SANTA CRUZ BIOTECHNOLOGY, INC.

IRS-1 (C-20): sc-559

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The insulin receptor substrate-1 (IRS-1), a protein major substrate of the insulin receptor, is phosphorylated in response to stimulation of cells by insulin, insulin-like growth factor 1 (IGF-1) and interleukin 4 (IL-4). IRS-1 is phosphorylated on serine, threonine and tyrosine residues in a variety of tissues. An Insulin-sensitive serine/threonine kinase casein kinase II mediates a portion of the insulin-stimulated serine/threonine phosphorylation of overexpressed IRS-1 *in vivo*. Thr 502 is identified as the major casein kinase II-catalyzed phosphorylation site in rat IRS-1, and Ser 99 is an additional phosphorylation site catalyzed by casein kinase II. Thus, casein kinase II-catalyzed phosphorylation of IRS-1 may be a component of the intracellular Insulin signaling cascade. IRS-1 contains three putative binding sites for 14-3-3 (Ser 270, Ser 374 and Ser 641) and the motif around Ser 270 is located in the phosphotyrosine binding domain of IRS-1, which is responsible for the interaction with the Insulin receptor. The association of 14-3-3 with IRS-1 increases significantly upon treatment with okadaic acid, a potent serine/threonine phosphatase inhibitor. Therefore, the association of 14-3-3 protein may play a role in the regulation of Insulin sensitivity by interrupting the association between the Insulin receptor and IRS-1.

CHROMOSOMAL LOCATION

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

SOURCE

IRS-1 (C-20) is available as either rabbit (sc-559) or goat (sc-559-G) polyclonal affinity purified antibody raised against a peptide mapping at the C-terminus of IRS-1 of human origin.

PRODUCT

Each vial contains either 100 µg (sc-559) or 200 µg (sc-559-G) IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-559 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as agarose conjugate for immunoprecipitation, sc-559 AC, 500µg/ 0.25 ml agarose in 1 ml.

Available as fluorescein (sc-559 FITC) or rhodamine (sc-559 TRITC) conjugates for immunofluorescence, 200 µg/1 ml.

Available as rhodamine conjugate for immunofluorescence, sc-559 TRITC, 200 µg/1 ml.

Available as fluorescein conjugate for flow cytometry, sc-559 FITC, 100 tests.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

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

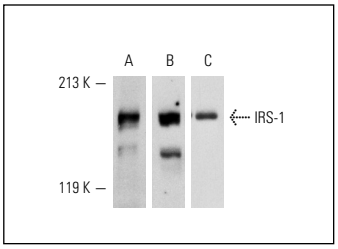
IRS-1 (C-20) is recommended for detection of IRS-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

IRS-1 (C-20) is also recommended for detection of IRS-1 in additional species, including bovine and porcine.

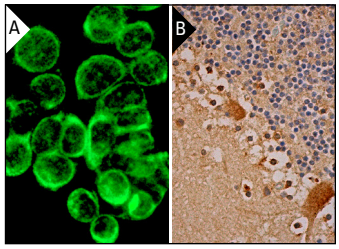
Suitable for use as control antibody for IRS-1 siRNA (h): sc-29376, IRS-1 siRNA (m): sc-29377, IRS-1 shRNA Plasmid (h): sc-29376-SH, IRS-1 shRNA Plasmid (m): sc-29377-SH, IRS-1 shRNA (h) Lentiviral Particles: sc-29376-V and IRS-1 shRNA (m) Lentiviral Particles: sc-29377-V.

Molecular weight of IRS-1: 170-185 kDa.

DATA



Western blot analysis of IRS-1 expression in 3T3-L1 (**A**), Ramos (**B**) and BJAB (**C**) whole cell lysates. Antibodies tested include IRS-1 (C-20): sc-559 (**A**,**B**) and IRS-1 (C-20)-G: sc-559-G (**C**).



IRS-1 (C-20): sc-559. Immunofluorescence staining of methanol-fixed MCF7 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmic and nuclear staining of Purkinje cells and cytoplasmic staining of cells in granular layer and molecular layer (**B**).

SELECT PRODUCT CITATIONS

1. Jacobs, A., et al. 2001. Insulin receptor substrate-1 pleckstrin homology and phosphotyrosine-binding domains are both involved in plasma membrane targeting. J. Biol. Chem. 276: 40795-40802.
2. Machado-Neto, J.A., et al. 2011. Knockdown of insulin receptor substrate 1 reduces proliferation and downregulates Akt/mTOR and MAPK pathways in K562 cells. Biochim. Biophys. Acta 1813: 1404-1411.
3. Jiao, P., et al. 2012. Constitutive activation of IKKβ in adipose tissue prevents diet-induced obesity in mice. Endocrinology 153: 154-165.
4. Martinez, Y., et al. 2012. Cellular diversity within embryonic stem cells: pluripotent clonal sublines show distinct differentiation potential. J. Cell. Mol. Med. 16: 456-467.