SANTA CRUZ BIOTECHNOLOGY, INC.

PAP-2a (A-4): sc-515517

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. 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.
2. Nanjundan, M. and Possmayer, F. 2000. Characterization of the pulmonary N-ethylmaleimide-insensitive phosphatidate phosphohydrolase. Exp. Lung Res. 26: 361-381.
3. Pasquare, 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.
4. 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.
5. 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.
6. 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.

CHROMOSOMAL LOCATION

Genetic locus: PLPP1 (human) mapping to 5q11.2; Plpp1 (mouse) mapping to 13 D2.2.

SOURCE

PAP-2a (A-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 143-161 within an extracellular domain of PAP-2a of mouse origin.

STORAGE

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

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.

Blocking peptide available for competition studies, sc-515517 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

PAP-2a (A-4) is recommended for detection of PAP-2a 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 PAP-2a siRNA (h): sc-106879, PAP-2a siRNA (m): sc-72263, PAP-2a shRNA Plasmid (h): sc-106879-SH, PAP-2a shRNA Plasmid (m): sc-72263-SH, PAP-2a shRNA (h) Lentiviral Particles: sc-106879-V and PAP-2a shRNA (m) Lentiviral Particles: sc-72263-V.

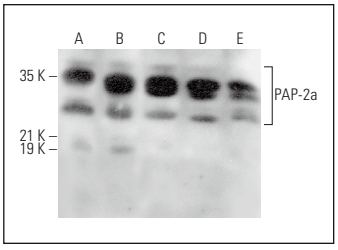
Molecular Weight of PAP-2a: 33 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, K-562 whole cell lysate: sc-2203 or Neuro-2A whole cell lysate: sc-364185.

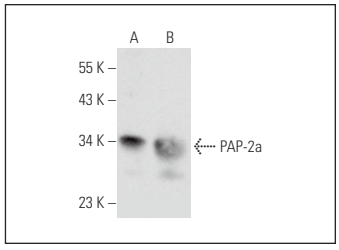
RECOMMENDED SUPPORT REAGENTS

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



PAP-2a (A-4): sc-515517. Western blot analysis of PAP-2a expression in NIH/3T3 (**A**), Hep G2 (**B**), K-562 (**C**), PC-12 (**D**) and A-10 (**E**) whole cell lysates.



PAP-2a (A-4): sc-515517. Western blot analysis of PAP-2a expression in NIH/3T3 (**A**) and Neuro-2A (**B**) whole cell lysates.

RESEARCH USE

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