

# Phox2a (G-17): sc-13229

## 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 ceruleus. Both Phox2a and Phox2b are crucial for the regulation of endogenous tyrosine hydroxylase and dopamine-beta 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: 396-705.
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 hydroxylase-immunoreactivity by undifferentiated neural crest-derived cells and different classes of enteric neurons in the embryonic mouse gut. *Dev. Dyn.* 216: 137-152.
5. Stanke, M., et al. 1999. The Phox2 homeodomain proteins are sufficient to promote the development of sympathetic neurons. *Development* 126: 4087-4094.
6. Pattyn, A., et al. 2000. Specification of the central noradrenergic phenotype by the homeobox gene, Phox2b. *Mol. Cell. Neurosci.* 15: 235-243.

## SOURCE

Phox2a (G-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Phox2a 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.

Blocking peptide available for competition studies, sc-13229 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-13229 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

Phox2a (G-17) is recommended for detection of Phox2a 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).

Suitable for use as control antibody for Phox2a siRNA (h): sc-38762 and Phox2a siRNA (m): sc-38763.

Phox2a (G-17) 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.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.