

NPAS4 (N-12): sc-168790

BACKGROUND

The Per-Arnt-Sim (PAS) domain is a 270 amino acid motif that mediates associations among various PAS family transcription factors. The PAS family contains neuronal specific transcription factors known as NPAS1, NPAS2, NPAS3 and NPAS4, which are involved in the development and maintenance of learning and memory pathways. NPAS1 regulates erythropoietin expression in developing brain. NPAS2, also designated PAS 4/MOP-4, associates with MOP-3 to activate transcription. NPAS3, which localizes to the nucleus and is ubiquitously expressed in the adult brain, may be involved in neurogenesis and has been implied to control regulatory pathways relevant to psychotic illness and schizophrenia. NPAS4 (neuronal PAS domain protein 4), also known as NXF, Le-PAS, PASD10 or bHLHe79, is a 802 amino acid nuclear protein that is exclusively expressed in the brain. NPAS4 acts as a transcriptional activator in the presence of Arnt 1, and activates the CME (CNS midline enhancer) element and expression of the Drebrin gene.

REFERENCES

- Ooe, N., et al. 2004. Identification of a novel basic helix-loop-helix-PAS factor, NXF, reveals a SIM2 competitive, positive regulatory role in dendritic-cytoskeleton modulator Drebrin gene expression. *Mol. Cell. Biol.* 24: 608-616.
- Shamloo, M., et al. 2006. NPAS4, a novel helix-loop-helix PAS domain protein, is regulated in response to cerebral ischemia. *Eur. J. Neurosci.* 24: 2705-2720.
- Ooe, N., et al. 2007. Characterization of *Drosophila* and *Caenorhabditis elegans* NXF-like-factors, putative homologs of mammalian NXF. *Gene* 400: 122-130.
- Coba, M.P., et al. 2008. Kinase networks integrate profiles of N-methyl-D-aspartate receptor-mediated gene expression in hippocampus. *J. Biol. Chem.* 283: 34101-34107.
- Ibi, D., et al. 2008. Social isolation rearing-induced impairment of the hippocampal neurogenesis is associated with deficits in spatial memory and emotion-related behaviors in juvenile mice. *J. Neurochem.* 105: 921-932.
- Lin, Y., et al. 2008. Activity-dependent regulation of inhibitory synapse development by Npas4. *Nature* 455: 1198-1204.
- Ooe, N., et al. 2009. Characterization of functional heterodimer partners in brain for a bHLH-PAS factor NXF. *Biochim. Biophys. Acta* 1789: 192-197.
- Ooe, N., et al. 2009. Functional characterization of basic helix-loop-helix-PAS type transcription factor NXF in vivo: putative involvement in an "on demand" neuroprotection system. *J. Biol. Chem.* 284: 1057-1063.
- Zhang, S.J., et al. 2009. Nuclear calcium signaling controls expression of a large gene pool: identification of a gene program for acquired neuroprotection induced by synaptic activity. *PLoS Genet.* 5: e1000604.

CHROMOSOMAL LOCATION

Genetic locus: NPAS4 (human) mapping to 11q13.2; Npas4 (mouse) mapping to 19 A.

SOURCE

NPAS4 (N-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of NPAS4 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-168790 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NPAS4 (N-12) is recommended for detection of NPAS4 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); non cross-reactive with other NPAS family members.

NPAS4 (N-12) is also recommended for detection of NPAS4 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for NPAS4 siRNA (h): sc-96790, NPAS4 siRNA (m): sc-150046, NPAS4 shRNA Plasmid (h): sc-96790-SH, NPAS4 shRNA Plasmid (m): sc-150046-SH, NPAS4 shRNA (h) Lentiviral Particles: sc-96790-V and NPAS4 shRNA (m) Lentiviral Particles: sc-150046-V.

Molecular Weight of NPAS4: 100 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.

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.

PROTOCOLS

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