SANTA CRUZ BIOTECHNOLOGY, INC.

α-2M (h): 293T Lysate: sc-115474

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 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 (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 Aβ, 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 TGFβ 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 12p13.31.

PRODUCT

α-2M (h): 293T Lysate represents a lysate of human α-2M transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

α-2M (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive α-2M antibodies. Recommended use: 10-20 µl per lane.

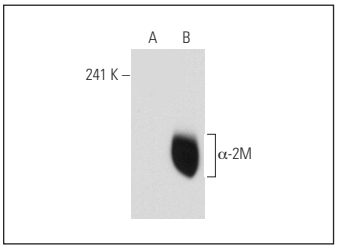
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

α-2M (2D9): sc-69750 is recommended as a positive control antibody for Western Blot analysis of enhanced human α-2M expression in α-2M transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

DATA



α-2M (2D9): sc-69750. Western blot analysis of α-2M expression in non-transfected: sc-117752 (**A**) and human α-2M transfected: sc-115474 (**B**) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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