

## ADAM12 Protein, Human, Recombinant (His)

### General Information

Synonyms:	ADAM metalloproteinase domain 12;MLTNA;MCMP;CAR10;MLTN;MCMPLtna;ADAM12-OT1
Protein Construction:	A DNA sequence encoding the human ADAM12 isoform 1 (NP_003465.3) extracellular domain (Met 1-Ser 513) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Arg 29
Species:	Human
Expression Host:	HEK293 Cells
Accession:	O43184-1
Molecular Weight:	55.2 kDa (predicted); 27, 55 and 72 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	Measured by its binding ability in a functional ELISA. Immobilized human ADAM12-His at 10 µg/ml (100 µl/well) can bind biotinylated mouse FLRG-His with a linear range of 0.31-1.25 µg/ml.
Purity:	> 98 % 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:**  
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

#### 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

The ADAMs (a disintegrin and metalloprotease) comprise a family of multidomain proteins with metalloprotease, cell adhesion, and signaling activities. Human ADAM12, which is implicated in diseases such as cancer, is expressed in two splice forms, the transmembrane ADAM12-L and the shorter and soluble ADAM12-S. ADAM12,

also known as and Meltrin alpha, is a member of the ADAM protein family, which contains one disintegrin domain, one EGF-like domain and one peptidase M12B domain. ADAM12 is synthesized as a zymogen with the prodomain keeping the metalloprotease inactive through a cysteine-switch mechanism. Maturation and activation of the protease involves the cleavage of the prodomain in the trans-Golgi or possibly at the cell surface by a furin-peptidase. It is a membrane-anchored metalloprotease, which has been implicated in activation-inactivation of growth factors that play an important role in wound healing, including heparin-binding epidermal growth factor (EGF)-like growth factor (HB-EGF) and IGF binding proteins. ADAM12 may also regulate cell-cell and cell-extracellular matrix contacts through interactions with cell surface receptors - integrins and syndecans - potentially influencing the actin cytoskeleton. Moreover, ADAM12 interacts with several cytoplasmic signaling and adaptor molecules through its intracellular domain, thereby directly transmitting signals to or from the cell interior. These ADAM12-mediated cellular effects appear to be critical events in both biological and pathological processes. In addition to protease activity, ADAM12 possesses cell binding and cell signaling properties. In many studies, ADAM12 overexpression has been correlated with disease, and ADAM12 has been shown to promote tumor growth and progression in cancer. On the other hand, protective effects of ADAM12 in disease have also been reported.

### Reference

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- Baertling F, et al. (2010) ADAM12 is expressed by astrocytes during experimental demyelination. *Brain Res.* 1326: 1-14.

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