

p-Ob-R (Tyr 1141): sc-16420

BACKGROUND

The Ob gene produces a protein, designated leptin, that is involved in the regulation of food intake and energy expenditure. Mutations in the Ob gene result in profound obesity and type II diabetes, which resembles morbid obesity in humans. Leptin is secreted by adipocytes and mediates its function through the leptin receptor, designated Ob-R. Ob-R is a single membrane-spanning receptor that resembles the gp130 signal transducing component of the IL-6, G-CSF and LIF receptors. The gene encoding Ob-R is alternatively spliced to produce at least six isoforms, and it is highly expressed in the hypothalamus and choroid plexus with lower expression in other regions of the brain and peripheral tissues, including ovaries and testes. During leptin signaling, phosphorylated tyrosine residues on Ob-R mediate distinct signaling responses. Phosphorylation of mouse Tyr 1138, which corresponds to Tyr 1141 of the human protein, binds Stat3 to modulate its tyrosine phosphorylation and transcriptional activation and regulate the inhibitory SOCS3 pathway. Phosphorylated Tyr 985 binds SHP-2 and mediates the activation of ERK kinases and the inhibition of Ob-R-mediated Stat3 activation.

REFERENCES

- Friedman, J.M., et al. 1991. Molecular mapping of the mouse Ob mutation. *Genomics* 11: 1054-1062.
- Tartaglia, L.A., et al. 1995. Identification and expression cloning of a leptin receptor, Ob-R. *Cell* 83: 1263-1271.
- Chen, S.C., et al. 1999. Splice variants of the Ob receptor gene are differentially expressed in brain and peripheral tissues of mice. *J. Recept. Signal Transduct. Res.* 19: 245-266.
- Bjorbak, C., et al. 2000. SOCS3 mediates feedback inhibition of the leptin receptor via Tyr 985. *J. Biol. Chem.* 275: 40649-40657.
- Banks, A.S., et al. 2000. Activation of downstream signals by the long form of the leptin receptor. *J. Biol. Chem.* 275: 14563-14572.
- Burguera, B., et al. 2000. The long form of the leptin receptor (Ob-Rb) is widely expressed in the human brain. *Neuroendocrinology* 71: 187-195.
- Oliveira, A.M., et al. 2001. Leptin and leptin receptor mRNA are widely expressed in tumors of adipocytic differentiation. *Mod. Pathol.* 14: 549-555.

CHROMOSOMAL LOCATION

Genetic locus: LEPR (human) mapping to 1p31.

SOURCE

p-Ob-R (Tyr 1141) is available as either goat (sc-16420) or rabbit (sc-16420-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Tyr 1141 of Ob-R of human origin.

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.

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-16420 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

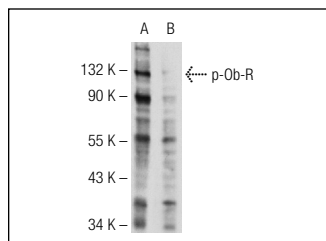
p-Ob-R (Tyr 1141) is recommended for detection of Tyr 1141 phosphorylated Ob-R of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Ob-R siRNA (h): sc-36115, Ob-R shRNA Plasmid (h): sc-36115-SH and Ob-R shRNA (h) Lentiviral Particles: sc-36115-V.

Molecular Weight of p-Ob-R: 120 kDa.

Positive Controls: COLO 320DM cell lysate: sc-2226 or SH-SY5Y cell lysate: sc-3812.

DATA



p-Ob-R (Tyr 1141)-R: sc-16420-R. Western blot analysis of Ob-R phosphorylation in untreated (A) and lambda protein phosphatase (sc-200312A) treated (B) SH-SY5Y whole cell lysates.

SELECT PRODUCT CITATIONS

- Cao, Q., et al. 2004. Leptin stimulates tissue inhibitor of Metalloproteinase-1 in human hepatic stellate cells: Respective roles of the JAK/STAT and JAK-mediated H₂O₂-dependent MAPK pathways. *Cancer Res.* 279: 4292-4304.

PROTOCOLS

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