



PRL-1 (m2): 293T Lysate: sc-122774

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. PRL-2 stimulates progression from G₁ 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

1. Ling, J.R. and Leach, R.M., Jr. 1979. Studies on nickel metabolism: interaction with other mineral elements. *Poult. Sci.* 58: 591-596.
2. Zeng, Q., Hong, W. and Tan, Y.H. 1998. Mouse PRL-2 and PRL-3, two potentially prenylated protein tyrosine phosphatases homologous to PRL-1. *Biochem. Biophys. Res. Commun.* 244: 421-427.
3. Zeng, Q., Si, X., Horstmann, H., Xu, Y., Hong, W. and Pallen, C.J. 2000. Prenylation-dependent association of protein-tyrosine phosphatases PRL-1, -2, and -3 with the plasma membrane and the early endosome. *J. Biol. Chem.* 275: 21444-21452.
4. Matter, W.F., Estridge, T., Zhang, C., Belagaje, R., Stancato, L., Dixon, J., Johnson, B., Bloem, L., Pickard, T., Donaghue, M., Acton, S., Jeyaseelan, R., Kadambi, V. and Vlahos, C.J. 2001. Role of PRL-3, a human muscle-specific tyrosine phosphatase, in angiotensin-II signaling. *Biochem. Biophys. Res. Commun.* 283: 1061-1068.
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: 2716-27122.
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 (mouse) mapping to 1 A5.

PRODUCT

PRL-1 (m2): 293T Lysate represents a lysate of mouse PRL-1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

PRL-1 (m2): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive PRL-1 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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.