

DESCRIPTION	
Species Reactivity	Human
Specificity	Detects pro and active forms of human MMP-1.
Source	Recombinant Monoclonal Mouse IgG ₁ Clone # 36665R
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Chinese hamster ovary cell line CHO-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 either lyophilized or 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	2 µg/mL	See Below
Immunohistochemistry	8-25 µg/mL	See Below
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 IMR-90 human lung fibroblast cell line and PC-3 human prostate cancer cell line. PVDF membrane was probed with 2 µg/mL of Recombinant Mouse Anti-Human MMP-1 Monoclonal Antibody (Catalog # MAB901R) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). 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 Liver. MMP-1 was detected in immersion fixed paraffin-embedded sections of human liver using Recombinant Mouse Anti-Human MMP-1 Monoclonal Antibody (Catalog # MAB901R) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Mouse HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm in hepatocytes. 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 2 µg/mL of Mouse Anti-Human MMP-1 Monoclonal Antibody (Catalog # MAB901R) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). 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 0.5 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 , IGF-BP3, IGF-BP5, 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.