

PAP-2a (A-22): sc-133882

BACKGROUND

PAP-2 (phosphatidic acid phosphatase 2), also known as lipid phosphate phosphohydrolase (LPP), is a family of integral membrane glycoproteins that dephosphorylate a variety of lipid phosphates and play a role in signal transduction via the phospholipase D pathway. PAP-2 proteins function independently of Mg^{2+} and are insensitive to NEM (N-ethylmaleimide) inhibition. The lipid phosphates degraded by this family include ceramide 1-phosphate (C1P), sphingosine 1-phosphate (S1P), phosphatidic acid (PA) and lysophosphatidic acid (LPA). There are three PAP-2 isozymes: PAP-2a, PAP-2b and PAP-2c (also known as LPP1, LPP3 and LPP2 respectively). PAP-2a and PAP-2b are ubiquitously expressed and most effectively hydrolyze PA and LPA. PAP-2c is predominantly expressed in human brain, placenta and pancreas, and in mouse liver, lung and kidney. PAP-2c most effectively hydrolyzes LPA and S1P and may function as a cell cycle regulator.

REFERENCES

- Roberts, R., et al. 1998. Human type 2 phosphatidic acid phosphohydrolases. Substrate specificity of the type 2a, 2b, and 2c enzymes and cell surface activity of the 2a isoform. *J. Biol. Chem.* 273: 22059-22067.
- Nanjundan, M. and Possmayer, F. 2000. Characterization of the pulmonary N-ethylmaleimide-insensitive phosphatidate phosphohydrolase. *Exp. Lung Res.* 26: 361-381.
- Pasquaré, S.J., et al. 2001. Aging promotes a different phosphatidic acid utilization in cytosolic and microsomal fractions from brain and liver. *Exp. Gerontol.* 36: 1387-1401.
- Simon, M.F., et al. 2002. Expression of ectolipid phosphate phosphohydrolases in 3T3F442A preadipocytes and adipocytes. Involvement in the control of lysophosphatidic acid production. *J. Biol. Chem.* 277: 23131-23136.
- Jia, Y.J., et al. 2003. Differential localization of lipid phosphate phosphatases 1 and 3 to cell surface subdomains in polarized MDCK cells. *FEBS Lett.* 552: 240-246.
- Smyth, S.S., et al. 2003. Lipid phosphate phosphatases regulate lysophosphatidic acid production and signaling in platelets: studies using chemical inhibitors of lipid phosphate phosphatase activity. *J. Biol. Chem.* 278: 43214-43223.
- Escalante-Alcalde, D., et al. 2003. The lipid phosphatase LPP3 regulates extra-embryonic vasculogenesis and axis patterning. *Development* 130: 4623-4637.
- Pyne, S., et al. 2004. Lysophosphatidic acid and sphingosine 1-phosphate biology: the role of lipid phosphate phosphatases. *Semin. Cell Dev. Biol.* 15: 491-501.

CHROMOSOMAL LOCATION

Genetic locus: PPAP2A (human) mapping to 5q11.2.

STORAGE

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

SOURCE

PAP-2a (A-22) is a Protein A purified rabbit polyclonal antibody raised against synthetic PAP-2a peptide 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

PAP-2a (A-22) is recommended for detection of PAP-2a 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 PAP-2a siRNA (h): sc-106879, PAP-2a shRNA Plasmid (h): sc-106879-SH and PAP-2a shRNA (h) Lenti-viral Particles: sc-106879-V.

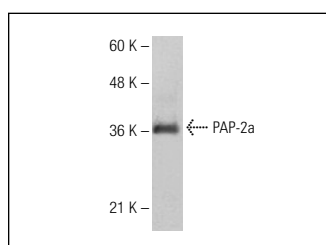
Molecular Weight of PAP-2a: 33 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

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



PAP-2a (A-22): sc-133882. Western blot analysis of PAP-2a expression in Hep G2 whole cell lysate.

RESEARCH USE

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