

# PAT3 (S-21): sc-102055

## 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

- Boll, M., et al. 2003. A cluster of proton/amino acid transporter genes in the human and mouse genomes. *Genomics* 82: 47-56.
- Foltz, M., et al. 2004. Substrate specificity and transport mode of the proton-dependent amino acid transporter mPAT2. *Eur. J. Biochem.* 271: 3340-3347.
- 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.
- 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.
- Metzner, L., et al. 2006. Substrate specificity of the amino acid transporter PAT1. *Amino Acids* 31: 111-117.
- 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.
- 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.
- 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: SLC36A3 (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.

## PROTOCOLS

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

## SOURCE

PAT3 (S-21) is a purified rabbit polyclonal antibody raised against PAT3 of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

## APPLICATIONS

PAT3 (S-21) is recommended for detection of PAT3 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PAT3 siRNA (h): sc-91795, PAT3 shRNA Plasmid (h): sc-91795-SH and PAT3 shRNA (h) Lentiviral Particles: sc-91795-V.

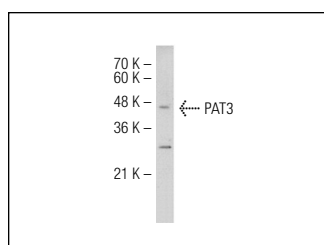
Molecular Weight of PAT3: 52 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA



PAT3 (S-21): sc-102055. Western blot analysis of PAT3 expression in Jurkat whole cell lysate.

## RESEARCH USE

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