

PDX-1 (h): 293T Lysate: sc-129445

BACKGROUND

Pancreatic duodenal homeobox-1 protein (PDX-1), also designated Insulin promoter factor (IPF1), Insulin upstream factor 1 (IUF1), somatostatin *trans*-activating factor-1 (STF-1) and glucose-sensitive factor (GSF), is a 282 amino acid homeodomain-containing transcription factor present in pancreatic β -cells. PDX-1 is a key regulator of pancreatic islet development and Insulin gene transcription in β -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 β -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 β -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-R39.
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: PDX1 (human) mapping to 13q12.2.

PRODUCT

PDX-1 (h): 293T Lysate represents a lysate of human PDX-1 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

APPLICATIONS

PDX-1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive PDX-1 antibodies. Recommended use: 10-20 μ l per lane.

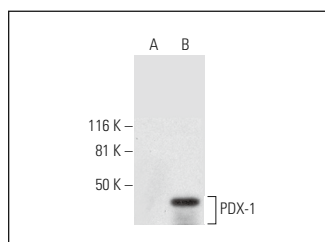
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PDX-1 (E-5): sc-390808 is recommended as a positive control antibody for Western Blot analysis of enhanced human PDX-1 expression in PDX-1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

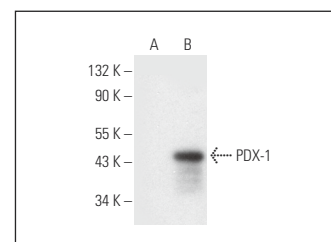
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



PDX-1 (E-5): sc-390808. Western blot analysis of PDX-1 expression in non-transfected: sc-117752 (A) and human PDX-1 transfected: sc-129445 (B) 293T whole cell lysates.



PDX-1 (E-8): sc-398502. Western blot analysis of PDX-1 expression in non-transfected: sc-117752 (A) and human PDX-1 transfected: sc-129445 (B) 293T whole cell lysates.

RESEARCH USE

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