SANTA CRUZ BIOTECHNOLOGY, INC.

BNPI (A-8): sc-377425

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, BNP1 imports phospate ions, which are required for glutmatergic neurotransmission. Expression of BNPI results in glutamate uptake by intracellular vesicles, which defines a glutamatergic phenotype in neurons.

CHROMOSOMAL LOCATION

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

SOURCE

BNPI (A-8) is a mouse monoclonal antibody raised against amino acids 1-55 mapping at the N-terminus of BNPI of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

BNPI (A-8) is available conjugated to agarose (sc-377425 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377425 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377425 PE), fluorescein (sc-377425 FITC), Alexa Fluor® 488 (sc-377425 AF488), Alexa Fluor® 546 (sc-377425 AF546), Alexa Fluor® 594 (sc-377425 AF594) or Alexa Fluor® 647 (sc-377425 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377425 AF680) or Alexa Fluor® 790 (sc-377425 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

BNPI (A-8) is recommended for detection of BNPI 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), immunohistochemistry (including paraffin-embedded sections) (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 (A-8) is also recommended for detection of BNPI in additional species, including bovine.

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.

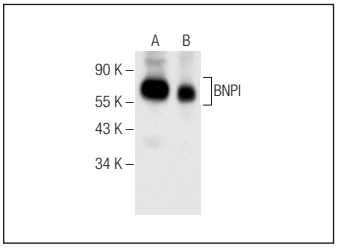
Molecular Weight of BNPI: 55 kDa.

Positive Controls: rat cerebellum extract: sc-2398 or human brain extract: sc-364375.

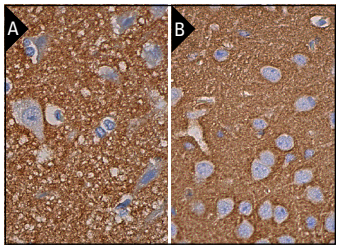
STORAGE

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

DATA



BNPI (A-8): sc-377425. Western blot analysis of BNPI expression in rat cerebellum (**A**) and human brain (**B**) tissue extracts.



BNPI (A-8): sc-377425. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex (**A**) and mouse brain (**B**) tissue showing neuropil staining.

SELECT PRODUCT CITATIONS

1. Leshchyns'ka, I., et al. 2015. Aβ-dependent reduction of NCAM2-mediated synaptic adhesion contributes to synapse loss in Alzheimer's disease. Nat. Commun. 6: 8836.
2. Di Liberto, G., et al. 2018. Neurons under T cell attack coordinate phagocyte-mediated synaptic stripping. Cell 175: 458-471.e19.
3. Vanoye-Carlo, A. and Gómez-Lira, G. 2019. Differential expression of SV2A in hippocampal glutamatergic and GABAergic terminals during postnatal development. Brain Res. 1715: 73-83.
4. Mohebiany, A.N., et al. 2020. Microglial A20 protects the brain from CD8 T-cell-mediated immunopathology. Cell Rep. 30: 1585-1597.e6.
5. Contreras-García, I.J., et al. 2021. Synaptic vesicle protein 2A expression in glutamatergic terminals is associated with the response to levetiracetam treatment. Brain Sci. 11: 531.
6. Branscome, H., et al. 2022. Retroviral infection of human neurospheres and use of stem cell EVs to repair cellular damage. Sci. Rep. 12: 2019.
7. Wu, M.Y., et al. 2022. Cranial irradiation impairs intrinsic excitability and synaptic plasticity of hippocampal CA1 pyramidal neurons with implications for cognitive function. Neural Regen. Res. 17: 2253-2259.
8. Scalise, S., et al. 2022. Human iPSC modeling of genetic febrile seizure reveals aberrant molecular and physiological features underlying an impaired neuronal activity. Biomedicines 10: 1075.
9. Liu, Y., et al. 2022. KIF17 modulates epileptic seizures and membrane expression of the NMDA receptor subunit NR2B. Neurosci. Bull. 38: 841-856.
10. Park, J.C., et al. 2023. Fine-tuning GPCR-mediated neuromodulation by biasing signaling through different G protein subunits. Mol. Cell 83: 2540-2558.e12.

RESEARCH USE

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