

PDX-1 (K-16): sc-31967

BACKGROUND

Pancreatic duodenal homeobox-1 protein (PDX-1), also designated Insulin promoter factor (IPF1), Insulin upstream factor 1 (IUF1), somatostatin transactivating factor-1 (STF-1) and glucose-sensitive factor (GSF), is a 282 amino acid homeodomain-containing transcription factor present in pancreatic beta-cells. PDX-1 is a key regulator of pancreatic islet development and Insulin gene transcription in beta-cells. PDX-1 is expressed in all cells at the early stages of development and is mainly restricted to the pancreas and duodenum in adult. HNF-3 β , HNF-1 α and SP1 positively regulate the PDX-1 enhancer element. PDX-1 is also regulated by glucagon-like peptide through activation of adenylyl cyclase, which results in an increase in intracellular cAMP activity. The increased levels of cAMP, and the resulting activation of PKA, lead to an increase in PDX-1 transcription and translocation of the protein to the nuclei of beta-cells. PDX-1 binds to the sequence C(C/T) and can heterodimerize with PBX. PDX-1 is phosphorylated by the SAPK2 pathway under high glucose concentrations. Mutations in the PDX-1 gene can cause maturity-onset diabetes of the young and pancreatic agenesis. The gene which encodes PDX-1 maps to human chromosome 13q12.2.

REFERENCES

1. Stoffel, M., et al. 1995. Localization of human homeodomain transcription factor Insulin promoter factor 1 (IPF1) to chromosome band 13q12.1. *Genomics* 28: 125-126.
2. Inoue, H., et al. 1996. Isolation, characterization, and chromosomal mapping of the human Insulin promoter factor 1 (IPF-1) gene. *Diabetes* 45: 789-794.
3. Macfarlane, W.M., et al. 1997. The p38/reactivating kinase mitogen-activated protein kinase cascade mediates the activation of the transcription factor Insulin upstream factor 1 and Insulin gene transcription by high glucose in pancreatic beta-cells. *J. Biol. Chem.* 272: 20936-20944.
4. Macfarlane, W.M., et al. 1999. Missense mutations in the Insulin promoter factor-1 gene predispose to type 2 diabetes. *J. Clin. Invest.* 104: R33-39.
5. Hani, E.H., et al. 1999. Defective mutations in the Insulin promoter factor (IPF-1) gene in late-onset type 2 diabetes mellitus. *J. Clin. Invest.* 104: R41-R48.

CHROMOSOMAL LOCATION

Genetic locus: IPF1 (human) mapping to 13q12.2; Ipf1 (mouse) mapping to 5 G3.

SOURCE

PDX-1 (K-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of PDX-1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31967 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-31967 X, 200 μ g/0.1 ml.

APPLICATIONS

PDX-1 (K-16) is recommended for detection of PDX-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PDX-1 (K-16) is also recommended for detection of PDX-1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PDX-1 siRNA (h): sc-38760, PDX-1 siRNA (m): sc-38761, PDX-1 siRNA (r): sc-108040, PDX-1 shRNA Plasmid (h): sc-38760-SH, PDX-1 shRNA Plasmid (m): sc-38761-SH, PDX-1 shRNA Plasmid (r): sc-108040-SH, PDX-1 shRNA (h) Lentiviral Particles: sc-38760-V, PDX-1 shRNA (m) Lentiviral Particles: sc-38761-V and PDX-1 shRNA (r) Lentiviral Particles: sc-108040-V.

PDX-1 (K-16) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of PDX-1: 46 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **PDX-1 (B-11): sc-390792** or **PDX-1 (E-5): sc-390808**, our highly recommended monoclonal alternatives to PDX-1 (K-16). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **PDX-1 (B-11): sc-390792**.