insulin Rβ (9H4): sc-81466

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BIOTECHNOLOGY

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BACKGROUND

The Insulin receptor (IR) is a heterodimeric protein complex that has an intracellular β subunit and an extracellular α subunit, which is disulfide-linked to a transmembrane segment. The Insulin ligand binds to the IR and initiates molecular signaling pathways that promote glucose uptake in cells and glycogen synthesis. Insulin binding to IR induces phosphorylation of intracellular tyrosine kinase domains and recruitment of multiple SH2 and SH3 domain-containing intracellular proteins that serve as signaling intermediates for pleiotropic effects of Insulin. The human Insulin receptor gene maps to chromosome 19p13.2 and encodes a 1,382 amino acid protein that cleaves apart to form α and β subunits. Type 1 diabetes is an auto-immune condition of the endocrine pancreas that results in destruction of Insulin-secreting cells and a progressive loss in Insulin-sensitive glucose uptake by cells. Type 2 diabetes is a condition where cells become resistant to Insulin action.

REFERENCES

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2. Whitehead, J.P., et al. 2000. Signalling through the Insulin receptor. Curr. Opin. Cell Biol. 12: 222-228.

3. Ottensmeyer, F.P., et al. 2000. Mechanism of transmembrane signaling: Insulin binding and the Insulin receptor. Biochemistry 39: 12103-12112.

4. Sesti, G. 2000. Insulin receptor variant forms and type 2 diabetes mellitus. Pharmacogenomics 1: 49-61.

5. Perz, M. and Torlinska, T. 2001. Insulin receptor—structural and functional characteristics. Med. Sci. Monit. 7: 169-177.

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CHROMOSOMAL LOCATION

Genetic locus: INSR (human) mapping to 19p13.2; Insr (mouse) mapping to 8 A1.1.

SOURCE

insulin Rβ (9H4) is a mouse monoclonal antibody raised against the activation loop of insulin R of human origin.

PRODUCT

Each vial contains 50 µg IgG$_1$ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

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

insulin Rβ (9H4) is recommended for detection of insulin Rβ of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for insulin R siRNA (h): sc-29370, insulin R siRNA (m): sc-35673, insulin R siRNA (r): sc-63341, insulin R shRNA Plasmid (h): sc-29370-SH, insulin R shRNA Plasmid (m): sc-35673-SH, insulin R shRNA Plasmid (r): sc-63341-SH, insulin R shRNA (h) Lentiviral Particles: sc-29370-V, insulin R shRNA (m) Lentiviral Particles: sc-35673-V and insulin R shRNA (r) Lentiviral Particles: sc-63341-V.

Molecular Weight of insulin R precursor: 200 kDa.

Molecular Weight of mature insulin Rβ chain: 95 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, SW480 cell lysate: sc-2219 or MCF7 whole cell lysate: sc-2206.

DATA
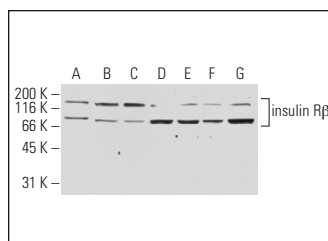
insulin Rβ (9H4): sc-81466. Western blot analysis of insulin Rβ expression in serum starved A-431 (**A**), SW480 (**B**), SW620 (**C**), HT29 (**D**), MCF7 (**E**), MDA-MB-231 (**F**) and T-47D (**G**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Davison, Z., et al. 2011. Insulin-like growth factor-dependent proliferation and survival of triple-negative breast cancer cells: implications for therapy. Neoplasia 13: 504-515.

2. Durfort, T., et al. 2012. Small interfering RNA targeted to IGF-IR delays tumor growth and induces proinflammatory cytokines in a mouse breast cancer model. PLoS ONE 7: e29213.

3. Pancani, T., et al. 2013. Effect of high-fat diet on metabolic indices, cognition, and neuronal physiology in aging F344 rats. Neurobiol. Aging 34: 1977-1987.

4. Oliveira, L.D.C., et al. 2018. Excessive treadmill training enhances the insulin signaling pathway and glycogen deposition in mice hearts. J. Cell. Biochem. E-published.

CONJUGATES

See **insulin Rβ (CT-3): sc-57342** for insulin Rβ antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.