

BNPI (F-15): sc-23168

BACKGROUND

The BNPI (brain specific Na⁺-dependent inorganic phosphate(Pi) cotransporter) gene, also designated VGLUT1 (vesicular glutamate transporter), is located on chromosome 19q13.33 and encodes a 560 amino acid protein with 6-8 transmembrane-spanning domains. BNPI is expressed predominantly in neurons of the cerebral cortex, hippocampus, and cerebellum, and is more highly expressed in adult brain compared to fetal brain. BNPI localizes almost exclusively to nerve terminals forming asymmetric excitatory-type synapses and associates preferentially with the membranes of small synaptic vesicles. In the plasma membrane, BNPI imports phosphate ions, which are required for glutamatergic neurotransmission. Expression of BNPI results in glutamate uptake by intracellular vesicles, which defines a glutamatergic phenotype in neurons.

REFERENCES

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2. Ni, B., Du, Y., Wu, X., DeHoff, B.S., Rosteck, P.R. and Paul, S.M. 1996. Molecular cloning, expression, and chromosomal localization of a human brain-specific Na⁺-dependent inorganic phosphate cotransporter. *J. Neurochem.* 66: 227-238.
3. Bellocchio, E.E., Hu, H., Pohorille, A., Chan, J., Pickel, V.M. and Edwards, R.H. 1998. The localization of the brain-specific inorganic phosphate transporter suggests a specific presynaptic role in glutamatergic transmission. *J. Neurosci.* 18: 8648-8659.
4. Lee, R.Y., Sawin, E.R., Chalfie, M., Horvitz, H.R. and Avery, L. 1999. EAT-4, a homolog of a mammalian sodium dependent inorganic phosphate cotransporter, is necessary for glutamatergic neurotransmission in *Caenorhabditis elegans*. *J. Neurosci.* 19:159-167.
5. Bellocchio, E.E., Reimer, R.J., Freemeau, R.T. and Edwards, R.H. 2000. Uptake of glutamate into synaptic vesicles by an inorganic phosphate transporter. *Science* 289: 957-960.
6. Takamori, S., Rhee, J.S., Rosenmund, C., Jahn, R. 2000. Identification of a vesicular glutamate transporter that defines a glutamatergic phenotype in neurons. *Nature* 407: 189-194.

CHROMOSOMAL LOCATION

Genetic locus: SLC17A7 (human) mapping to 19q13.33; Slc17a7 (mouse) mapping to 7 B4.

SOURCE

BNPI (F-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of BNPI of human origin.

STORAGE

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

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-23168 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

BNPI (F-15) is recommended for detection of BNPI 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).

BNPI (F-15) is also recommended for detection of BNPI in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for BNPI siRNA (h): sc-29816, BNPI siRNA (m): sc-29817, BNPI shRNA Plasmid (h): sc-29816-SH, BNPI shRNA Plasmid (m): sc-29817-SH, BNPI shRNA (h) Lentiviral Particles: sc-29816-V and BNPI shRNA (m) Lentiviral Particles: sc-29817-V.

Molecular Weight of BNPI: 55 kDa.

Positive Controls: rat cerebellum extract: sc-2398.

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 or our catalog for detailed protocols and support products.

MONOS
Satisfaction
Guaranteed

Try **BNPI (A-8): sc-377425**, our highly recommended monoclonal alternative to BNPI (F-15).