SANTA CRUZ BIOTECHNOLOGY, INC.

PRPS1L1 (5E10): sc-517154

BACKGROUND

PRPS (phosphoribosyl pyrophosphate synthetase) proteins catalyze the synthesis of phosphoribosyl pyrophosphate (PRPP). Three human PRPS isoforms exist and are encoded by three different genes. PRPS1 and PRPS2 (also known as PRS1 and PRS2, respectively) are ubiquitously expressed, while PRPS3 (also known as PRPS1L1) is specific to the testis. PRPP is an important substrate synthesized from MgATP and ribose-5-phosphate in a reaction that requires inorganic phosphate and magnesium as a cofactor. PRPP is essential in the synthesis of nearly all nucleotides, implying that PRPS1/2 play an important role in nucleotide biosynthesis and purine metabolism. A mutation in the gene encoding PRPS1 may result in PRPS superactivity, a disease characterized by gout and the overproduction of purine nucleotides, uric acid and PRPP. PRPS1 mutations can also lead to a reduction in PRPS1 activity resulting in ARTS syndrome or CMTX5 (charcot-marie-tooth disease X-linked recessive type 5).

REFERENCES

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2. Ishizuka, T., et al. 1992. Promoter regions of the human X-linked housekeeping genes PRPS1 and PRPS2 encoding phosphoribosylpyrophosphate synthetase subunit I and II isoforms. Biochim. Biophys. Acta 1130: 139-148.
3. Fujimori, S. 1996. PRPP synthetase superactivity. Nippon Rinsho 54: 3309-3314.
4. Ahmed, M., et al. 1999. Accelerated transcription of PRPS1 in X-linked overactivity of normal human phosphoribosylpyrophosphate synthetase. J. Biol. Chem. 274: 7482-7488.
5. García-Pavía, P., et al. 2003. Phosphoribosylpyrophosphate synthetase overactivity as a cause of uric acid overproduction in a young woman. Arthritis Rheum. 48: 2036-2041.
6. Tang, W., et al. 2006. Expression, purification, crystallization and preliminary X-ray diffraction analysis of human phosphoribosyl pyrophosphate synthetase 1 (PRS1). Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun. 62: 432-434.
7. de Brouwer, A.P., et al. 2007. Arts syndrome is caused by loss-of-function mutations in PRPS1. Am. J. Hum. Genet. 81: 507-518.
8. Kim, H.J., et al. 2007. Mutations in PRPS, which encodes the phosphoribosyl pyrophosphate synthetase enzyme critical for nucleotide biosynthesis, cause hereditary peripheral neuropathy with hearing loss and optic neuropathy (cmtx5). Am. J. Hum. Genet. 81: 552-558.
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CHROMOSOMAL LOCATION

Genetic locus: PRPS1L1 (human) mapping to 7p21.1; Prps1l1 (mouse) mapping to 12 A3.

RESEARCH USE

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

SOURCE

PRPS1L1 (5E10) is a mouse monoclonal antibody raised against amino acids 146-243 representing partial length PRPS1L1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PRPS1L1 (5E10) is recommended for detection of PRPS1L1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

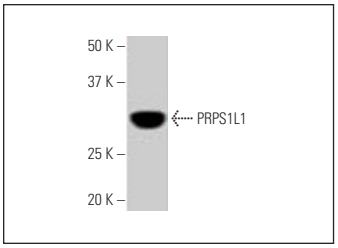
Suitable for use as control antibody for PRPS1L1 siRNA (h): sc-106453, PRPS1L1 siRNA (m): sc-152501, PRPS1L1 shRNA Plasmid (h): sc-106453-SH, PRPS1L1 shRNA Plasmid (m): sc-152501-SH, PRPS1L1 shRNA (h) Lentiviral Particles: sc-106453-V and PRPS1L1 shRNA (m) Lentiviral Particles: sc-152501-V.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211 or PC-12 cell lysate: sc-2250.

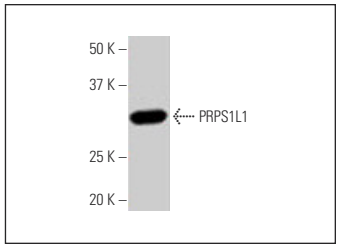
RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PRPS1L1 (5E10); sc-517154. Western blot analysis of PRPS1L1 expression in RAW 264.7 whole cell lysate.



PRPS1L1 (5E10); sc-517154. Western blot analysis of PRPS1L1 expression in PC-12 whole cell lysate.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.