SANTA CRUZ BIOTECHNOLOGY, INC.

Phox2b (H-20): sc-13224

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The Power to Question

BACKGROUND

Phox2a (also designated Arix1) and Phox2b are closely related, paired-homeodomain transcription factors that are necessary for neuronal differentiation throughout the developing sympathetic, parasympathetic and enteric ganglia. All enteric nervous system cells evolve from the neural crest and all cells that are undifferentiated initially express Phox2b. The cells that begin to differentiate along a neuronal lineage continue to express Phox2b and begin to express Phox2a. Phox2b is required for the differentiation of all central and nonperipheral noradrenergic centers in the brain. In contrast, Phox2a controls only the differentiation of the main noradrenergic center of the brain, the locus coeruleus. Both Phox2a and Phox2b are crucial for the regulation of endogenous tyrosine hydroxylase and dopamine-β hydroxylase, which are transiently expressed in neural crest cells. In addition, Phox2 proteins are sufficient to promote sympathetic neuron generation. The gene which encodes Phox2a maps to human chromosome 11q13.3-q13.4.

REFERENCES

1. Johnson, K.R., et al. 1996. Mapping of the ARIX homeodomain gene to mouse chromosome 7 and human chromosome 11q13. Genomics 33: 527-531.
2. Lo, L., et al. 1999. Specification of neurotransmitter identity by Phox2 proteins in neural crest stem cells. Neuron 22: 693-705.
3. Pattyn, A., et al. 1999. The homeobox gene Phox2b is essential for the development of autonomic neural crest derivatives. Nature 399: 366-370.
4. Young, H.M., et al. 1999. Expression of Ret-, p75(NTR)-, Phox2a-, Phox2b-, and tyrosine hydroxalase-immunoreactivity by undifferentiated neural crest-derived cells and different classes of enteric neurons in the embryonic mouse gut. Dev. Dyn. 216: 137-152.

CHROMOSOMAL LOCATION

Genetic locus: PHOX2B (human) mapping to 4p13; Phox2b (mouse) mapping to 5 C3.1.

SOURCE

Phox2b (H-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Phox2b 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-13224 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-13224 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

Phox2b (H-20) is recommended for detection of Phox2b 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).

Phox2b (H-20) is also recommended for detection of Phox2b in additional species, including equine, canine, bovine and avian.

Suitable for use as control antibody for Phox2b siRNA (h): sc-38764, Phox2b siRNA (m): sc-38765, Phox2b shRNA Plasmid (h): sc-38764-SH, Phox2b shRNA Plasmid (m): sc-38765-SH, Phox2b shRNA (h) Lentiviral Particles: sc-38764-V and Phox2b shRNA (m) Lentiviral Particles: sc-38765-V.

Phox2b (H-20) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of Phox2b: 32 kDa.

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. Trochet, D., et al. 2009. *In vitro* studies of non poly alanine Phox2b mutations argue against a loss-of-function mechanism for congenital central hypoventilation. Hum. Mutat. 30: E421-E431.
2. Bourdeaut, F., et al. 2009. Cholinergic switch associated with morphological differentiation in neuroblastoma. J. Pathol. 219: 463-472.
3. Reiff, T., et al. 2010. Neuroblastoma Phox2b variants stimulate proliferation and dedifferentiation of immature sympathetic neurons. J. Neurosci. 30: 905-915.

RESEARCH USE

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