

insulin R α (MA-20): sc-57344

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 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

1. Marino-Buslje, C., et al. 1999. The Insulin receptor: from protein sequence to structure. *Biochem. Soc. Trans.* 27: 715-726.
2. Ottensmeyer, F.P., et al. 2000. Mechanism of transmembrane signaling: Insulin binding and the Insulin receptor. *Biochemistry* 39: 12103-12112.
3. Sesti, G. 2000. Insulin receptor variant forms and type 2 diabetes mellitus. *Pharmacogenomics* 1: 49-61.
4. Whitehead, J.P., et al. 2000. Signalling through the Insulin receptor. *Curr. Opin. Cell Biol.* 12: 222-228.
5. Perz, M., et al. 2001. Insulin receptor—structural and functional characteristics. *Med. Sci. Monit.* 7: 169-177.

CHROMOSOMAL LOCATION

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

SOURCE

insulin R α (MA-20) is a mouse monoclonal antibody raised against placental insulin R α of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

insulin R α (MA-20) is available conjugated to agarose (sc-57344 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-57344 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-57344 PE), fluorescein (sc-57344 FITC), Alexa Fluor[®] 488 (sc-57344 AF488), Alexa Fluor[®] 546 (sc-57344 AF546), Alexa Fluor[®] 594 (sc-57344 AF594) or Alexa Fluor[®] 647 (sc-57344 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-57344 AF680) or Alexa Fluor[®] 790 (sc-57344 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

insulin R α (MA-20) is recommended for detection of insulin R α of mouse, rat and human origin by immunoprecipitation [1-2 μ g per 100-500 μ g 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 R α : 125 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

SELECT PRODUCT CITATIONS

1. Wu, Y.C., et al. 2012. Novel nuclear localization and potential function of Insulin-like growth factor-1 receptor/Insulin receptor hybrid in corneal epithelial cells. *PLoS ONE* 7: e42483.
2. Corbin, J.A., et al. 2014. Inhibition of Insulin receptor function by a human, allosteric monoclonal antibody: a potential new approach for the treatment of hyperinsulinemic hypoglycemia. *MAbs* 6: 262-272.
3. Yang, O., et al. 2016. Atorvastatin ameliorates endothelium-specific Insulin resistance induced by high glucose combined with high Insulin. *Mol. Med. Rep.* 14: 2791-2798.
4. Titone, R., et al. 2018. Insulin mediates *de novo* nuclear accumulation of the IGF-1/Insulin hybrid receptor in corneal epithelial cells. *Sci. Rep.* 8: 4378.
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6. Scalia, P., et al. 2019. Identification of a novel EphB4 phosphodegron regulated by the autocrine IGFII/IRA axis in malignant mesothelioma. *Oncogene* 38: 5987-6001.
7. Gralle, M., et al. 2019. Spatial dynamics of the Insulin receptor in living neurons. *J. Neurochem.* E-published.
8. Titone, R., et al. 2020. Insulin receptor preserves mitochondrial function by binding VDAC1 in Insulin insensitive mucosal epithelial cells. *FASEB J.* 34: 754-775.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

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