

Product Information

α_2 -MACROGLOBULIN From Human Plasma

Product No. **M 7151**
Store below 0 °C

Product Description

α_2 -Macroglobulin is prepared from human plasma by a modification of the method of Swenson and Howard.¹ All plasma used has been tested for and found to be negative for HB_sAg antigen and HIV antibody.

Biochemical Properties

Concentration: α_2 -Macroglobulin is found in normal plasma at a concentration of 220-230 mg/dL and accounts for 3-5% of the total plasma proteins. Some conditions, such as nephroses, liver disease, and diabetes can elevate this level.²

Biological Activity: α_2 -Macroglobulin is an inhibitor of low molecular weight proteases such as trypsin and plasmin. Specifically, the molecular structure of α_2 -macroglobulin is altered by the protease and the protease becomes irreversibly "trapped" within the molecule.^{1,3} It has been reported that the trypsin binding capacity of α_2 -macroglobulin is 1.7-2.1 moles of active trypsin per mole of α_2 -macroglobulin.¹

Molecular Weight: α_2 -Macroglobulin has been reported to have a molecular weight of 725,000.^{1,3,4} The molecule is composed of four identical subunits with a molecular weight of 179,000⁵ each. If the α_2 -macroglobulin molecule has bound a protease, the 179,000 subunit is split into two 85,000 molecular weight units, as seen on SDS polyacrylamide gels under reducing conditions.^{1,3,4}

Carbohydrate Content: α_2 -Macroglobulin is a glycoprotein having the following carbohydrate content and composition:⁶

Hexose (galactose:mannose, 1:1)	3.6%
Sialic acid	1.8%
Acetylhexosamine	2.9%
Fucose	0.1%
Total carbohydrate	8.4%

Precautions and Disclaimer

For laboratory use only. Not for drug, household or other uses.

Product Profile

This preparation has a minimum purity of 90% when subjected to the following electrophoresis technique: 1 μ l of a 50 mg/ml solution was applied to a 1% agarose gel. The buffer employed was 0.05 M sodium barbital and 0.01 M barbital, pH 8.6. The gel was electrophoresed at 120 volts for 1 hour and stained with 0.5% Coomassie Blue R250 (Product No. B 0149).

α_2 -Macroglobulin is supplied in vials containing 1 mg, 5 mg or 10 mg of α_2 -macroglobulin; the balance of the material is buffer salts (0.025 M Tris, 0.1 M NaCl, pH 8.0). Vials may be reconstituted by adding 0.5 ml of deionized water to a 1 mg vial, 2.5 ml to a 5 mg vial or 5 ml to a 10 mg vial. Store reconstituted vials at 2-8 °C.

Product is not assayed for biological activity.

References

1. Swenson, R. and Howard, J., J. Biol. Chem., **254**, 4452 (1979)
2. Allen, P., *et al.*, in "Plasma Proteins", pp. 190-194, Blackwell Sci. (1977)
3. Hall, P. and Roberts, R., Biochem. J., **173**, 27 (1978)
4. Virca, G., *et al.*, Anal. Biochem., **89**, 274 (1978)
5. Sottrup-Jensen, L., *et al.*, J. Biol. Chem., **259**, 8318 (1984)
6. Shultze, N., Biochem. Z., **329**, 490 (1958)

12/98

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications.

Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply.

Please see reverse side of the invoice or packing slip.