Data Sheet (Cat.No.TMPY-02063)

TargetMol

Alpha-2-macroglobulin Protein, Human, Recombinant (His)

General Information

Synonyms:	α-2-macroglobulin;FWP007;CPAMD5;A2MD;S863-7;alpha-2-macroglobulin
Protein Construction:	A DNA sequence encoding the human A2M (NP_000005.2) (Met 1-Ala 1474) was expressed, fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Ser 24
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P01023
Molecular Weight:	164 kDa (predicted); 160-170 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to trap trypsin. The trapped trypsin is no longer able to interact with protein substrates or inhibitors, but still able to cleave small peptide substrates or inhibitors. The IC50 value is <5 nM.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 20 mM Tris, 150 mM NaCl, 20% glycerol, pH 7.4.

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 the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

Proteins are shipped with blue ice.

Protein Background

alpha-2-macroglobulin, also known as α2-macroglobulin (α2M and A2M), is an abundant protein of the plasma of vertebrates and members of several invertebrate phyla and functions as a broad-spectrum protease-binding protein. alpha-2-macroglobulin is produced by the liver, and is a major component of the alpha-2 band in protein electrophoresis. alpha-2-macroglobulin is a large plasma glycoprotein that has long been known as an irreversible inhibitor of a variety of proteinases. More recently, it has been reported that numerous growth factors, cytokines and hormones bind to alpha 2M through diverse mechanisms. A2M is also produced in the brain where it binds multiple extracellular ligands and is internalized by neurons and astrocytes. In the brain of Alzheimer's

disease (AD) patients, A2M has been localized to diffuse amyloid plaques. A2M also binds soluble beta-amyloid, of which it mediates degradation. Protease-conjugated alpha2-macroglobulin is selectively bound by cells contacting the body fluids and alpha2-macroglobulin and its protease cargo are then internalized and degraded in secondary lysosomes of those cells. In addition to this function as an agent for protease clearance, alpha2-macroglobulin binds a variety of other ligands, including several peptide growth factors and modulates the activity of a lectin-dependent cytolytic pathway in arthropods.

Reference

Kovacs DM. (2000) alpha2-macroglobulin in late-onset Alzheimer's disease. Exp Gerontol. 35(4): 473-9.
Armstrong PB,et al.(1999) Alpha2-macroglobulin: an evolutionarily conserved arm of the innate immune system. Dev Comp Immunol. 23(4-5): 375-90.
Feige JJ,et al.(1996) Alpha 2-macroglobulin: a binding protein for transforming growth factor-beta and various cytokines. Horm Res. 45(3-5): 227-32.

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