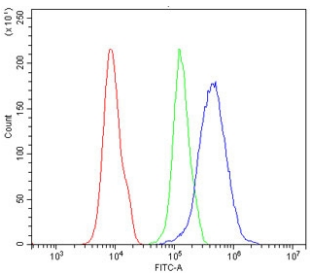
PDX1 Antibody / Pancreas/duodenum homeobox protein 1 (RQ5749)

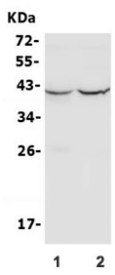
Catalog No.	Formulation	Size
RQ5749	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	P52945
Applications	Western Blot : 0.5-1ug/ml Flow Cytometry : 1-3ug/million cells Direct ELISA : 0.1-0.5ug/ml
Limitations	This PDX1 antibody is available for research use only.



Flow cytometry testing of human 293T cells with PDX1 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= PDX1 antibody.



Western blot testing of human 1) HeLa and 2) HEK293 lysate with PDX1 antibody. Observed molecular weight 31/40-46kDa (unmodified/modified).

Description

PDX1 antibody detects Pancreas/duodenum homeobox protein 1, a homeodomain-containing transcription factor essential for pancreatic development, beta cell differentiation, and glucose metabolism. The UniProt recommended name is Pancreas/duodenum homeobox protein 1 (PDX1). Also known as Insulin promoter factor 1, this nuclear protein acts as a master regulator of pancreatic endocrine gene expression, controlling insulin transcription and maintenance of beta cell identity.

Functionally, PDX1 antibody identifies a 283-amino-acid nuclear protein that binds specific DNA motifs within promoter regions of insulin, somatostatin, and glucose transporter genes. During embryonic development, PDX1 directs pancreatic bud formation and lineage specification of endocrine and exocrine cells. In adult tissues, PDX1 remains highly expressed in pancreatic beta cells, where it regulates insulin secretion and responds dynamically to glucose levels. Phosphorylation and nuclear localization signals tightly control its transcriptional activity in response to nutrient and hormonal stimuli.

The PDX1 gene is located on chromosome 13q12.2 and is expressed in pancreas, duodenum, and other regions of the digestive tract. Within the pancreas, its expression marks early progenitor cells that give rise to both endocrine and exocrine lineages. In mature islets, PDX1 maintains insulin expression by interacting with cofactors including PBX1, MAFA, and NEUROD1. Loss of PDX1 function impairs beta cell survival and reduces insulin production, leading to glucose intolerance and diabetes-like phenotypes.

Pathologically, mutations or reduced expression of PDX1 cause pancreatic agenesis and contribute to forms of monogenic diabetes, including maturity-onset diabetes of the young type 4 (MODY4). Dysregulation of PDX1 also occurs in type 2 diabetes, where oxidative stress and chronic hyperglycemia diminish its nuclear localization and transcriptional activity. Conversely, experimental restoration of PDX1 activity has been explored for regenerative therapies aiming to reprogram non-beta cells toward insulin-producing phenotypes. Research using PDX1 antibody supports studies in pancreatic development, diabetes, and endocrine regeneration.

PDX1 antibody is validated for use in relevant research applications to detect Pancreas/duodenum homeobox protein 1 and study its role in pancreatic differentiation, insulin regulation, and endocrine cell biology. NSJ Bioreagents provides PDX1 antibody reagents optimized for endocrinology, metabolism, and developmental research.

Application Notes

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

Immunogen

Recombinant human protein (amino acids E4-K200) 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.