SANTA CRUZ BIOTECHNOLOGY, INC.

PRPS2 (4C11): sc-134425

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 testes. 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 PRPS proteins play an important role in nucleotide biosynthesis and purine metabolism. PRPS2 is a 318 amino acid protein that exists as a homodimer and a hexamer composed of three homodimers.

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.
9. Li, S., et al. 2007. Crystal structure of human phosphoribosylpyrophosphate synthetase 1 reveals a novel allosteric site. Biochem. J. 401: 39-47.

CHROMOSOMAL LOCATION

Genetic locus: PRPS2 (human) mapping to Xp22.2; Prps2 (mouse) mapping to X F5.

SOURCE

PRPS2 (4C11) is a mouse monoclonal antibody raised against recombinant PRPS2 protein of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PRPS2 (4C11) is recommended for detection of PRPS2 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 PRPS2 siRNA (h): sc-106454, PRPS2 siRNA (m): sc-152502, PRPS2 shRNA Plasmid (h): sc-106454-SH, PRPS2 shRNA Plasmid (m): sc-152502-SH, PRPS2 shRNA (h) Lentiviral Particles: sc-106454-V and PRPS2 shRNA (m) Lentiviral Particles: sc-152502-V.

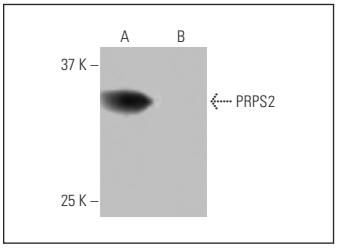
Molecular Weight of PRPS2: 34 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or human PRPS2 transfected 293T whole cell lysate.

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).

DATA



PRPS2 (4C11): sc-134425. Western blot analysis of PRPS2 expression in human PRPS2 transfected (**A**) and non-transfected (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Vijayan, K., et al. 2022. A genome-wide CRISPR-Cas9 screen identifies CENPJ as a host regulator of altered microtubule organization during *Plasmodium* liver infection. Cell Chem. Biol. 29: 1419-1433.e5.

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.