

SREBP-1 (SPM449): sc-56483

BACKGROUND

The low density lipoprotein (LDL) receptor mediates the endocytic uptake of cholesterol-carrying lipoproteins, thereby controlling cholesterol levels in cells and plasma. Transcription of the LDL receptor gene is controlled by a 10 base pair sequence in the 5' flanking region, designated sterol regulatory element 1 (SRE-1). When cellular sterol stores are depleted, the element is activated, the gene is transcribed and the cellular uptake of LDL increases. A set of SRE-binding proteins (SREBPs) have been identified, including two basic helix-loop-helix leucine zipper (bHLH-Zip) transcription factors, designated SREBP-1 and SREBP-2. SREBP-1 (also designated ADD1, for adipocyte determination and differentiation factor) is synthesized as a precursor that is attached to the nuclear envelope and endoplasmic reticulum. In sterol-depleted cells, the membrane-bound precursor is cleaved to generate a soluble NH₂-terminal fragment that translocates to the nucleus to activate transcription. Sterols inhibit the cleavage of SREBP-1.

REFERENCES

1. Brown, M.S., et al. 1986. A receptor-mediated pathway for cholesterol homeostasis. *Science* 232: 34-47.
2. Smith, J.R., et al. 1990. Identification of nucleotides responsible for enhancer activity of sterol regulatory element in low density lipoprotein receptor gene. *J. Biol. Chem.* 265: 2306-2310.
3. Goldstein, J.L., et al. 1990. Regulation of the mevalonate pathway. *Nature* 343: 425-430.
4. Briggs, M.R., et al. 1993. Nuclear protein that binds sterol regulatory element of LDL receptor promoter. I. Identification of the protein and delineation of its target nucleotide sequence. *J. Biol. Chem.* 268: 14490-14496.
5. Wang, X., et al. 1993. Nuclear protein that binds sterol regulatory element of LDL receptor promoter. II. Purification and characterization. *J. Biol. Chem.* 268: 14497-14504.
6. Hua, X., et al. 1993. SREBP-2, a second basic-helix-loop-helix leucine zipper protein that stimulates transcription by binding to a sterol regulatory element. *Proc. Natl. Acad. Sci. USA* 90: 11603-11607.
7. Wang, X., et al. 1994. SREBP-1, a membrane-bound transcription factor released by sterol-regulated proteolysis. *Cell* 77: 53-62.

CHROMOSOMAL LOCATION

Genetic locus: SREBF1 (human) mapping to 17p11.2; Sreb1 (mouse) mapping to 11 B2.

SOURCE

SREBP-1 (SPM449) is a mouse monoclonal antibody raised against amino acids 301-407 of SREBP-1a of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SREBP-1 (SPM449) is recommended for detection of SREBP-1 of mouse, rat, human and hamster origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for SREBP-1 siRNA (h): sc-36557, SREBP-1 siRNA (m): sc-36558, SREBP-1 siRNA (r): sc-156126, SREBP-1 shRNA Plasmid (h): sc-36557-SH, SREBP-1 shRNA Plasmid (m): sc-36558-SH, SREBP-1 shRNA Plasmid (r): sc-156126-SH, SREBP-1 shRNA (h) Lentiviral Particles: sc-36557-V, SREBP-1 shRNA (m) Lentiviral Particles: sc-36558-V and SREBP-1 shRNA (r) Lentiviral Particles: sc-156126-V.

Molecular Weight of SREBP-1 precursor: 125 kDa.

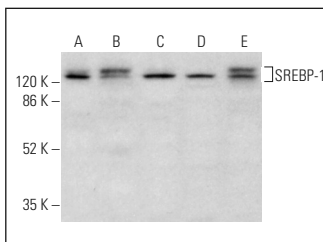
Molecular Weight of mature SREBP-1: 68 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa nuclear extract: sc-2120 or A549 cell lysate: sc-2413.

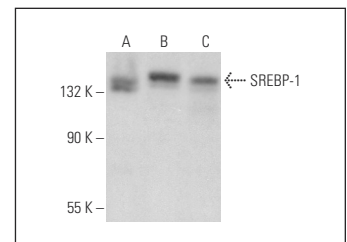
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



SREBP-1 (SPM449): sc-56483. Western blot analysis of SREBP-1 expression in HeLa nuclear extract (A) and A549 (B), c4 (C), NIH/3T3 (D) and PC-12 (E) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



SREBP-1 (SPM449): sc-56483. Western blot analysis of SREBP-1 expression in HeLa nuclear extract (A) and Hep G2 (B) and A549 (C) whole cell lysates.

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 for detailed protocols and support products.