line, but is not detectable in knockout PC-3 cell line. GAPDH (Catalog # AF5718) is shown as a loading control. This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none">● 12 months from date of receipt, -20 to -70 °C as supplied.● 1 month, 2 to 8 °C under sterile conditions after reconstitution.● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Matrix metalloproteinases are a family of zinc and calcium dependent endopeptidases with the combined ability to degrade all the components of the extracellular matrix. MMP-1 (interstitial collagenase), can degrade a broad range of substrates including types I, II, III, VII, VIII, and X collagens as well as casein, gelatin, α -1 antitrypsin, myelin basic protein, L-Selectin, pro-TNF, IL-1 β , IGFBP-3, IGFBP-5, pro-MMP-2, and pro-MMP-9. A significant role of MMP-1 is the degradation of fibrillar collagens in extracellular matrix remodeling, characterized by the cleavage of the interstitial collagen triple helix into $\frac{1}{4}$, $\frac{1}{4}$ fragments. However, as the list of substrates above illustrates, the role of MMP-1 is more diverse than originally envisaged, and may involve enzyme cascades, cytokine regulation, and cell surface molecule modulation. MMP-1 is expressed by fibroblasts, keratinocytes, endothelial cells, monocytes, and macrophages. Structurally, MMP-1 may be divided into several distinct domains; a pro-domain which is cleaved upon activation; a catalytic domain containing the zinc binding site; a short hinge region and a carboxyl terminal (hemopexin-like) domain.

References:

1. Cawston, T.E. (2004) in *Interstitial Collagenase*. Barrett, A.J. *et al.* (eds): Handbook of Proteolytic Enzymes, San Diego: Academic Press, p. 472.