

Insulin (3A1): sc-52035

BACKGROUND

Insulin is a secreted peptide hormone that elicits metabolic effects such as increases in glucose uptake and glycogen synthesis leading to a decrease in blood glucose concentration. Insulin is first formed as a precursor molecule, preproinsulin, which is later cleaved to proinsulin and finally to the mature Insulin hormone. Mature Insulin consists of 51 amino acids, contained within an A chain and a B chain that are connected by two disulfide bridges. It increases cell permeability to monosaccharides, amino acids and fatty acids. Insulin is secreted by the pancreas at basal levels in the absence of exogenous stimuli, with secretion increasing in response to glucose. Insulin action is effected by the binding of Insulin to cell-surface receptors on the target cell membrane. Defects of Insulin are the cause of hyperproinsulinemia and of type 2 diabetes mellitus.

REFERENCES

1. Kahn, C.R. 1985. The molecular mechanism of Insulin action. *Annu. Rev. Med.* 36: 429-451.
2. Lammers, R., et al. 1989. Differential signalling potential of Insulin- and IGF-1-receptor cytoplasmic domains. *EMBO J.* 8: 1369-1375.
3. Hilgert, I., et al. 1991. A monoclonal antibody applicable for determination of C-peptide of human proinsulin by RIA. *Hybridoma* 10: 379-386.
4. Jorgensen, A.M., et al. 1996. Solution structure of the superactive monomeric des-[Phe(B25)] human Insulin mutant: elucidation of the structural basis for the monomerization of des-[Phe(B25)] Insulin and the dimerization of native Insulin. *J. Mol. Biol.* 257: 684-699.
5. Mackin, R.B. 1998. Proinsulin: recent observations and controversies. *Cell. Mol. Life Sci.* 54: 696-702.
6. Soria, B., et al. 1998. Cytosolic calcium oscillations and Insulin release in pancreatic islets of Langerhans. *Diabetes Metab.* 24: 37-40.
7. Walker, M., et al. 2005. Impaired β cell glucose sensitivity and whole-body Insulin sensitivity as predictors of hyperglycaemia in non-diabetic subjects. *Diabetologia* 48: 2470-2476.
8. Polak, J., et al. 2005. Dynamic strength training improves Insulin sensitivity and functional balance between adrenergic α 2A and β pathways in subcutaneous adipose tissue of obese subjects. *Diabetologia* 48: 2631-2640.
9. Chen, J., et al. 2006. Stevioside does not cause increased basal Insulin secretion or β -cell desensitization as does the sulphonylurea, glibenclamide: studies *in vitro*. *Life Sci.* 78: 1748-1753.

CHROMOSOMAL LOCATION

Genetic locus: INS (human) mapping to 11p15.5.

SOURCE

Insulin (3A1) is a mouse monoclonal antibody raised against purified Insulin of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

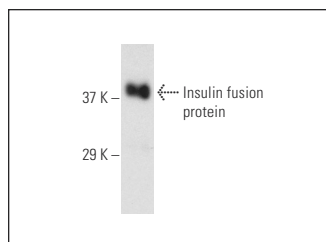
Insulin (3A1) is recommended for detection of proinsulin of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Insulin (3A1) is also recommended for detection of proinsulin in additional species, including bovine and porcine.

Suitable for use as control antibody for Insulin siRNA (h): sc-39578, Insulin shRNA Plasmid (h): sc-39578-SH and Insulin shRNA (h) Lentiviral Particles: sc-39578-V.

Molecular Weight of Insulin: 12 kDa.

DATA



Insulin (3A1): sc-52035. Western blot analysis of human recombinant Insulin fusion protein.

SELECT PRODUCT CITATIONS

1. Van Pham, P., et al. 2014. Improved differentiation of umbilical cord blood-derived mesenchymal stem cells into Insulin-producing cells by PDX-1 mRNA transfection. *Differentiation* 87: 200-208.
2. Park, S., et al. 2015. Establishment of a xeno-free culture system that preserves the characteristics of placenta mesenchymal stem cells. *Cytotechnology* 67: 851-860.

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.