SANTA CRUZ BIOTECHNOLOGY, INC.

SR-A (E-20): sc-20444

BACKGROUND

The macrophage class A scavenger receptor (SR-A) mediates the uptake of modified low density lipoprotein (LDL). The gene encoding human SR-A maps to chromosome 8 and gives rise to two alternatively spliced isoforms, type I and II (SR-AI and SR-AII), which were originally cloned from the phorbol ester-treated human monocytic cell line THP-1. Both isoforms contain six domains: cytoplasmic (I), membrane-spanning (II), spacer (III), α-helical coiled-coil (IV), collagen-like (V) and a type-specific C-terminal (VI). Domain IV is essential for the trimerization of SR-A, whereas domain V is essential for the wide range of ligand recognition. SR-A is expressed in liver, placenta and brain. Both SR-AI and SR-AII mediate the uptake of LDLs in atherosclerotic lesions. A third isoform, SR-AIII, is unable to uptake LDLs and acts as a dominant negative isoform to possibly protect cells found in advanced atherosclerotic lesions. SR-A plays a role not only in many macrophage-associated pathological processes, including atherosclerosis and Alzheimer's disease, but also in host defense and as an adhesion molecule.

REFERENCES

1. Matsumoto, A., et al. 1990. Human macrophage scavenger receptors: primary structure, expression, and localization in atherosclerotic lesions. Proc. Natl. Acad. Sci. USA 87: 9133-9137.
2. Liao, H.S., et al. 1996. Multiple function of macrophage scavenger receptors mediated by fibrous coiled coil domains. Gerontology 42: 37-47.
3. Gough, P.J., et al. 1998. A naturally occurring isoform of the human macrophage scavenger receptor (SR-A) gene generated by alternative splicing blocks modified LDL uptake. J. Lipid Res. 39: 531-543.
4. Yokota, T., et al. 1998. Scavenger receptors mediate adhesion of activated B lymphocytes. Exp. Cell Res. 239: 16-22.
5. Gough, P.J., et al. 1999. Analysis of macrophage scavenger receptor (SR-A) expression in human aortic atherosclerotic lesions. Arterioscler. Thromb. Vasc. Biol. 19: 461-471.
6. Hiltunen, T.P., et al. 2001. Rabbit atherosclerotic lesions express scavenger receptor AIII mRNA, a naturally occurring splice variant that encodes a non-functional, dominant negative form of the macrophage scavenger receptor. Atherosclerosis 154: 415-419.

CHROMOSOMAL LOCATION

Genetic locus: Msr1 (mouse) mapping to 8 A4.

SOURCE

SR-A (E-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of SR-A of mouse 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-20444 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SR-A (E-20) is recommended for detection of SR-A isoforms I and II of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Suitable for use as control antibody for SR-A siRNA (m): sc-40188, SR-A shRNA Plasmid (m): sc-40188-SH and SR-A shRNA (m) Lentiviral Particles: sc-40188-V.

Molecular Weight of SR-A: 75 kDa.

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: 2) 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.

SELECT PRODUCT CITATIONS

1. Lu, K.Y., et al. 2010. Erythropoietin suppresses the formation of macrophage foam cells: role of liver X receptor α. Circulation 121: 1828-1837.
2. Lin, C.Y., et al. 2010. Endothelin-1 exacerbates lipid accumulation by increasing the protein degradation of the ATP-binding cassette transporter G1 in macrophages. J. Cell. Physiol. E-Published.
3. Chen, C.Y., et al. 2010. Wogonin promotes cholesterol efflux by increasing protein phosphatase 2B-dependent dephosphorylation at ATP-binding cassette transporter-A1 in macrophages. J. Nutr. Biochem. E-Published.
4. Tsai, J.Y., et al. 2010. EGb761 ameliorates the formation of foam cells by regulating the expression of SR-A and ABCA1: role of haem oxygenase-1. Cardiovasc. Res. 88: 415-423.
5. Cheng, L.C., et al. 2011. α-Lipoic acid ameliorates foam cell formation via liver X receptor α-dependent upregulation of ATP-binding cassette transporters A1 and G1. Free Radic. Biol. Med. 50: 47-54.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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