

# insulin R $\beta$ (CT-3): sc-57342

## BACKGROUND

The Insulin receptor (IR) is a heterodimeric protein complex that has an intracellular  $\beta$  subunit and an extracellular  $\alpha$  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  $\alpha$  and  $\beta$  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.

## CHROMOSOMAL LOCATION

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

## SOURCE

insulin R $\beta$  (CT-3) is a mouse monoclonal antibody raised against the C-terminus of insulin receptor of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

insulin R $\beta$  (CT-3) is available conjugated to agarose (sc-57342 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-57342 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-57342 PE), fluorescein (sc-57342 FITC), Alexa Fluor<sup>®</sup> 488 (sc-57342 AF488), Alexa Fluor<sup>®</sup> 546 (sc-57342 AF546), Alexa Fluor<sup>®</sup> 594 (sc-57342 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-57342 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-57342 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-57342 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA

## STORAGE

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

## APPLICATIONS

insulin R $\beta$  (CT-3) is recommended for detection of insulin R $\beta$  of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with insulin-like growth factor (IGF) receptors.

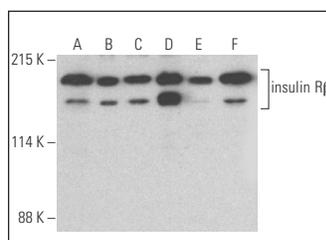
Suitable for use as control antibody for insulin R siRNA (h): sc-29370, insulin R siRNA (m): sc-35673, insulin R siRNA (r): sc-63341, insulin R shRNA Plasmid (h): sc-29370-SH, insulin R shRNA Plasmid (m): sc-35673-SH, insulin R shRNA Plasmid (r): sc-63341-SH, insulin R shRNA (h) Lentiviral Particles: 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 mature insulin R $\beta$  chain: 95 kDa.

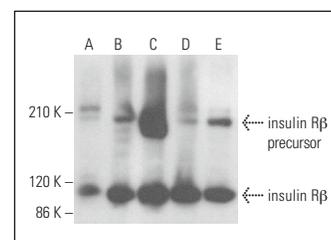
Molecular Weight of insulin R precursor: 200 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, NIH/3T3 whole cell lysate: sc-2210 or MCF7 whole cell lysate: sc-2206.

## DATA



insulin R $\beta$  (CT-3) HRP: sc-57342 HRP. Direct western blot analysis of insulin R $\beta$  expression in NIH/3T3 (A), SW480 (B), MCF7 (C), JAR (D), MIA PaCa-2 (E) and Hep G2 (F) whole cell lysates.



insulin R $\beta$  (CT-3): sc-57342. Western blot analysis of insulin R $\beta$  expression in NIH/3T3 (A), SW480 (B), MCF7 (C), JAR (D) and MIA PaCa-2 (E) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Huang, W.J., et al. 2009. Involvement of cyclooxygenase 2 and prostaglandin E $_2$  in the effects of Insulin on gastric emptying in male rats. *J. Physiol. Pharmacol.* 60: 109-118.
2. Park, J., et al. 2022. Activation of the Insulin receptor by an Insulin mimetic peptide. *Nat. Commun.* 13: 5594.
3. Casertano, M., et al. 2023. Evidence of Insulin-sensitizing and mimetic activity of the sesquiterpene quinone avarone, a protein tyrosine phosphatase 1B and aldose reductase dual targeting agent from the marine sponge *Dysidea avara*. *Pharmaceutics* 15: 528.
4. Tian, W., et al. 2024. Deep proteomic analysis of obstetric antiphospholipid syndrome by DIA-MS of extracellular vesicle enriched fractions. *Commun. Biol.* 7: 99.

## RESEARCH USE

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