

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	Supplied as a solution in PBS. 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. General Protocols are available in the Technical Information 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

Shipping	The product is shipped with polar packs. 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 opening. ● 6 months, -20 to -70 °C under sterile conditions after opening.

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.