

# IMPA1 (T-18): sc-50599

## 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<sup>+</sup>. 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., Whiting, P., Hammond, E.A., Knowles, M.R., Atack, J.R., Bailey, F.J., Maigetter, R. and Ragan, C.I. 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. and Melton, D.A. 1996. A molecular mechanism for the effect of lithium on development. *Proc. Natl. Acad. Sci. USA* 93: 8455-8459.
- Steen, V.M., Gulbrandsen, A.K., Eiken, H.G. and Berle, J.O. 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., Molven, A., Lovlie, R., Wilcox, A., Sikela, J.M. and Steen, V.M. 1997. Genomic structure and chromosomal localization of a human Myo-inositol monophosphatase gene (IMPA). *Genomics* 45: 113-122.
- Sconzo, G., Cascino, D., Amore, G., Geraci, F. and Giudice, G. 1999. Effect of the IMPase inhibitor L690,330 on sea urchin development. *Cell Biol. Int.* 22: 91-94.
- Stieglitz, K.A., Johnson, K.A., Yang, H., Roberts, M.F., Seaton, B.A., Head, J.F. and Stec, B. 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., Seelan, R.S., Wilson, M.A., Vadnal, R.E. and Parthasarathy, R.N. 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., Wang, Y.K., Roberts, M.F. and Miller, S.J. 2004. Chemistry and biology of deoxy-myoinositol 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; Impa1 (mouse) mapping to 3 A1.

## SOURCE

IMPA1 (T-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of IMPA1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-50599 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

IMPA1 (T-18) is recommended for detection of IMPA1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

IMPA1 (T-18) is also recommended for detection of IMPA1 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for IMPA1 siRNA (h): sc-61115, IMPA1 siRNA (m): sc-61116, IMPA1 shRNA Plasmid (h): sc-61115-SH, IMPA1 shRNA Plasmid (m): sc-61116-SH, IMPA1 shRNA (h) Lentiviral Particles: sc-61115-V and IMPA1 shRNA (m) Lentiviral Particles: sc-61116-V.

Molecular Weight of IMPA1: 29 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.