

Pitx3 (N-20): sc-19307

BACKGROUND

Pitx genes play an important role in eye, tooth, pituitary and umbilical region development. Pitx3, for paired-like homeodomain transcription factor 3, is a member of the homeodomain family of DNA binding proteins referred to as the RIEG/PITX homeobox gene family. Pitx3 is associated with anterior segment dysgenesis and congenital cataracts. Mouse Pitx3 is associated with early ocular development and is later expressed in other organs and limbs. Pitx3 is expressed in the developing lens, neuronal tissue and in the central nervous system. Mouse Pitx3 is expressed in the midbrain dopaminergic (MesDA) neurons. A double deletion of the mouse Pitx3 gene causes arrested lens development in the recessive aphakia (ak) mouse mutant, characterized by small eyes which lack lenses. The human Pitx3 gene maps to chromosome 10q24.32 and encodes a 302 amino acid protein.

REFERENCES

1. Semina, E., et al. 1997. Isolation of a new homeobox gene belonging to the Pitx/Rieg family: expression during lens development and mapping to the aphakia region of mouse chromosome 19. *Hum. Mol. Genet.* 6: 2109-2116.
2. Semina, E., et al. 1998. A novel homeobox gene PITX3 is mutated in families with autosomal-dominant cataracts and ASMD. *Nat. Genet.* 19: 167-170.
3. Semina, E., et al. 2000. Deletion in the promoter region and altered expression of Pitx3 homeobox gene in aphakia. *Hum. Mol. Genet.* 9: 1575-1585.
4. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 602669. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Lebel, M., et al. 2001. Pitx3 activates mouse tyrosine hydroxylase promoter via a high-affinity binding site. *J. Neurochem.* 77: 558-567.
6. Rieger, D., et al. 2001. A double-deletion mutation in the Pitx3 gene caused arrested lens development in aphakia mice. *Genomics* 72: 61-72.
7. LocusLink Report (LocusID: 5309). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: PITX3 (human) mapping to 10q24.32; Pitx3 (mouse) mapping to 19 C3.

SOURCE

Pitx3 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Pitx3 of human origin.

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.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-19307 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-19307 X, 200 µg/0.1 ml.

APPLICATIONS

Pitx3 (N-20) is recommended for detection of Pitx3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Pitx3 (N-20) is also recommended for detection of Pitx3 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Pitx3 siRNA (h): sc-44017, Pitx3 siRNA (m): sc-152282, Pitx3 shRNA Plasmid (h): sc-44017-SH, Pitx3 shRNA Plasmid (m): sc-152282-SH, Pitx3 shRNA (h) Lentiviral Particles: sc-44017-V and Pitx3 shRNA (m) Lentiviral Particles: sc-152282-V.

Pitx3 (N-20) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Tasheva, E.S., et al. 2004. Analysis of transcriptional regulation of the small leucine rich proteoglycans. *Mol. Vis.* 10: 758-772.
2. Sakazume, S., et al. 2007. Functional analysis of human mutations in homeodomain transcription factor Pitx3. *BMC Mol. Biol.* 8: 84.
3. Roussa, E., et al. 2008. Transforming growth factor β cooperates with persephin for dopaminergic phenotype induction. *Stem Cells* 26: 1683-1694.
4. Sorokina, E.A., et al. 2011. MIP/Aquaporin 0 represents a direct transcriptional target of PITX3 in the developing lens. *PLoS ONE* 6: e21122.

PROTOCOLS

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