SANTA CRUZ BIOTECHNOLOGY, INC.

α-2M (N-18): sc-8513

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 (TGFβ) 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. 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-1β 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 transforming growth factor 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's disease. Nat. Genet. 19: 357-360.

CHROMOSOMAL LOCATION

Genetic locus: A2M (human) mapping to 12p13.3-p12.3.

SOURCE

α-2M (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of α-2M of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8513 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

α-2M (N-18) is recommended for detection of α-2M of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2 µg per 100–500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

α-2M (N-18) is also recommended for detection of α-2M in additional species, including porcine.

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

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

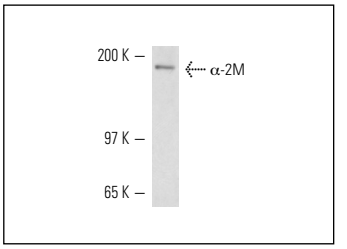
Molecular Weight of α-2M subunits: 185 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



α-2M (N-18): sc-8513. Western blot analysis of human recombinant α-2-Macroglobulin.

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.