

PAT2 (S-14): sc-168904

BACKGROUND

The proton-coupled amino acid transporter family consists of four family members, namely PAT1, PAT2, PAT3 and PAT4, all of which mediate the 1:1 symport of protons and small neutral amino acids and derivatives across both intracellular and plasma membranes. Substrates for the PAT family members include L- and D-proline, glycine and L-alanine, 3-amino-1-propanesulfonic acid, L-azetidine-2-carboxylic acid and *cis*-4-hydroxy-D-proline. PAT1 expression is high in intestine and brain where it localizes to the brush border membrane, thereby allowing PAT1 to serve as a novel route for oral drug delivery. PAT2 shows high expression in spinal cord and brain, while PAT3 expression is found in testis. PAT4 is a multi-pass membrane protein that is expressed as two alternatively spliced isoforms. All four PAT family members contain three conserved histidine residues with His-55 found to be essential for catalytic activity of PAT1.

REFERENCES

1. Boll, M., et al. 2003. A cluster of proton/amino acid transporter genes in the human and mouse genomes. *Genomics* 82: 47-56.
2. Foltz, M., et al. 2004. Substrate specificity and transport mode of the proton-dependent amino acid transporter mPAT2. *Eur. J. Biochem.* 271: 3340-3347.
3. Rubio-Aliaga, I., et al. 2004. The proton/amino acid cotransporter PAT2 is expressed in neurons with a different subcellular localization than its paralog PAT1. *J. Biol. Chem.* 279: 2754-2760.
4. Boll, M., et al. 2004. The SLC36 family: proton-coupled transporters for the absorption of selected amino acids from extracellular and intracellular proteolysis. *Pflugers Arch.* 447: 776-779.
5. Metzner, L., et al. 2006. Substrate specificity of the amino acid transporter PAT1. *Amino Acids* 31: 111-117.
6. Metzner, L., et al. 2006. Influence of a proton gradient on the transport kinetics of the H⁺/amino acid cotransporter PAT1 in Caco-2 cells. *Eur. J. Pharm. Biopharm.* 63: 360-364.
7. Thwaites, D.T., et al. 2007. Deciphering the mechanisms of intestinal imino (and amino) acid transport: the redemption of SLC36A1. *Biochim. Biophys. Acta* 1768: 179-197.
8. Metzner, L., et al. 2008. Mutational analysis of histidine residues in the human proton-coupled amino acid transporter PAT1. *Biochim. Biophys. Acta* 1778: 1042-1050.

CHROMOSOMAL LOCATION

Genetic locus: Slc36a2 (mouse) mapping to 11 B1.3.

SOURCE

PAT2 (S-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal cytoplasmic domain of PAT2 of mouse origin.

RESEARCH USE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-168904 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PAT2 (S-14) is recommended for detection of PAT2 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other PAT family members.

Suitable for use as control antibody for PAT2 siRNA (m): sc-152032, PAT2 shRNA Plasmid (m): sc-152032-SH and PAT2 shRNA (m) Lentiviral Particles: sc-152032-V.

Molecular Weight of PAT2: 53 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

PROTOCOLS

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