

p-Ob-R (Tyr 1138): sc-16421

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

1. Friedman, J.M., et al. 1991. Molecular mapping of the mouse ob mutation. *Genomics* 11: 1054-1062.
2. Tartaglia, L.A., et al. 1995. Identification and expression cloning of a leptin receptor, OB-R. *Cell* 83: 1263-1271.
3. 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.

CHROMOSOMAL LOCATION

Genetic locus: *Lepr* (mouse) mapping to 4 C6.

SOURCE

p-Ob-R (Tyr 1138) is available as either goat (sc-16421) or rabbit (sc-16421-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Tyr 1138 phosphorylated Ob-R 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-16421 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.

PROTOCOLS

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

APPLICATIONS

p-Ob-R (Tyr 1138) is recommended for detection of Tyr 1138 phosphorylated Ob-R 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).

p-Ob-R (Tyr 1138) is also recommended for detection of correspondingly phosphorylated Ob-R in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Ob-R siRNA (m): sc-36116, Ob-R shRNA Plasmid (m): sc-36116-SH and Ob-R shRNA (m) Lentiviral Particles: sc-36116-V.

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

Positive Controls: mouse lung extract: sc-2390.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: for goat primary antibody (sc-16421): 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), for rabbit primary antibody sc-16421-R: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunofluorescence: for goat primary antibody (sc-16421): 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, for rabbit primary antibody (sc-16421-R): use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Pal, R., et al. 2003. Leptin signaling in the hypothalamus during chronic central leptin infusion. *Endocrinology* 144: 3789-3798.
2. Vilà, L., et al. 2008. Suppressor of cytokine signaling-3 (SOCS-3) and a deficit of serine/threonine (Ser/Thr) phosphoproteins involved in leptin transduction mediate the effect of fructose on rat liver lipid metabolism. *Hepatology* 48: 1506-1516.
3. Tang, Y., et al. 2009. Curcumin eliminates leptin's effects on hepatic stellate cell activation via interrupting leptin signaling. *Endocrinology* 150: 3011-3020.

RESEARCH USE

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