SANTA CRUZ BIOTECHNOLOGY, INC.

RPIA (D-5): sc-515328

BACKGROUND

RPIA (ribose 5-phosphate isomerase A), also known as RPI (rhosphoriboisomerase), is a 311 amino acid enzyme that catalyzes the conversion of ribose-5-phosphate to ribulose-5-phosphate in the pentose-phosphate pathway. Essential for carbohydrate metabolism, RPIA is a member of the ribose 5-phosphate isomerase family and is encoded by a gene that maps to human chromosome 2p11.2. Defects in the RPIA gene are the cause of ribose 5-phosphate isomerase deficiency (RPID), a disorder char acterized by leukoencephalopathy and peripheral neuropathy. A number of other diseases are linked to genes on chromosome 2 including Harlequin icthyosis, sitosterolemia and Alström syndrome.

REFERENCES

1. Spencer, N., et al. 1980. Biochemical genetics of the pentose phosphate cycle: human ribose 5-phosphate isomerase (RPI) and ribulose 5-phosphate 3-epimerase (RPE). Ann. Hum. Genet. 43: 335-342.
2. Bublitz, C., et al. 1988. The pentose phosphate pathway in the endoplasmic reticulum. J. Biol. Chem. 263: 12849-12853.
3. Apel, T.W., et al. 1995. The ribose 5-phosphate isomerase-encoding gene is located immediately downstream from that encoding murine immunoglobulin κ. Gene 156: 191-197.
4. Shulenin, S., et al. 2001. An ATP-binding cassette gene (ABCG5) from the ABCG (white) gene subfamily maps to human chromosome 2p21 in the region of the sitosterolemia locus. Cytogenet. Cell Genet. 92: 204-208.

CHROMOSOMAL LOCATION

Genetic locus: RPIA (human) mapping to 2p11.2; Rpia (mouse) mapping to 6 C1.

SOURCE

RPIA (D-5) is a mouse monoclonal antibody raised against amino acids 177-311 mapping at the C-terminus of RPIA 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.

RPIA (D-5) is available conjugated to agarose (sc-515328 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515328 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515328 PE), fluorescein (sc-515328 FITC), Alexa Fluor® 488 (sc-515328 AF488), Alexa Fluor® 546 (sc-515328 AF546), Alexa Fluor® 594 (sc-515328 AF594) or Alexa Fluor® 647 (sc-515328 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515328 AF680) or Alexa Fluor® 790 (sc-515328 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

RPIA (D-5) is recommended for detection of RPIA 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 RPIA siRNA (h): sc-94587, RPIA siRNA (m): sc-153103, RPIA shRNA Plasmid (h): sc-94587-SH, RPIA shRNA Plasmid (m): sc-153103-SH, RPIA shRNA (h) Lentiviral Particles: sc-94587-V and RPIA shRNA (m) Lentiviral Particles: sc-153103-V.

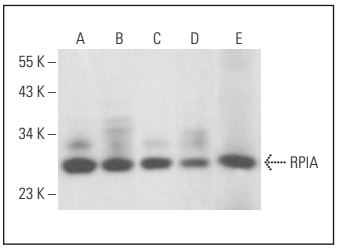
Molecular Weight of RPIA: 33 kDa.

Positive Controls: RPIA (h): 293T Lysate: sc-113186, HL-60 whole cell lysate: sc-2209 or human spleen extract: sc-363779.

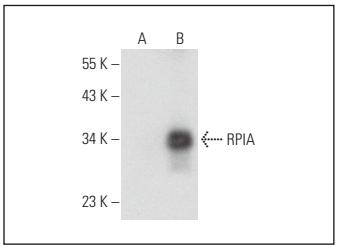
RECOMMENDED SUPPORT REAGENTS

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



RPIA (D-5): sc-515328. Western blot analysis of RPIA expression in Daudi (**A**), U-698-M (**B**), HL-60 (**C**) and COLO 205 (**D**) whole cell lysates and human spleen tissue extract (**E**).



RPIA (D-5): sc-515328. Western blot analysis of RPIA expression in non-transfected: sc-117752 (**A**) and human RPIA transfected: sc-113186 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Guo, J., et al. 2020. Arginine methylation of ribose-5-phosphate isomerase A senses glucose to promote human colorectal cancer cell survival. Sci. China Life Sci. 63: 1394-1405.
2. Wang, H.L., et al. 2022. Sirtuin5 protects colorectal cancer from DNA damage by keeping nucleotide availability. Nat. Commun. 13: 6121.

RESEARCH USE

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