

p-IRS-1 (Tyr 941)-R: sc-17199-R

BACKGROUND

Insulin receptor substrate-1 (IRS-1) is a substrate of the Insulin receptor that undergoes phosphorylation in response to Insulin, IGF-1 and IL-4. Tyrosine (Tyr) phosphorylation of IRS-1 mediates Insulin-stimulated responses, while serine (Ser)/threonine (Thr) phosphorylation of IRS-1 can either enhance or negate Insulin effects. Tyrosines 465, 612, 632, 662, 941 and 989 of IRS-1 resemble YXXM motifs that upon phosphorylation are predicted to bind SH2 domains in the p85 regulatory subunit of PI3K, resulting in activation of p110 catalytic subunit. SHP-2 binding to IRS-1 can occur upon phosphorylation at Tyr 1179 and Tyr 1229. GRB2 binding can occur upon phosphorylation at Tyr 896. Rodent Ser 99 and Thr 502 of IRS-1 are casein kinase II-dependent phosphorylation sites. There is an increase in Ser 636 phosphorylation of IRS-1 in primary skeletal muscle cells from patients with type 2 diabetes. IGF-1 and anisomycin treatment converge downstream onto FRAP and PKC δ to induce IRS-1 Ser 312 phosphorylation. Insulin resistance in the aorta of hypertensive rats is associated with elevated IRS-1 phosphorylation at Ser 307 and increased SAPK/JNK activation. IRS-1 contains three putative binding sites for 14-3-3 protein at Ser 270, Ser 374 and Ser 641 that are capable of phosphorylation.

CHROMOSOMAL LOCATION

Genetic locus: IRS1 (human) mapping to 2q36.3; Irs1 (mouse) mapping to 1 C5.

SOURCE

p-IRS-1 (Tyr 941)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated IRS-1 of human origin.

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-17199 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-IRS-1 (Tyr 941)-R is recommended for detection of Tyr 941 phosphorylated IRS-1 of mouse, rat and human 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), immunohistochemistry (including paraffin-embedded sections) (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-IRS-1 (Tyr 941)-R is also recommended for detection of correspondingly phosphorylated IRS-1 in additional species, including canine and avian.

Suitable for use as control antibody for IRS-1 siRNA (h): sc-29376, IRS-1 siRNA (m): sc-29377, IRS-1 shRNA Plasmid (h): sc-29376-SH, IRS-1 shRNA Plasmid (m): sc-29377-SH, IRS-1 shRNA (h) Lentiviral Particles: sc-29376-V and IRS-1 shRNA (m) Lentiviral Particles: sc-29377-V.

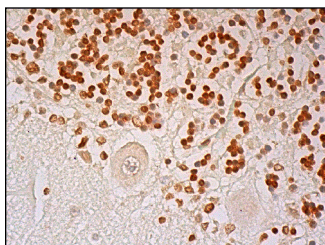
Molecular Weight of p-IRS-1: 170-185 kDa.

Positive Controls: MCF7 + Insulin cell lysate: sc-24733.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western blotting: 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) and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: 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. 3) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



p-IRS-1 (Tyr 941)-R: sc-17199-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing nuclear staining of cells in granular layer.

SELECT PRODUCT CITATIONS

- Farrar, C.E., et al. 2005. Increased cell proliferation and granule cell number in the dentate gyrus of protein repair-deficient mice. *J. Comp. Neurol.* 493: 524-537.
- Moore, T., et al. 2008. Reduced susceptibility to two-stage skin carcinogenesis in mice with low circulating Insulin-like growth factor I levels. *Cancer Res.* 68: 3680-3688.
- de Gusmão, C.V., et al. 2010. Low-intensity ultrasound increases FAK, ERK-1/2, and IRS-1 expression of intact rat bones in a noncumulative manner. *Clin. Orthop. Relat. Res.* 468: 1149-1156.
- Vishwamitra, D., et al. 2011. Expression and effects of inhibition of IGF-IR tyrosine kinase in mantle cell lymphoma. *Haematologica* 96: 871-880.
- Caricilli, A.M., et al. 2011. Gut microbiota is a key modulator of Insulin resistance in TLR 2 knockout mice. *PLoS Biol.* 9: e1001212.

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.