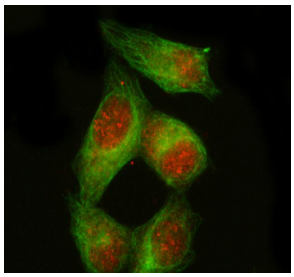
PDX1 Antibody / Pancreatic and duodenal homeobox 1 (FY13210)

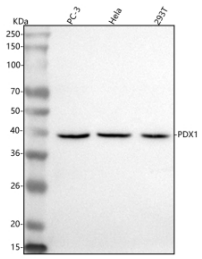
Catalog No.	Formulation	Size
FY13210	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

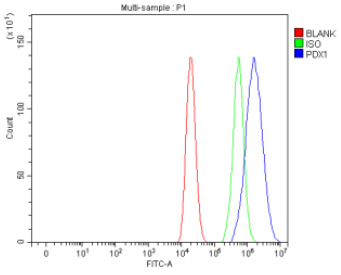
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P52945
Localization	Nuclear
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry : 5ug/ml Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PDX1 antibody is available for research use only.



Immunofluorescent staining of PDX1 using anti-PDX1 antibody (red) and anti-Beta Tubulin antibody (green). PDX1 was detected in immunocytochemical section of HELA cell. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-PDX1 antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. Cy3 Conjugated Goat Anti-Rabbit IgG and FITC Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of PDX1 using anti-PDX1 antibody. Lane 1: human PC-3 whole cell lysates, Lane 2: human Hela whole cell lysates, Lane 3: human 293T whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-PDX1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. Western blot detection of PDX1 shows a single band at ~40 kDa across tested cell lines. Despite a calculated mass of ~31 kDa, PDX1 commonly migrates at 40-46 kDa due to post-translational modifications including phosphorylation and SUMOylation.



Flow Cytometry analysis of Caco-2 cells using anti-PDX1 antibody. Overlay histogram showing Caco-2 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-PDX1 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

Description

PDX1 antibody detects Pancreatic and duodenal homeobox 1, a transcription factor that regulates pancreatic development, beta-cell differentiation, and insulin gene expression. The UniProt recommended name is Pancreatic and duodenal homeobox 1 (PDX1). This nuclear protein functions as a master regulator of pancreatic organogenesis and endocrine function, orchestrating the transcriptional networks that specify pancreatic progenitor cells and maintain mature beta-cell identity.

Functionally, PDX1 antibody identifies a 283-amino-acid homeodomain-containing protein that binds to promoter regions of multiple pancreatic genes, including insulin, somatostatin, glucokinase, and GLUT2. PDX1 interacts with transcriptional cofactors such as PBX1, NEUROD1, and MAFA to activate insulin transcription and coordinate glucose-stimulated insulin secretion. During embryogenesis, PDX1 marks multipotent progenitors in the foregut endoderm that give rise to all pancreatic cell lineages.

The PDX1 gene is located on chromosome 13q12.2 and is highly expressed in the pancreas, particularly in beta cells of the islets of Langerhans and in the duodenal epithelium. PDX1 expression is regulated by glucose, nutrient status, and signaling pathways including PI3K/AKT and MAPK. Its activity ensures proper glucose homeostasis and metabolic regulation.

Pathologically, mutations in PDX1 cause pancreatic agenesis, maturity-onset diabetes of the young type 4 (MODY4), and contribute to type 2 diabetes through impaired beta-cell function. Loss of PDX1 expression leads to beta-cell dedifferentiation, while overexpression can promote transdifferentiation of non-beta pancreatic cells into insulin-producing phenotypes. Research using PDX1 antibody supports studies in diabetes, pancreatic development, and regenerative medicine.

PDX1 antibody is validated for western blotting, immunofluorescence, and immunohistochemistry to detect transcription factors involved in endocrine development. NSJ Bioreagents provides PDX1 antibody reagents optimized for studies in pancreatic biology, transcriptional regulation, and diabetes research.

Structurally, Pancreatic and duodenal homeobox 1 contains a highly conserved homeobox domain responsible for DNA binding and nuclear localization signals that target it to the nucleus. Post-translational modifications such as phosphorylation modulate PDX1 stability and transcriptional activity. This antibody enables investigation of PDX1's role in

pancreatic morphogenesis, beta-cell identity maintenance, and metabolic gene regulation.

Application Notes

Optimal dilution of the PDX1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PDX1 recombinant protein (Position: M1-E145) was used as the immunogen for the PDX1 antibody.

Storage

After reconstitution, the PDX1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.