SANTA CRUZ BIOTECHNOLOGY, INC.

Insulin (2D11-H5): sc-8033

The Power to Question

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.

CHROMOSOMAL LOCATION

Genetic locus: INS (human) mapping to 11p15.5; Ins1 (mouse) mapping to 19 D2.

SOURCE

Insulin (2D11-H5) is a mouse monoclonal antibody raised against amino acids 1-84 representing full length Insulin of porcine origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Insulin (2D11-H5) is available conjugated to agarose (sc-8033 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-8033 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-8033 PE), fluorescein (sc-8033 FITC), Alexa Fluor® 488 (sc-8033 AF488), Alexa Fluor® 546 (sc-8033 AF546), Alexa Fluor® 594 (sc-8033 AF594) or Alexa Fluor® 647 (sc-8033 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-8033 AF680) or Alexa Fluor® 790 (sc-8033 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Insulin (2D11-H5) is recommended for detection of Insulin of mouse, rat and human origin by 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), and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Insulin (2D11-H5) is also recommended for detection of Insulin in additional species, including bovine and porcine.

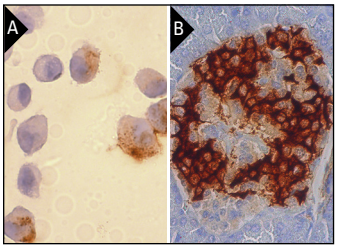
Suitable for use as control antibody for Insulin siRNA (h): sc-39578, Insulin siRNA (m): sc-39579, Insulin shRNA Plasmid (h): sc-39578-SH, Insulin shRNA Plasmid (m): sc-39579-SH, Insulin shRNA (h) Lentiviral Particles: sc-39578-V and Insulin shRNA (m) Lentiviral Particles: sc-39579-V.

Molecular Weight of Insulin: 12 kDa.

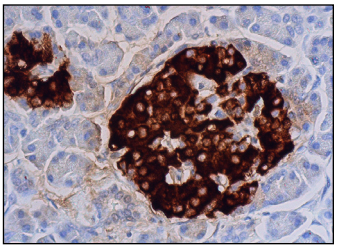
STORAGE

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

DATA



Insulin (2D11-H5): sc-8033. Immunoperoxidase staining of formalin fixed MIA PaCa-2 cell smear showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans (**B**).



Insulin (2D11-H5): sc-8033. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans.

SELECT PRODUCT CITATIONS

1. de la Tour, D., et al. 2001. β-cell differentiation from a human pancreatic cell line *in vitro* and *in vivo*. Mol. Endocrinol. 15: 476-483.
2. Kaido, T., et al. 2004. αv-Integrin utilization in human β-cell adhesion, spreading, and motility. J. Biol. Chem. 279: 17731-17737.
3. Ahuja, N., et al. 2007. Regulation of Insulin secretion by SIRT4, a mitochondrial ADP-ribosyltransferase. J. Biol. Chem. 282: 33583-33592.
4. Lee, S.H., et al. 2008. Islet specific Wnt activation in human type II diabetes. Exp. Diabetes Res. 2008: 728763.
5. Lee, S.H., et al. 2010. CENP-A, a protein required for chromosome segregation in mitosis, declines with age in islet but not exocrine cells. Aging 2: 785-790.
6. Encina, G., et al. 2011. Insulin is secreted upon glucose stimulation by both gastrointestinal enteroendocrine K-cells and L-cells engineered with the preproinsulin gene. Biol. Res. 44: 301-305.
7. Tersey, S.A., et al. 2012. Islet β-cell endoplasmic reticulum stress precedes the onset of type 1 diabetes in the nonobese diabetic mouse model. Diabetes 61: 818-827.
8. Kasimanickam, R.K., et al. 2013. Associations among serum pro- and anti-inflammatory cytokines, metabolic mediators, body condition, and uterine disease in postpartum dairy cows. Reprod. Biol. Endocrinol. 11: 103.
9. Brial, F., et al. 2015. Ghrelin inhibition restores glucose homeostasis in hepatocyte nuclear factor-1α (MODY3)-deficient mice. Diabetes 64: 3314-3320.
10. Ahn, E.H., et al. 2016. Tat-ATOX1 inhibits streptozotocin-induced cell death in pancreatic RINm5F cells and attenuates diabetes in a mouse model. Int. J. Mol. Med. 38: 217-224.

RESEARCH USE

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