

Human Macroglobulin alpha 2 / a2M (Plasma) F-form

Human Macroglobulin alpha 2, natural

Synonyms: Alpha-2-macroglobulin, Alpha-2-globulin, Alpha-2-M, A2M, CPAMD5, FWP007, S863-7, alpha 2M, DKFZp779B086.

PLEASE NOTE: ALWAYS CENTRIFUGE VIAL BEFORE OPENING

Size	Order #	Lot #	Expiry Date
1 mg	4675.959.199		

Please enquire for bulk quantities and other vial sizes

Description

Human Macroglobulin alpha 2 (a2M) is a tetrameric glycoprotein, isolated from human plasma with a molecular mass of 725 kDa. It is a large plasma protein, produced by the liver, and composed of 4 identical subunits bound together by -S-S- bonds. Human Macroglobulin alpha 2 (a2M) is a major serum protein found at concentrations of 240 mg per 100 ml in men and 290 mg per 100 ml in women. Multifunctional, it promotes growth of mammalian cells in culture, stimulates the regeneration of lymphocytes in irradiated mice, possesses a transport function for zinc. Furthermore, a2M is a protease inhibitor -including serine-, cysteine-, aspartic- and metalloproteinases as well as trypsin and collagenase. It inhibits coagulation by inactivating thrombin and Kallikrein and it also inhibits fibrinolysis by inactivating plasmin and is involved in transport. The levels of Macroglobulin alpha 2 (A2M) are increased in nephrotic syndrome which is a condition where the kidneys start to leak out some of the smaller blood proteins. Macroglobulin alpha 2 (a2M) has a 35 amino acid "bait" region in its structure. Proteinases bind and cleave the "bait" region. Macrophage receptors recognize the proteinase-a2M complex and clear it from the system. Human Macroglobulin alpha 2 (a2M) has been shown to exist in two forms: The Slow Form of a2M (S-a2M) is the form which possesses the ability to bind and inhibit proteases by a "trap" method. The Fast Form of Human Macroglobulin alpha 2 (F-a2M) -order number 4675.959.199- is generated when S-A2M undergoes a conformational change due to either entrapment of a protease in the a2M bait region, or chemical cleavage of an internal thiol ester bond located near the bait region. F-a2M does not possess the ability to bind and inhibit protease activity. F-A2M is rapidly taken up by the liver, with a half-life of 2-4 minutes. In vivo, the fast form typically represents only 0.17–0.7% of the total a2M in blood plasma of adults. The F-a2M plasma concentration is, however, increased in many disease states including pancreatitis, multiple sclerosis and sepsis. The fast form of human Macroglobulin alpha 2 (F-a2M) has also been implicated in the inhibition of amyloid formation associated with Alzheimer's disease and spongiform encephalopathies.

- **Source** Human Plasma
- **Purity** ≥ 95 % (SDS-PAGE)
- **Stabilizer** Glycine
- **Buffer** Potassium Phosphate (5mM), pH 6.5*
- **Physical state** Sterile filtered, lyophilized

Reconstitution

We recommend a quick spin followed by reconstitution in water to a concentration of at least 100 µg/ml. Do not vortex. This solution can be stored at 2-8°C for up to 1 week or in working aliquots at -20°C to -80°C. Working aliquots should be at the highest practical concentration. For long term storage we recommend to add at least 0.1% HSA (order number: 2835.955.xyz or 2835.958.xyz) or BSA.

Stability

The lyophilized protein is stable at room temperature for up to 1 month and at least until the lot specific expiry date if kept below -18°C. Reconstituted Macroglobulin alpha 2 should be stored in working aliquots at -20°C to -80°C if possible with carrier protein. **Please avoid repeated freeze-thaw cycles.**

Usage: For research use only. Not for use in diagnostic or therapeutic procedures. Not for human use.

*The Buffer may vary depending on the Lot #. Please contact our technical support if you have specific requirements.

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