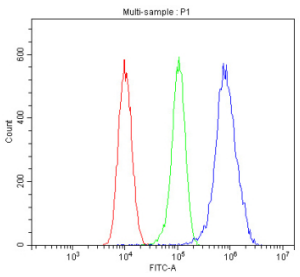
PITX2 Antibody / Pituitary homeobox 2 (RQ5602)

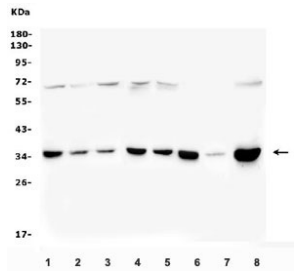
Catalog No.	Formulation	Size
RQ5602	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	Q99697
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells
Limitations	This PITX2 antibody is available for research use only.



Flow cytometry analysis of PITX2 using PITX2 antibody. PITX2 expression was examined in human HEK293T cells following fixation with 4% paraformaldehyde and permeabilization to enable intracellular staining. Cells were incubated with PITX2 antibody and detected using a fluorescent secondary antibody (blue). An isotype control stained under identical conditions is shown in green, and an unstained control is shown in red. The rightward fluorescence shift observed with PITX2 antibody staining indicates specific intracellular detection of PITX2.



Western blot analysis of PITX2 using PITX2 antibody. PITX2 expression was examined in human Caco-2 (lane 1), HEK293 (lane 2), U2OS (lane 3), HeLa (lane 4), A549 (lane 5), and U-87MG (lane 6) whole cell lysates, as well as rat heart tissue lysates (lane 7) and mouse RAW264.7 whole cell lysates (lane 8). A predominant band is detected at approximately 35 kDa, consistent with the predicted molecular weight of PITX2 based on its amino acid sequence. A faint higher-molecular-weight band around 65-70 kDa is also observed in some samples and likely represents dimeric or incompletely reduced PITX2 species, which has been reported for homeobox transcription factors under certain reducing conditions.

Description

PITX2 antibody targets Pituitary homeobox 2, encoded by the PITX2 gene. Pituitary homeobox 2 is a nuclear transcription factor belonging to the paired-like homeodomain family, characterized by a conserved homeobox DNA-binding domain that regulates gene transcription during development. PITX2 plays a central role in establishing left-right asymmetry and controlling organ morphogenesis during embryogenesis.

Functionally, Pituitary homeobox 2 regulates transcriptional programs involved in cell fate determination, tissue patterning, and differentiation. It acts downstream of signaling pathways such as Wnt and TGF-beta, integrating extracellular cues into gene expression responses. A PITX2 antibody supports research focused on developmental transcriptional regulation and homeobox gene function.

PITX2 expression is tightly regulated spatially and temporally, with prominent roles in developing cardiac tissue, ocular structures, craniofacial regions, and skeletal muscle precursors. Subcellular localization is predominantly nuclear, consistent with its role as a transcription factor, although expression levels and localization patterns vary depending on developmental stage and cell type.

From a disease-relevance perspective, altered PITX2 expression or mutation has been associated with congenital disorders, including Axenfeld-Rieger syndrome, as well as cardiovascular abnormalities. Dysregulation of PITX2 has also been explored in cancer biology, where aberrant transcription factor activity may influence proliferation, migration, and epithelial-mesenchymal transition. These findings highlight PITX2 as a critical regulator of both developmental and disease-associated transcriptional networks.

At the molecular level, Pituitary homeobox 2 contains a homeodomain responsible for sequence-specific DNA binding, along with regulatory regions that mediate protein-protein interactions and transcriptional control. Post-translational regulation and isoform diversity can influence PITX2 activity and apparent behavior in biochemical assays without altering its core DNA-binding function. PITX2 antibody reagents support research applications focused on transcriptional regulation, developmental biology, and disease-associated gene expression pathways, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the PITX2 antibody should be determined by the researcher.

Immunogen

Amino acids METNCRKLVSACVQLGVQPAAVECLFSKDSEIKK were used as the immunogen for the PITX2 antibody.

Storage

After reconstitution, the PITX2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.