

Nkx-3.2 (H-45): sc-292991

BACKGROUND

The homeobox gene Nkx-3.2, also designated Bapx1, is the human homolog of *Drosophila* bagpipe, which, in conjunction with tinman, determines cell fate in the dorsal mesoderm. In mammalian species, Nkx-3.2 is a key transcription factor that regulates the development of smooth muscle tissues and skeletal structures. Specifically, Nkx-3.2 regulates spleen development and the development of the axial skeleton. It is also considered as an early marker for prechondrogenic cells. The human Nkx-3.2 gene maps to chromosome 4p15.33, a region containing loci for several skeletal diseases. Nkx-3.2 null mice exhibit skeletal dysplasia, asplenia, and gastroduodenal malformation, with abnormal development of the vertebral column and cranial bones of mesodermal origin. During axial cartilage formation, Nkx-3.2 inhibits the actions of Shh, a factor that interferes with the prechondrogenic effects of the BMPs.

REFERENCES

1. Azpiazu, N., et al. 1993. tinman and bagpipe: two homeo box genes that determine cell fates in the dorsal mesoderm of *Drosophila*. *Genes Dev.* 7: 1325-1340.
2. Lettice, L.A., et al. 1999. The mouse bagpipe gene controls development of axial skeleton, skull, and spleen. *Proc. Natl. Acad. Sci. USA* 96: 9695-9700.
3. Tribioli, C., et al. 1999. The murine Bapx1 homeobox gene plays a critical role in embryonic development of the axial skeleton and spleen. *Development* 126: 5699-5711.
4. Akazawa, H., et al. 2000. Targeted disruption of the homeobox transcription factor Bapx1 results in lethal skeletal dysplasia with asplenia and gastroduodenal malformation. *Genes Cells* 5: 499-513.
5. Murtaugh, L.C., et al. 2001. The chick transcriptional repressor Nkx3.2 acts downstream of Shh to promote BMP-dependent axial chondrogenesis. *Dev. Cell* 1: 411-422.
6. Nishida, W., et al. 2002. A triad of serum response factor and the GATA and NK families governs the transcription of smooth and cardiac muscle genes. *J. Biol. Chem.* 277: 7308-7317.

CHROMOSOMAL LOCATION

Genetic locus: NKX3-2 (human) mapping to 4p15.33; Nkx3-2 (mouse) mapping to 5 B3.

SOURCE

Nkx-3.2 (H-45) is a rabbit polyclonal antibody raised against amino acids 265-309 mapping near the C-terminus of Nkx-3.2 of human origin.

PRODUCT

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

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Nkx-3.2 (H-45) is recommended for detection of Nkx-3.2 of mouse and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Nkx-3.2 (H-45) is also recommended for detection of Nkx-3.2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Nkx-3.2 siRNA (h): sc-38729, Nkx-3.2 siRNA (m): sc-38730, Nkx-3.2 shRNA Plasmid (h): sc-38729-SH, Nkx-3.2 shRNA Plasmid (m): sc-38730-SH, Nkx-3.2 shRNA (h) Lentiviral Particles: sc-38729-V and Nkx-3.2 shRNA (m) Lentiviral Particles: sc-38730-V.

Molecular Weight of Nkx-3.2: 35 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

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