SANTA CRUZ BIOTECHNOLOGY, INC.

PRL-1 (269): sc-130354

BACKGROUND

Protein tyrosine phosphatases (PTPs) play a role in regulating diverse cellular processes. They form a small class of prenylated protein phosphatases called PRL proteins characterized by a C-terminal consensus sequence for prenylation. PRL-1, also designated protein tyrosine phosphatase type IVA protein 1 (PTP4A1), is a unique nuclear PTP that is induced in regenerating liver and mitogen-stimulated cells. It is primarily expressed in spleen, bone marrow, thymus, lymph nodes, T lymphocytes and tonsil and is overexpressed in tumor cell lines. PRL-2 (protein tyrosine phosphatase type IVA protein 2, or PTP4A2) is ubiquitously expressed with highest levels in heart, skeletal muscle and thymus but is also overexpressed in prostate tumor tissue. PPRL-2 is stimulates progression from G_1 into S phase during mitosis and promotes tumors. PRL-3, also known as protein tyrosine phosphatase type IVA, member 3 (PTP4A3) is expressed in heart and skeletal muscle as well as epithelial cells of the small intestine and associates with the cell plasma membrane. Over expression of PRL-3 inhibits angiotensin-II induced cell calcium mobilization and promotes cell growth. PRL-3 is important for colorectal cancer metastasis and may serve as a new therapeutic target for this condition.

REFERENCES

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5. Zeng, Q., Dong, J.M., Guo, K., Li, J., Tan, H.X., Koh, V., Pallen, C.J., Manser, E. and Hong, W. 2003. PRL-3 and PRL-1 promote cell migration, invasion, and metastasis. Cancer Res. 63: 2716-2722.
6. Jeong, D.G., Kim, S.J., Kim, J.H., Son, J.H., Park, M.R., Lim, S.M., Yoon, T.S. and Ryu, S.E. 2005. Trimeric structure of PRL-1 phosphatase reveals an active enzyme conformation and regulation mechanisms. J. Mol. Biol. 345: 401-413.

CHROMOSOMAL LOCATION

Genetic locus: PTP4A1 (human) mapping to 6q12; Ptp4a1 (mouse) mapping to 1 A5.

SOURCE

PRL-1 (269) is a mouse monoclonal antibody raised against recombinant PRL-1 of mouse origin.

PRODUCT

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

APPLICATIONS

PRL-1 (269) is recommended for detection of PRL-1 of mouse, rat and human 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with PRL-2 or PRL-3.

Suitable for use as control antibody for PRL-1/2/3 siRNA (h): sc-61403, PRL-1 siRNA (m): sc-152470, PRL-1/2/3 shRNA Plasmid (h): sc-61403-SH, PRL-1 shRNA Plasmid (m): sc-152470-SH, PRL-1/2/3 shRNA (h) Lentiviral Particles: sc-61403-V and PRL-1 shRNA (m) Lentiviral Particles: sc-152470-V.

Molecular Weight of PRL-1: 20 kDa.

SELECT PRODUCT CITATIONS

1. Shi, Y., Xu, S., Ngoi, N.Y.L., Zeng, Q. and Ye, Z. 2021. PRL-3 dephosphorylates p38 MAPK to promote cell survival under stress. Free Radic. Biol. Med. 177: 72-87.
2. Qiu, W., Cai, X., Xu, K., Song, S., Xiao, Z., Hou, Y., Qi, X., Liu, F., Chen, Y., Yang, H., Chu, L. and Liu, J. 2021. PRL1 promotes glioblastoma invasion and tumorigenesis via activating USP36-mediated Snail2 deubiquitination. Front. Oncol. 11: 795633.

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.

PROTOCOLS

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