SANTA CRUZ BIOTECHNOLOGY, INC.

IRS-4 (RI-7): sc-100854

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The Insulin receptor substrate (IRS) proteins are key components in signaling from the Insulin receptor. IRS-4 is the most recently characterized member of the IRS family and has an undefined *in vivo* function. Phosphorylated IRS-4 associates with phosphatidylinositol 3-kinase (PI3-kinase), involved in Insulin-stimulated DNA synthesis, GH-induced tyrosine phosphorylation of IRS-4 and nuclear translocation of STAT5. IRS-4 also associates with IRAS which, when overexpressed, enhances IRS-4-dependent Insulin stimulation of PI3-kinase. The IRS-4 protein exhibits a limited fiber type specific expression in heart and skeletal muscle tissue and has not yet been detected in any mouse or primary human tissue. The absence of IRS-4 in mice causes mild defects in growth, reproduction, and glucose homeostasis, while overexpression of IRS-4 increases basal PI3-kinase activity and Akt phosphorylation. Defects in IRS-4-null mice may result from a lower overall blood glucose concentration.

REFERENCES

1. Fantin, V.R., et al. 2000. Mice lacking Insulin receptor substrate-4 exhibit mild defects in growth, reproduction and glucose homeostasis. Am. J. Physiol. Endocrinol. Metab. 278: E127-E133.
2. Tsuruzoe, K., et al. 2001. Insulin receptor substrate-3 (IRS-3) and IRS-4 impair IRS-1- and IRS-2-mediated signaling. Mol. Cell. Biol. 21: 26-38.
3. Sano, H., et al. 2002. Insulin receptor substrate-4 associates with the protein IRAS. J. Biol. Chem. 277: 19439-19447.
4. Schreyer, S., et al. 2003. Insulin receptor substrate-4 is expressed in muscle tissue without acting as a substrate for the Insulin receptor. Endocrinology 144: 1211-1218.
5. Urso, B., et al. 2003. IRS-4 mediated mitogenic signalling by Insulin and growth hormone in LB cells, a murine T-cell lymphoma devoid of IGF-1 receptors. Cell. Signal. 15: 385-394.

CHROMOSOMAL LOCATION

Genetic locus: IRS4 (human) mapping to Xq22.3.

SOURCE

IRS-4 (RI-7) is a mouse monoclonal antibody raised against recombinant IRS-4 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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 for detailed protocols and support products.

APPLICATIONS

IRS-4 (RI-7) is recommended for detection of IRS-4 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IRS-4 siRNA (h): sc-35715, IRS-4 shRNA Plasmid (h): sc-35715-SH and IRS-4 shRNA (h) Lentiviral Particles: sc-35715-V.

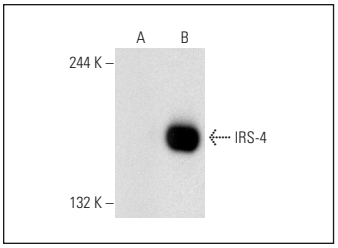
Molecular Weight of IRS-4: 160 kDa.

Positive Controls: IRS-4 (h): 293T Lysate: sc-176236, HeLa whole cell lysate: sc-2200 or SK-MEL-24 whole cell lysate: sc-364259.

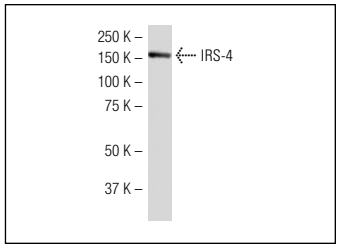
RECOMMENDED SUPPORT REAGENTS

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



IRS-4 (RI-7): sc-100854. Western blot analysis of IRS-4 expression in non-transfected: sc-117752 (**A**) and human IRS-4 transfected: sc-176236 (**B**) 293T whole cell lysates.



IRS-4 (RI-7): sc-100854. Western blot analysis of IRS-4 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Al-Mahmood, S., et al. 2009. Potent *in vivo* antiangiogenic effects of GS-101 (5'-TATCCGGAGGGCTCGCCATGCTGCT-3'), an antisense oligonucleotide preventing the expression of Insulin receptor substrate-1. J. Pharmacol. Exp. Ther. 329: 496-504.
2. Cunningham, D.L., et al. 2013. Novel binding partners and differentially regulated phosphorylation sites clarify eps8 as a multi-functional adaptor. PLoS ONE 8: e61513.
3. Sanmartín-Salinas, P., et al. 2018. Overexpression of Insulin receptor substrate-4 is correlated with clinical staging in colorectal cancer patients. J. Mol. Histol. 49: 39-49.

RESEARCH USE

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