SANTA CRUZ BIOTECHNOLOGY, INC.

BPNT1 siRNA (m): sc-105125

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

1. 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.
2. 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.
3. 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.
4. Agam, G. and Shaltiel, G. 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.
5. 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.
6. Maayan, R., et al. 2004. Chronic lithium treatment affects rat brain and serum dehydroepiandrosterone (DHEA) and DHEA-sulphate (DHEA-S) levels. Int. J. Neuropsychopharmacol. 7: 71-75.

CHROMOSOMAL LOCATION

Genetic locus: Bpnt1 (mouse) mapping to 1 H5.

PRODUCT

BPNT1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BPNT1 shRNA Plasmid (m): sc-105125-SH and BPNT1 shRNA (m) Lentiviral Particles: sc-105125-V as alternate gene silencing products.

For independent verification of BPNT1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-105125A, sc-105125B and sc-105125C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BPNT1 siRNA (m) is recommended for the inhibition of BPNT1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

BPNT1 (C-12): sc-393185 is recommended as a control antibody for monitoring of BPNT1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BPNT1 gene expression knockdown using RT-PCR Primer: BPNT1 (m)-PR: sc-105125-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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