

PRL-1/2/3 (G-10): sc-365659

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 is 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., et al. 1979. Studies on nickel metabolism: interaction with other mineral elements. *Poult. Sci.* 58: 591-596.
2. Zeng, Q., et al. 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., et al. 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., et al. 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., et al. 2003. PRL-3 and PRL-1 promote cell migration, invasion, and metastasis. *Cancer Res.* 63: 2716-2722.
6. Jeong, D.G., et al. 2005. Trimeric structure of PRL-1 phosphatase reveals an active enzyme conformation and regulation mechanisms. *J. Mol. Biol.* 345: 401-413.

SOURCE

PRL-1/2/3 (G-10) is a mouse monoclonal antibody raised against amino acids 1-173 representing full length PRL-3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

PRL-1/2/3 (G-10) is recommended for detection of PRL-1/2/3 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).

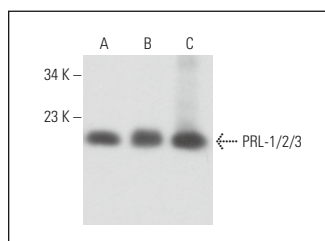
Molecular Weight of PRL-1/2/3: 20/25/40 kDa.

Positive Controls: AMJ2-C8 whole cell lysate: sc-364366, rat lung extract: sc-2396 or C6 whole cell lysate: sc-364373.

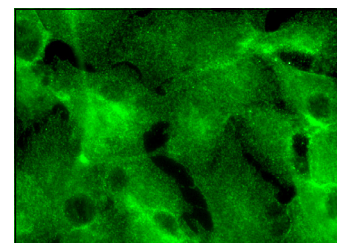
RECOMMENDED SUPPORT REAGENTS

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



PRL-1/2/3 (G-10): sc-365659. Western blot analysis of PRL-1/2/3 expression in AMJ2-C8 (A) and C6 (B) whole cell lysates and rat lung tissue extract (C).



PRL-1/2/3 (G-10): sc-365659. Immunofluorescence staining of formalin-fixed Hep G2 cells showing membrane and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Hu, H., et al. 2022. GINS2 regulates the proliferation and apoptosis of colon cancer cells through PTP4A1. *Mol. Med. Rep.* 25: 117.

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.