SANTA CRUZ BIOTECHNOLOGY, INC.

IMPA1 siRNA (m): sc-61116

BACKGROUND

IMPA1, also known as Myo-inositol monophosphatase 1, is responsible for the procurement of inositol that is required for synthesis of phosphatidylinositol and polyphosphoinositides. IMPA1 exists as a homodimer and has been identified as the pharmacological target for lithium action in the brain. IMPA1 is the principal enzyme of the phosphatidyl inositol signaling pathway, and inhibition of inositol monophosphatase hydrolysis may underlie the antimanic and anti-depressant actions of Li^+. Studies indicate that a variation in the 277 codon coding region of the IMPA1 gene has not been observed in manic-depressive patients, therefore suggesting that polymorphisms or mutations in the noncoding regions of this gene may influence the lithium response in psychiatric patients.

REFERENCES

1. McAllister, G., et al. 1992. cDNA cloning of human and rat brain Myo-inositol monophosphatase. Expression and characterization of the human recombinant enzyme. Biochem. J. 284: 749-754.
2. Klein, P.S. and Melton, D.A. 1996. A molecular mechanism for the effect of lithium on development. Proc. Natl. Acad. Sci. USA 93: 8455-8459.
3. Steen, V.M., et al. 1996. Lack of genetic variation in the coding region of the Myo-inositol monophosphatase gene in lithium-treated patients with manic depressive illness. Pharmacogenetics 6: 113-116.
4. Sjoholt, G., et al. 1997. Genomic structure and chromosomal localization of a human Myo-inositol monophosphatase gene (IMPA). Genomics 45: 113-122.
5. Sconzo, G., et al. 1999. Effect of the IMPase inhibitor L690,330 on sea urchin development. Cell Biol. Int. 22: 91-94.
6. Stieglitz, K.A., et al. 2002. Crystal structure of a dual activity IMPase/FBPase (AF2372) from *Archaeoglobus fulgidus*. The story of a mobile loop. J. Biol. Chem. 277: 22863-22874.
7. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 602064. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: Impa1 (mouse) mapping to 3 A1.

PRODUCT

IMPA1 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 IMPA1 shRNA Plasmid (m): sc-61116-SH and IMPA1 shRNA (m) Lentiviral Particles: sc-61116-V as alternate gene silencing products.

For independent verification of IMPA1 (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-61116A, sc-61116B and sc-61116C.

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

IMPA1 siRNA (m) is recommended for the inhibition of IMPA1 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

IMPA1 (H-7): sc-374234 is recommended as a control antibody for monitoring of IMPA1 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 IMPA1 gene expression knockdown using RT-PCR Primer: IMPA1 (m)-PR: sc-61116-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.