

# PAT2 (F-3): sc-390969

## 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. 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.

## CHROMOSOMAL LOCATION

Genetic locus: SLC36A2 (human) mapping to 5q33.1; Slc36a2 (mouse) mapping to 11 B1.3.

## SOURCE

PAT2 (F-3) is a mouse monoclonal antibody raised against amino acids 1-50 mapping at the N-terminus of PAT2 of mouse origin.

## PRODUCT

Each vial contains 200 µg IgM 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

PAT2 (F-3) is recommended for detection of PAT2 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).

Suitable for use as control antibody for PAT2 siRNA (h): sc-91668, PAT2 siRNA (m): sc-152032, PAT2 shRNA Plasmid (h): sc-91668-SH, PAT2 shRNA Plasmid (m): sc-152032-SH, PAT2 shRNA (h) Lentiviral Particles: sc-91668-V and PAT2 shRNA (m) Lentiviral Particles: sc-152032-V.

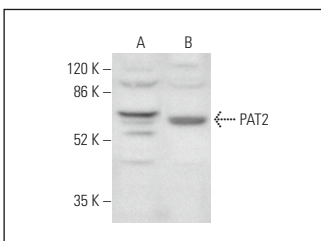
Molecular Weight of PAT2: 53 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, NIH/3T3 whole cell lysate: sc-2210 or F9 cell lysate: sc-2245.

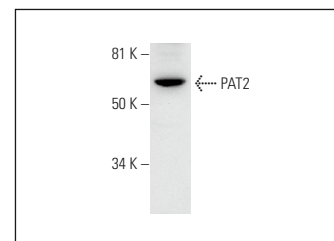
## RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



PAT2 (F-3): sc-390969. Western blot analysis of PAT2 expression in NIH/3T3 (A) and U-87 MG (B) whole cell lysates.



PAT2 (F-3): sc-390969. Western blot analysis of PAT2 expression in F9 whole cell lysate.

## SELECT PRODUCT CITATIONS

1. Ussar, S., et al. 2014. ASC-1, PAT2, and P2RX5 are cell surface markers for white, beige, and brown adipocytes. *Sci. Transl. Med.* 6: 247ra103.
2. Blackshear, C.P., et al. 2018. Utilizing confocal microscopy to characterize human and mouse adipose tissue. *Tissue Eng. Part C Methods* 24: 566-577.
3. Jones, P.H., et al. 2019. Over-expression of miR-34c leads to early-life visceral fat accumulation and Insulin resistance. *Sci. Rep.* 9: 13844.

## RESEARCH USE

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