

BPNT1 (31): sc-136496

BACKGROUND

BPNT1 (3'(2'), 5'-bisphosphate nucleotidase 1), also known as BPntase, PAP phosphatase or PIP (PAP-inositol-1,4-phosphatase), is a member of the magnesium-dependent, lithium-sensitive phosphomonoesterase superfamily. Using magnesium as a cofactor, BPNT1 catalyzes the conversion of PAPS (adenosine 3'-phosphate 5' phosphosulfate) to APS (adenosine 5'-phosphosulfate) and the conversion of PAP (3'(2')-phosphoadenosine 5' phosphate) to AMP (adenosine 5'-phosphate). Expressed ubiquitously with highest levels in brain and kidney, BPNT1 is potently inhibited by lithium, a drug used for the treatment of manic depression and bipolar affective disorder, suggesting a possible role for BPNT1 in the etiology of mood disorders. Inhibition of BPNT1 leads to an accumulation of PAP and subsequent inhibition of sulfotransferases which may result in changes in gene expression, changes in phosphatidylinositol second messenger function and/or changes in sulfation processes.

REFERENCES

- Alexander, J.R., et al. 1995. Frequency of positive family history in bipolar patients in a catchment-area population. *Prog. Neuropsychopharmacol. Biol. Psychiatry* 19: 367-373.
- Spiegelberg, B.D., et al. 1999. Cloning and characterization of a mammalian lithium-sensitive bisphosphate 3'-nucleotidase inhibited by inositol 1,4-bisphosphate. *J. Biol. Chem.* 274: 13619-13628.
- Shaltiel, G., et al. 2002. 3'(2')-phosphoadenosine 5'-phosphate phosphatase is reduced in postmortem frontal cortex of bipolar patients. *Bipolar Disord.* 4: 302-306.
- Agam, G., et al. 2003. Lithium inhibitable enzymes in postmortem brain of bipolar patients. *J. Psychiatr. Res.* 37: 433-442.
- Agam, G., et al. 2003. Possible role of 3'(2')-phosphoadenosine-5'-phosphate phosphatase in the etiology and therapy of bipolar disorder. *Prog. Neuropsychopharmacol. Biol. Psychiatry* 27: 723-727.
- Gould, T.D., et al. 2004. Emerging experimental therapeutics for bipolar disorder: insights from the molecular and cellular actions of current mood stabilizers. *Mol. Psychiatry* 9: 734-755.

CHROMOSOMAL LOCATION

Genetic locus: BPNT1 (human) mapping to 1q41; Bpnt1 (mouse) mapping to 1 H5.

SOURCE

BPNT1 (31) is a mouse monoclonal antibody raised against amino acids 11-123 of BPNT1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

BPNT1 (31) is recommended for detection of BPNT1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

BPNT1 (31) is also recommended for detection of BPNT1 in additional species, including canine.

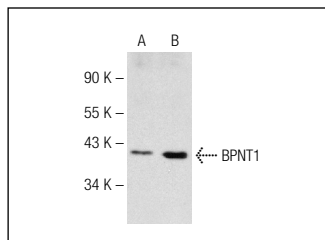
Suitable for use as control antibody for BPNT1 siRNA (h): sc-88049, BPNT1 siRNA (m): sc-105125, BPNT1 shRNA Plasmid (h): sc-88049-SH, BPNT1 shRNA Plasmid (m): sc-105125-SH, BPNT1 shRNA (h) Lentiviral Particles: sc-88049-V and BPNT1 shRNA (m) Lentiviral Particles: sc-105125-V.

Molecular Weight (predicted) of BPNT1 isoforms: 33/36 kDa.

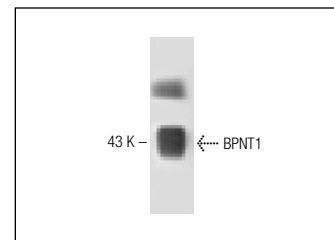
Molecular Weight (observed) of BPNT1: 37/43 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, mouse liver extract: sc-2256 or KNRK whole cell lysate: sc-2214.

DATA



BPNT1 (31): sc-136496. Western blot analysis of BPNT1 expression in Caki-1 (A) and KNRK (B) whole cell lysates.



BPNT1 (31): sc-136496. Western blot analysis of BPNT1 expression in rat liver tissue extract.

STORAGE

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

PROTOCOLS

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