Data Sheet (Cat.No.TMPY-01027)

TargetMol

Mast Cell Protease-1/MCPT-1 Protein, Mouse, Recombinant (His)

General Information

Synonyms:	carnitine palmitoyltransferase 1B (muscle);AV080368;Mcp-1
Protein Construction:	A DNA sequence encoding the mouse MCPT1 (NP_032596.1) (Met 1-Lys 246) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Glu 19
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	P11034
Molecular Weight:	26.8 kDa (predicted); 32-34 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 97 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Mast Cell Protease 1 (MMCP-1), also known as MCP-1, MCPT-1 and β-chymase, is a member of the Chymase family of chymotrypsin-like serine proteases. MCPT-1 is a 26 kDa β-chymase that is a component of mast cell granules. It is a 226 amino acid (aa) protein that has a conserved pattern of six cysteines and one potential glycosylation site. The granule-derived mouse mast cell proteases-1 and -2 (mMCP-1 and -2) colocalize in similar quantities in mucosal mast cells but micrograms of mMCP-1 compared with nanograms of mMCP-2 are detected in peripheral

blood during intestinal nematode infection. mMCP-1 isolated from serum is complexed with serpins and both the accumulation and the longevity of mMCP-1 in the blood is due to complex formation, protecting it from a pathway that rapidly clears mMCP-2, which is unable to form complexes with serpins. The mucosal mast cell (MMC) granule-specific beta-chymase, mouse mast cell protease-1 (mMCP-1), is released systemically into the bloodstream early in nematode infection before parasite-specific IgE responses develop and TGF-beta1 induces the constitutive release of mMCP-1 by homologs of MMC in vitro. Expression of mMCP-1 is largely restricted to intraepithelial MMC and is thought to play a role in the regulation of epithelial permeability. Its activation is completed by the removal of a two residue N-terminal propeptide by a dipeptidyl peptidase (Cathepsin C). MCPT-1 is upregulated in the intestine in response to nematode infection, or systemic mucosa in response to anaphylaxis. Like human α-chymase, MCPT-1 is capable of the conversion of angiotensin I to angiotensin II, which plays a key role in the regulation of arterial pressure. The intestinal inflammation associated with gastrointestinal helminths is partly mediated by mMCP-1.

Reference

Pemberton AD,et al.(2003) Purification and characterization of mouse mast cell proteinase-2 and the differential expression and release of mouse mast cell proteinase-1 and -2 in vivo. Clin Exp Allergy. 33(7): 1005-12.
Brown JK,et al.(2003) Constitutive secretion of the granule chymase mouse mast cell protease-1 and the chemokine, CCL2, by mucosal mast cell homologues. Clin Exp Allergy. 33(1): 132-46.
Lawrence CE,et al.(2004) Mouse mast cell protease-1 is required for the enteropathy induced by gastrointestinal helminth infection in the mouse. Gastroenterology. 127(1): 155-65.
Pemberton AD,et al.(2006) Anaphylactic release of mucosal mast cell granule proteases: role of serpins in the differential clearance of mouse mast cell proteases-1 and -2. J Immunol. 176(2): 899-904.

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