



α -2M (HYB339-01): sc-59426

BACKGROUND

α -2-Macroglobulin (α -2M) is a homotetrameric 718 kDa serum protein consisting of four identical 180 kDa subunits that form dimers through disulfide bonds. Initially, α -2M was characterized as a pan-proteinase inhibitor that was able to "bait" proteinases into cleaving specific peptide sequences on α -2M. This interaction induces a conformational change in α -2M, thus enabling it to "trap" the proteinase and inhibit its further activity. Subsequently, α -2M has also been shown to function as a carrier protein and regulator of cytokines during inflammation. Circulating transforming growth factor β (TGF β) in serum is primarily bound to α -2M, which renders TGF β inactive. α -2M also binds to IL-6 and, thereby, increases the concentration of IL-6 near lymphocytes, hepatocytes and stem cells involved in mediating the inflammatory cascade. Mutations and deletions in the gene encoding α -2M are associated with an increased incidence of Alzheimer's Disease (AD), which is consistent with the role of α -2M in mediating the clearance and degradation of A β , the major component of β -amyloid deposits accumulated during AD.

REFERENCES

1. Barrett, A.J., et al. 1973. The interaction of α -2 Macroglobulin with proteinases. Characteristics and specificity of the reaction, and a hypothesis concerning its molecular mechanism. *Biochem. J.* 133: 709-724.
2. Tsuchiya, Y., et al. 1987. Sequence analysis of the putative regulatory region of rat α -2 Macroglobulin gene. *Gene* 57: 73-80.
3. Borth, W., et al. 1990. Binding of IL-1 β to α macroglobulins and release by Thioredoxin. *J. Immunol.* 145: 3747-3754.
4. Poller, W., et al. 1992. Cloning of the human α -2 Macroglobulin gene and detection of mutations in two functional domains: the bait region and the thiolester site. *Hum. Genet.* 88: 313-319.
5. Webb, D.J., et al. 1998. Localization of the binding site for TGF β in human α -2 Macroglobulin to a 20 kDa peptide that also contains the bait region. *J. Biol. Chem.* 273: 13339-13346.
6. Blacker, D., et al. 1998. α -2 Macroglobulin is genetically associated with Alzheimer disease. *Nat. Genet.* 19: 357-360.

CHROMOSOMAL LOCATION

Genetic locus: A2M (human) mapping to 12p12.3; A2m (mouse) mapping to 6 F1.

SOURCE

α -2M (HYB339-01) is a mouse monoclonal antibody raised against α -2M purified from urine of rat origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

α -2M (HYB339-01) is recommended for detection of α -2M of rat origin by solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of α -2M: 718 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.