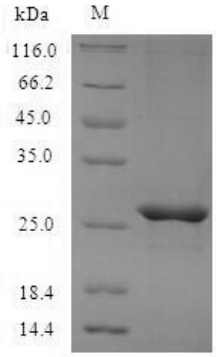
Recombinant Mouse Mast cell protease 4 (Mcpt4)

Product Code	CSB-YP325157MO
Relevance	Has chymotrypsin-like activity. Hydrolyzes the amide bonds of synthetic substrates having Tyr and Phe residues at the P1 position. Preferentially hydrolyzes the 'Tyr-4-|-Ile-5' bond of angiotensin I and the 'Phe-20-|-Ala-21' bond of amyloid beta-protein, and is less active towards the 'Phe-8-|-His-9' bond of angiotensin I and the 'Phe-4-|-Ala-5' and 'Tyr-10-|-Glu-11' bonds of amyloid beta-protein. Involved in thrombin regulation and fibronectin processing.
Abbreviation	Recombinant Mouse Mcpt4 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P21812
Alias	mMCP-4 MSMCP Myonase Serosal mast cell protease
Product Type	Recombinant Protein
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	IIGGVESRPHSRPYMAHLEITTERGFTATCGGFLITRQFVMTAAHCSGREITVTL GAHDVSKTESTQQKIKVEKQIVHPKYNFYSNLHDIMLLKLQKKAKETPSVNVIPL PRPSDFIKPGKMCRAAGWGRTGVTEPTSDTLREVKLRIMDKEACKNYWHYDY NLQVCVGSPRKKRSAYKGDSGGPLLCAGVAHGIVSYGRGDAKPPAVFTRISS YVPWINRVIKGE
Research Area	Cell Biology
Source	Yeast
Target Names	Mcpt4
Protein Names	Recommended name: Mast cell protease 4 Short name= mMCP-4 EC= 3.4.21.- Alternative name(s): MSMCP Myonase Serosal mast cell protease
Expression Region	21-246aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	27.1kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant mouse Mast cell protease 4 (Mcpt4) production begins with gene cloning. The gene encoding the Mcpt4 protein (21-246aa) is inserted into a plasmid vector along with the N-terminal 6xHis-tag gene and introduced into yeast cells. The cells are cultured in bioreactors to produce the Mcpt4 protein. Once sufficient protein is produced, the cells are lysed, and the Mcpt4 protein is purified through affinity chromatography. The final product is subjected to SDS-PAGE to confirm its purity. Its purity is greater than 90%.

Mcpt4 is a chymase enzyme found in mice that plays a crucial role in various physiological processes. In mice, Mcpt4 is considered the functional homolog to human chymase [1]. Studies have shown that Mcpt4 has pro- and anti-inflammatory roles depending on the disease model [2]. Additionally, Mcpt4 has been implicated in processes such as bone density regulation [3], recruitment of leukocytes in inflammation [2], degradation of insulin-like growth factor-1 leading to adverse cardiac remodeling [4], suppression of scar formation after spinal cord injury [5], and protection against melanoma colonization of the lung [6].

Furthermore, Mcpt4 has been associated with protective roles in host resistance to venom toxicity [7], regulation of thrombin and fibronectin turnover [8], and suppression of the host immune response to malaria [9]. Studies have also highlighted the involvement of Mcpt4 in wound healing processes [10], itch induced by endothelin-1 [11], and regulation of coagulation factor XIIIA levels.

References:
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traumatic spinal cord injury, Scientific Reports, vol. 9, no. 1, 2019. https://doi.org/10.1038/s41598-019-39551-1
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[8] N. Céspedes, E. Donnelly, C. Lowder, G. Hansten, D. Wagers, A. Briggset al., Mast cell chymase/mcpt4 suppresses the host immune response to plasmodium yoelii, limits malaria-associated disruption of intestinal barrier integrity and reduces parasite transmission to anopheles stephensi, Frontiers in Immunology, vol. 13, 2022. https://doi.org/10.3389/fimmu.2022.801120
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[10] E. Magnúsdóttir, M. Grujic, J. Bergman, G. Pejler, & M. Lagerström, Mouse connective tissue mast cell proteases tryptase and carboxypeptidase a3 play protective roles in itch induced by endothelin-1, Journal of Neuroinflammation, vol. 17, no. 1, 2020. https://doi.org/10.1186/s12974-020-01795-4
[11] N. Shubin, V. Glukhova, M. Clauson, P. Truong, M. Åbrink, G. Pejleret al., Proteome analysis of mast cell releasates reveals a role for chymase in the regulation of coagulation factor xiiia levels via proteolytic degradation, Journal of Allergy and Clinical Immunology, vol. 139, no. 1, p. 323-334, 2017. https://doi.org/10.1016/j.jaci.2016.03.051

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.
Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.