SANTA CRUZ BIOTECHNOLOGY, INC.

α-2M (590CT15.5.5): sc-517379

BACKGROUND

α-2-Macroglobulin (α-2M) is a homotetrameric serum protein consisting of four identical 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 further inhibit its activity. Subsequently, α-2M has been shown to function as a carrier protein and regulator of cytokines during inflammation. Circulating transforming growth factor β (TGF) in serum is primarily bound to α-2M, which renders TGFβ 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. Tsuchiya, Y., et al. 1987. Sequence analysis of the putative regulatory region of rat α 2-Macroglobulin gene. Gene 57: 73-80.
2. 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.
3. 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.
4. Borth, W., et al. 1990. Binding of IL-1 β to α-Macroglobulins and release by thioredoxin. J. Immunol. 145: 3747-3754.
5. Webb, D.J., et al. 1998. Localization of the binding site for transforming growth factor-β in human α2-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 12p13.31; A2m (mouse) mapping to 6 F1.

SOURCE

α-2M (590CT15.5.5) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 1162-1192 in the C-terminal region of α-2M of human origin.

PRODUCT

Each vial contains 50 µl ascites containing IgM with < 0.1% sodium azide.

PROTOCOLS

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

APPLICATIONS

α-2M (590CT15.5.5) is recommended for detection of α-2M of mouse, rat and human origin by Western Blotting (starting dilution: to be determined by researcher, dilution range 1:100-1:5000).

Suitable for use as control antibody for α-2M siRNA (h): sc-40297, α-2M siRNA (m): sc-40298, α-2M shRNA Plasmid (h): sc-40297-SH, α-2M shRNA Plasmid (m): sc-40298-SH, α-2M shRNA (h) Lentiviral Particles: sc-40297-V and α-2M shRNA (m) Lentiviral Particles: sc-40298-V.

Molecular Weight of α-2M tetrameric protein: 718 kDa.

Molecular Weight of α-2M subunits: 185 kDa.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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