

IMPA1 (A-2): sc-373733

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 anti-manic 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

- 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.
- Klein, P.S., et al. 1996. A molecular mechanism for the effect of lithium on development. *Proc. Natl. Acad. Sci. USA* 93: 8455-8459.
- 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.
- Sjoholt, G., et al. 1997. Genomic structure and chromosomal localization of a human Myo-inositol monophosphatase gene (IMPA). *Genomics* 45: 113-122.
- Sconzo, G., et al. 1999. Effect of the IMPase inhibitor L690,330 on sea urchin development. *Cell Biol. Int.* 22: 91-94.
- 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.
- 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/>
- Parthasarathy, L.K., et al. 2003. Regional changes in rat brain inositol monophosphatase 1 (IMPase 1) activity with chronic lithium treatment. *Prog. Neuropsychopharmacol. Biol. Psychiatry* 27: 55-60.
- Morgan, A.J., et al. 2004. Chemistry and biology of deoxy-Myo-inositol phosphates: stereospecificity of substrate interactions within an archaeal and a bacterial IMPase. *J. Am. Chem. Soc.* 126: 15370-15371.

CHROMOSOMAL LOCATION

Genetic locus: IMPA1 (human) mapping to 8q21.13.

SOURCE

IMPA1 (A-2) is a mouse monoclonal antibody raised against amino acids 1-85 mapping at the N-terminus of IMPA1 of human origin.

PRODUCT

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

APPLICATIONS

IMPA1 (A-2) is recommended for detection of Myo-inositol monophosphatase 1 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IMPA1 siRNA (h): sc-61115, IMPA1 shRNA Plasmid (h): sc-61115-SH and IMPA1 shRNA (h) Lentiviral Particles: sc-61115-V.

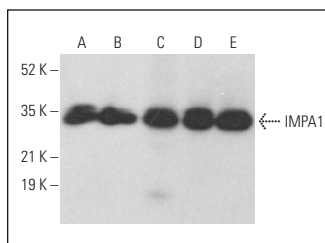
Molecular Weight of IMPA1: 29 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SUP-T1 whole cell lysate: sc-364796 or Hep G2 cell lysate: sc-2227.

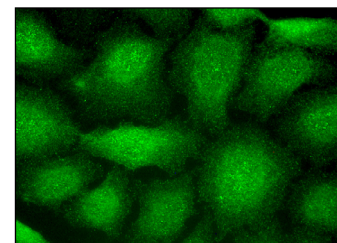
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



IMPA1 (A-2): sc-373733. Western blot analysis of IMPA1 expression in HeLa (A), Jurkat (B), HL-60 (C), Hep G2 (D) and SUP-T1 (E) whole cell lysates.



IMPA1 (A-2): sc-373733. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

STORAGE

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

RESEARCH USE

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