

INSIG-1 (N-19)-R: sc-25124-R

BACKGROUND

INSIG-1 and INSIG-2 play distinct roles in a negative-feedback mechanism for cholesterol synthesis. INSIG-1 is highly expressed in liver and fibroblast cell lines. INSIG-1 localizes to the endoplasmic reticulum (ER) and binds the sterol-sensing domain of SREBP cleavage-activating protein (SCAP). Sterol induces INSIG-1 binding to SCAP. INSIG-2, another ER protein, binds SCAP in a sterol-regulated manner. Thus, INSIG-1 and INSIG-2 block the export of SCAP from the ER and ultimately inhibit cholesterol synthesis by preventing the proteolytic processing of SREBPs by Golgi enzymes. INSIG-1 is encoded by the Insulin-induced gene (INSIG-1). INSIG-1 gene expression is suppressed by oxysterols and restored following the introduction of the hypocholesterolemic agent LY295427. The negative feedback mechanism is absent in mutant CHO cells with a point mutation in one SCAP allele within the sterol-sensing domain. The mutant cells constitutively cleave SREBP in the presence of sterols. The critical role of INSIG-1 and INSIG-2 in cholesterol metabolism may be exploited as a therapeutic effect for hypercholesterolemia.

REFERENCES

- Peng, Y., et al. 1997. Cloning, human chromosomal assignment, and adipose and hepatic expression of the CL-6/INSIG1 gene. *Genomics* 43: 278-284.
- Janowski, B.A. 2002. The hypocholesterolemic agent LY295427 upregulates INSIG-1, identifying the INSIG-1 protein as a mediator of cholesterol homeostasis through SREBP. *Proc. Natl. Acad. Sci. USA* 99: 12675-12680.
- Yabe, D., et al. 2002. Insig-2, a second endoplasmic reticulum protein that binds SCAP and blocks export of sterol regulatory element-binding proteins. *Proc. Natl. Acad. Sci. USA* 99: 12753-12758.

CHROMOSOMAL LOCATION

Genetic locus: INSIG1 (human) mapping to 7q36.2; Insig1 (mouse) mapping to 5 B1.

SOURCE

INSIG-1 (N-19)-R is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the N-terminus of INSIG-1 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-25124 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

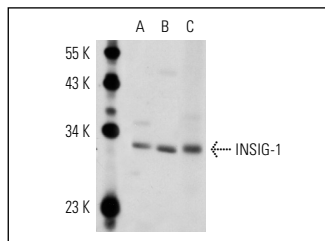
INSIG-1 (N-19)-R is recommended for detection of INSIG-1 of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for INSIG-1 siRNA (h): sc-44432, INSIG-1 siRNA (m): sc-44433, INSIG-1 shRNA Plasmid (h): sc-44432-SH, INSIG-1 shRNA Plasmid (m): sc-44433-SH, INSIG-1 shRNA (h) Lentiviral Particles: sc-44432-V and INSIG-1 shRNA (m) Lentiviral Particles: sc-44433-V.

Molecular Weight of INSIG-1: 30 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

DATA



INSIG-1 (N-19): sc-25124. Western blot analysis of INSIG-1 expression in Hep G2 (A) and c4 (B) whole cell lysates and rat kidney tissue extract (C).

SELECT PRODUCT CITATIONS

- Dif, N., et al. 2006. Insulin activates human sterol regulatory element-binding protein-1c (SREBP-1c) promoter through SRE motifs. *Biochem. J.* 400: 179-188.
- He, A., et al. 2007. Overexpression of micro ribonucleic acid 29, highly up-regulated in diabetic rats, leads to Insulin resistance in 3T3-L1 adipocytes. *Mol. Endocrinol.* 21: 2785-2794.
- Rome, S., et al. 2008. Microarray analyses of SREBP-1a and SREBP-1c target genes identify new regulatory pathways in muscle. *Physiol. Genomics* 34: 327-337.
- Yellaturu, C.R., et al. 2009. Insulin enhances the biogenesis of nuclear sterol regulatory element-binding protein (SREBP)-1c by posttranscriptional down-regulation of Insig-2A and its dissociation from SREBP cleavage-activating protein (SCAP).SREBP-1c complex. *J. Biol. Chem.* 284: 31726-31734.

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Try **INSIG-1 (A-9): sc-390504**, our highly recommended monoclonal alternative to INSIG-1 (N-19).