

# PAT1 (G-13): sc-161149

## 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

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3. Rubio-Aliaga, I., Boll, M., Vogt Weisenhorn, D.M., Foltz, M., Kottra, G. and Daniel, H. 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., Daniel, H. and Gasnier, B. 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., Neubert, K. and Brandsch, M. 2006. Substrate specificity of the amino acid transporter PAT1. *Amino Acids* 31: 111-117.
6. Metzner, L. and Brandsch, M. 2006. Influence of a proton gradient on the transport kinetics of the H<sup>+</sup>/amino acid cotransporter PAT1 in Caco-2 cells. *Eur. J. Pharm. Biopharm.* 63: 360-364.
7. Thwaites, D.T. and Anderson, C.M. 2007. Deciphering the mechanisms of intestinal imino (and amino) acid transport: the redemption of SLC36A1. *Biochim. Biophys. Acta* 1768: 179-197.
8. Metzner, L., Natho, K., Zebisch, K., Dorn, M., Bosse-Doenecke, E., Ganapathy, V. and Brandsch, M. 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: SLC36A1 (human) mapping to 5q33.1.

## STORAGE

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

## SOURCE

PAT1 (G-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PAT1 of human origin.

## 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-161149 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

PAT1 (G-13) is recommended for detection of PAT1 of human 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.

PAT1 (G-13) is also recommended for detection of PAT1 in additional species, including equine and canine.

Suitable for use as control antibody for PAT1 siRNA (h): sc-92011, PAT1 shRNA Plasmid (h): sc-92011-SH and PAT1 shRNA (h) Lentiviral Particles: sc-92011-V.

Molecular Weight of PAT1: 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.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.