SANTA CRUZ BIOTECHNOLOGY, INC.

Nkx-6.1 (5B8): sc-130385

BACKGROUND

Members of the Nkx family of homeodomain proteins are key regulators of growth and development in several tissues, including brain, heart and pancreas. During neural development, sonic hedgehog (Shh) is known to control cell fate and mitogenesis, which is correlated with Shh dose-dependent expression of several genes, including Nkx-6.1. Specifically, Nkx-6.1 is responsible for cellular differentiation in the ventral neural tube and spinal meninges in response to Shh. In the pancreas, Nkx-6.1 is exclusively expressed in the islets of Langerhans in differentiating and mature B cells, which produce Insulin. The presence of Pdx-1 is required for the expression of Nkx-6.1 as well as other pancreatic B cell specific genes, including Insulin, Glut2 and IAPP. Subsequently, Nkx-6.1 binds to the DNA consensus sequence, TTAATTAC, to direct the repression of specific genes in B cells.

REFERENCES

1. Oster, A., et al. 1998. Homeobox gene product Nkx-6.1 immunoreactivity in nuclei of endocrine cells of rat and mouse stomach. J. Histochem. Cytochem. 46: 717-721.
2. Briscoe, J., et al. 1999. Homeobox gene Nkx-2.2 and specification of neuronal identity by graded Sonic hedgehog signalling. Nature 398: 622-667.
3. Jorgensen, M.C., et al. 1999. Cloning and DNA-binding properties of the rat pancreatic β-cell-specific factor Nkx-6.1. FEBS Lett. 461: 287-294.
4. Cai, J., et al. 2000. Evidence for the differential regulation of Nkx-6.1 expression in the ventral spinal cord and foregut by Shh-dependent and -independent mechanisms. Genesis 27: 6-11.
5. Hessabi, B., et al. 2000. The homeodomain of Nkx-2.2 carries two cooperatively acting nuclear localization signals. Biochem. Biophys. Res. Commun. 270: 695-700.
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7. Pabst, O., et al. 2000. Nkx-2 gene expression in neuroectoderm but not in mesendodermally derived structures depends on Sonic hedgehog in mouse embryos. Dev. Genes. Evol. 210: 47-50.
8. Watada, H., et al. 2000. Transcriptional and translational regulation of β-cell differentiation factor Nkx-6.1. J. Biol. Chem. 275: 34224-34230.
9. Wang, H., et al. 2001. PDX-1 level defines pancreatic gene expression pattern and cell lineage differentiation. J. Biol. Chem. 276: 25279-25286.

CHROMOSOMAL LOCATION

Genetic locus: NKX6-1 (human) mapping to 4q21.23; Nkx6-1 (mouse) mapping to 5 E4.

SOURCE

Nkx-6.1 (5B8) is a mouse monoclonal antibody raised against a full length recombinant protein Nkx-6.1 of human origin

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Nkx-6.1 (5B8) is recommended for detection of Nkx-6.1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Nkx-6.1 siRNA (h): sc-38731, Nkx-6.1 siRNA (m): sc-38732, Nkx-6.1 shRNA Plasmid (h): sc-38731-SH, Nkx-6.1 shRNA Plasmid (m): sc-38732-SH, Nkx-6.1 shRNA (h) Lentiviral Particles: sc-38731-V and Nkx-6.1 shRNA (m) Lentiviral Particles: sc-38732-V.

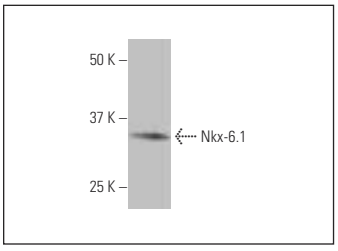
Molecular Weight of Nkx-6.1: 44/46 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Nkx-6.1 (5B8): sc-130385. Western blot analysis of Nkx-6.1 expression in HL-60 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Belame Shivakumar, S., et al. 2019. Pancreatic endocrine-like cells differentiated from human umbilical cords Wharton's jelly mesenchymal stem cells using small molecules. J. Cell. Physiol. 234: 3933-3947.

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.