SANTA CRUZ BIOTECHNOLOGY, INC.

Phox2b (C-3): sc-376993

SANTA CRUZ BIOTECHNOLOGY

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.

CHROMOSOMAL LOCATION

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

SOURCE

Phox2b (C-3) is a mouse monoclonal antibody raised against amino acids 11-70 mapping near the N-terminus of Phox2b of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain 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-376993 X, 200 µg/0.1 ml.

STORAGE

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

APPLICATIONS

Phox2b (C-3) is recommended for detection of Phox2b of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Phox2b (C-3) is also recommended for detection of Phox2b in additional species, including equine, canine and bovine.

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 (C-3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

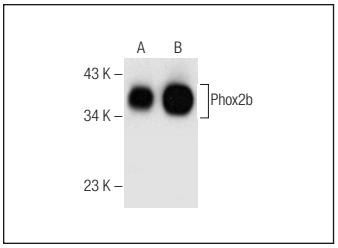
Molecular Weight of Phox2b: 32 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410 or IMR-32 cell lysate: sc-2409.

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Phox2b (C-3): sc-376993. Western blot analysis of Phox2b expression in SK-N-SH (**A**) and IMR-32 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Fu, C., et al. 2017. Chemosensitive Phox2b-expressing neurons are crucial for hypercapnic ventilatory response in the nucleus tractus solitarius. J. Physiol. 595: 4973-4989.
2. Fu, C., et al. 2019. Activation of Phox2b-expressing neurons in the nucleus tractus solitarii drives breathing in mice. J. Neurosci. 39: 2837-2846.
3. Wei, Z., et al. 2020. Disordered Leptin signaling in the retrotrapezoid nucleus is associated with the impaired hypercapnic ventilatory response in obesity. Life Sci. 257: 117994.
4. Shi, H., et al. 2020. ARID1A loss in neuroblastoma promotes the adrenergic-to-mesenchymal transition by regulating enhancer-mediated gene expression. Sci. Adv. 6: eaaz3440.
5. Tian, Y., et al. 2021. Contribution of retrotrapezoid nucleus neurons to CO_2-amplified cardiorespiratory activity in spontaneously hypertensive rats. J. Physiol. 599: 1115-1130.
6. Casciato, A., et al. 2023. Serotonin and the ventilatory effects of etonogestrel, a gonane progestin, in a murine model of congenital central hypoventilation syndrome. Front. Endocrinol. 14: 1077798.

RESEARCH USE

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

PROTOCOLS

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