SANTA CRUZ BIOTECHNOLOGY, INC.

PiT1/2 (SY-12): sc-101298

BACKGROUND

The SLC20 family transport proteins were originally identified as retroviral receptors Glvr-1 and Ram-1, but are now designated sodium-dependent phosphate transporters 1 and 2 (PiT1 and PiT2). The PiT proteins function as sodium-phosphate cotransporters and are widely expressed, with high expression in bone, kidney and intestine. Both PiT1 and PiT2 are expressed on polarized epithelial cell membranes where they play a role in cellular phosphate homeostasis. PiT2 is a human receptor for amphotropic murine leukemia virus (A-MuLV). A-MuLV infects a variety of mammalian cell lines, including humans, making it a useful tool in gene transfer technology and as a vector for gene therapy. Retroviral vector systems are used in gene therapy that are designed to infect cells expressing PiT1 or PiT2.

REFERENCES

1. Sugai, J., et al. 2001. Identification of envelope determinants of feline leukemia virus subgroup B that permit infection and gene transfer to cells expressing human PiT1 or PiT2. J. Virol. 75: 6841-6849.
2. Salaün, C., et al. 2002. PiT2 assemblies at the cell surface are modulated by extracellular inorganic phosphate concentration. J. Virol. 76: 4304-4311.
3. Bøttger, P. and Pedersen, L. 2002. Two highly conserved glutamate residues critical for type III sodium-dependent phosphate transport revealed by uncoupling transport function from retroviral receptor function. J. Biol. Chem. 277: 42741-42747.
4. Bøttger, P. and Pedersen, L. 2004. The central half of PiT2 is not required for its function as a retroviral receptor. J. Virol. 78: 9564-9567.
5. Beer, C., et al. 2005. Caveola-dependent endocytic entry of amphotropic murine leukemia virus. J. Virol. 79: 10776-10787.
6. Homann, V., et al. 2005. Sodium-phosphate cotransporter in human salivary glands: molecular evidence for the involvement of NPT2b in acinar phosphate secretion and ductal phosphate reabsorption. Arch. Oral Biol. 50: 759-768.
7. Sudo, T., et al. 2005. Hepatic regeneration promotes engraftment of intraportally transplanted islet cells. Surgery 137: 612-619.
8. Wang, W., et al. 2005. Cell signaling through the protein kinases cAMP-dependent protein kinase, PKC ε, and RAF-1 regulates amphotropic murine leukemia virus envelope protein-induced syncytium formation. J. Biol. Chem. 280: 16772-16783.

CHROMOSOMAL LOCATION

Genetic locus: SLC20A1 (human) mapping to 2q13, SLC20A2 (human) mapping to 8p11.21.

SOURCE

PiT1/2 (SY-12) is a mouse monoclonal antibody raised against recombinant PiT1/2 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

PiT1/2 (SY-12) is recommended for detection of PiT1 and PiT2 of 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).

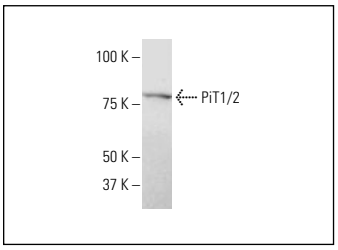
Molecular Weight of PiT1/2: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

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



PiT1/2 (SY-12): sc-101298. Western blot analysis of PiT1/2 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Ma, X.X., et al. 2017. PiT2 regulates neuronal outgrowth through interaction with microtubule-associated protein 1B. Sci. Rep. 7: 17850.
2. Sun, H., et al. 2022. Mechanisms of PiT2-loop7 missense mutations induced Pi dyshomeostasis. Neurosci. Bull. 39: 57-68.
3. Barreca, F., et al. 2023. SIRT5 activation and inorganic phosphate binding reduce cancer cell vitality by modulating autophagy/mitophagy and ROS. Antioxidants 12: 1635.

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.