

IMPDH (D-3): sc-365171

BACKGROUND

A member of the GMPR family, inosine-5'-monophosphate dehydrogenase 1 (IMPDH1) functions in the regulation of cell growth by catalyzing the rate-limiting step in the *de novo* synthesis of guanine nucleotides. IMPDH1 is an ubiquitously expressed homotetramer that plays an important role in cyclic nucleoside metabolism within photoreceptors. Expression of IMPDH1 is the main type found in normal leukocytes, while IMPDH2 predominates in tumors. Mutations in IMPDH1 are associated with the autosomal dominant retinitis pigmentosa type 10 (RP10), as well as the development of malignant tumors. Analysis of mutant IMPDH1 suggests that protein misfolding and aggregation leads to the severe phenotype rather than reduced IMPDH1 activity. Therefore, IMPDH1 may be a potential therapeutic target based upon a strategy combining simultaneous suppression of IMPDH1 transcripts with supplementation of GTP within retinal tissues.

REFERENCES

- Gorskii, B.V., et al. 1977. Effect of immune lymphocytes on the postvaccinal cytoserological reaction in foot-and-mouth disease. *Veterinariia* 5: 43-44.
- Bowne, S.J., et al. 2002. Mutations in the inosine monophosphate dehydrogenase 1 gene (IMPDH1) cause the RP10 form of autosomal dominant retinitis pigmentosa. *Hum. Mol. Genet.* 11: 559-568.
- Pankiewicz, K.W., et al. 2004. Cofactor mimics as selective inhibitors of NAD-dependent inosine monophosphate dehydrogenase (IMPDH)—the major therapeutic target. *Curr. Med. Chem.* 11: 887-900.
- Wright, D.G., et al. 2004. Effects of the IMP-dehydrogenase inhibitor, tiazofurin, in Bcr-Abl positive acute myelogenous leukemia. Part II. *In vitro* studies. *Leuk. Res.* 28: 1137-1143.
- Aherne, A., et al. 2004. On the molecular pathology of neurodegeneration in IMPDH1-based retinitis pigmentosa. *Hum. Mol. Genet.* 13: 641-650.
- SWISS-PROT/TrEMBL (P20839). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

CHROMOSOMAL LOCATION

Genetic locus: IMPDH1 (human) mapping to 7q32.1, IMPDH2 (human) mapping to 3p21.31; *Impdh1* (mouse) mapping to 6 A3.3, *Impdh2* (mouse) mapping to 9 F2.

SOURCE

IMPDH (D-3) is a mouse monoclonal antibody raised against amino acids 215-514 mapping at the C-terminus of IMPDH1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-365171 X, 200 µg/0.1 ml.

STORAGE

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

APPLICATIONS

IMPDH (D-3) is recommended for detection of IMPDH1 and IMPDH2 of mouse, rat and 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 IMPDH siRNA (h): sc-45679, IMPDH siRNA (m): sc-45680, IMPDH shRNA Plasmid (h): sc-45679-SH, IMPDH shRNA Plasmid (m): sc-45680-SH, IMPDH shRNA (h) Lentiviral Particles: sc-45679-V and IMPDH shRNA (m) Lentiviral Particles: sc-45680-V.

IMPDH (D-3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

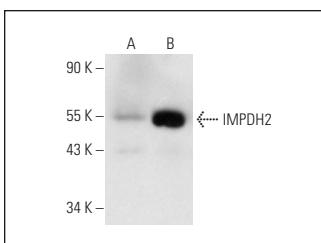
Molecular Weight of IMPDH: 55 kDa.

Positive Controls: IMPDH2 (m2): 293T Lysate: sc-110295.

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



IMPDH (D-3): sc-365171. Western blot analysis of IMPDH2 expression in non-transfected: sc-117752 (A) and mouse IMPDH2 transfected: sc-110295 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Morimune, T., et al. 2021. Gm14230 controls Tbc1d24 cytophidia and neuronal cellular juvenescence. *PLoS ONE* 16: e0248517.

RESEARCH USE

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