SANTA CRUZ BIOTECHNOLOGY, INC.

IMPDH (F-6): sc-166551

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

1. Gorskii, B.V., et al. 1977. Effect of immune lymphocytes on the postvaccinal cytoserological reaction in foot-and-mouth disease. Veterinariia 5: 43-44.
2. 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.
3. Aherne, A., et al. 2004. On the molecular pathology of neurodegeneration in IMPDH1-based retinitis pigmentosa. Hum. Mol. Genet. 13: 641-650.

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 (F-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 380-410 near the C-terminus of IMPDH of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IMPDH (F-6) is available conjugated to agarose (sc-166551 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166551 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166551 PE), fluorescein (sc-166551 FITC), Alexa Fluor® 488 (sc-166551 AF488), Alexa Fluor® 546 (sc-166551 AF546), Alexa Fluor® 594 (sc-166551 AF594) or Alexa Fluor® 647 (sc-166551 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166551 AF680) or Alexa Fluor® 790 (sc-166551 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166551 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

IMPDH (F-6) 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).

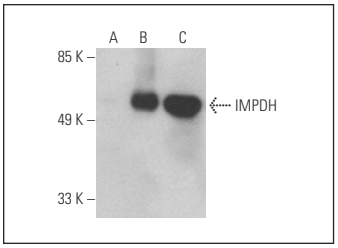
IMPDH (F-6) is also recommended for detection of IMPDH1 and IMPDH2 in additional species, including canine, bovine and porcine.

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.

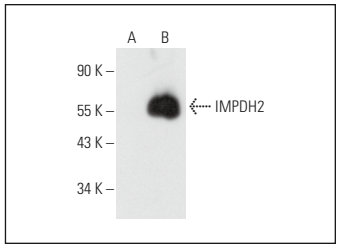
Molecular Weight of IMPDH: 55 kDa.

Positive Controls: IMPDH2 (m): 293T Lysate: sc-121059 or IMPDH2 (h): 293T Lysate: sc-113577.

DATA



IMPDH (F-6) HRP: sc-166551 HRP. Direct western blot analysis of IMPDH expression in non-transfected: sc-117752 (**A**), mouse IMPDH2 transfected: sc-121059 (**B**) and human IMPDH2 transfected: sc-113577 (**C**) 293T whole cell lysates.



IMPDH (F-6): sc-166551. Western blot analysis of IMPDH2 expression in non-transfected: sc-117752 (**A**) and human IMPDH2 transfected: sc-113577 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Wigglesworth, K., et al. 2013. Bidirectional communication between oocytes and ovarian follicular somatic cells is required for meiotic arrest of mammalian oocytes. Proc. Natl. Acad. Sci. USA 110: E3723-E3729.
2. Kliza, K.W., et al. 2021. Reading ADP-ribosylation signaling using chemical biology and interaction proteomics. Mol. Cell 81: 4552-4567.e8.
3. Zhang, P., et al. 2022. Dietary intake of fructose increases purine *de novo* synthesis: a crucial mechanism for hyperuricemia. Front. Nutr. 9: 1045805.
4. Kieliszek, A.M., et al. 2024. De novo GTP synthesis is a metabolic vulnerability for the interception of brain metastases. Cell Rep. Med. 5: 101755.

STORAGE

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

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