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Lyosphospholipid Phosphatase (LPP) 2. Rabbit Polyclonal Antibody

Lipid phosphate phosphohydrolase 2, EC 3.1.3.4, Phosphatidic acid, phosphatase 2c, PAP-2c, PAP2c, Phosphatidate phosphohydrolase type 2c, PAP2-gamma, PAP2-G

Background

Phosphatidic acid phosphatase type 2 (PAP2) was originally identified as a plasma membrane enzyme that catalyses the dephosphorylation of the putative second messenger, phosphatidic acid (PA) to diacylglycerol (DG) [1]. Subsequently, multiple isoforms of PAP2 were cloned [2-5]. It was found that these enzymes dephosphorylate a number of lipid phosphates *in vitro* other than PA, including the potent bioactive lipids, lysophosphatidic acid (LPA) and sphingosine 1-phosphate (S1P). Therefore, they have been renamed lipid phosphate phosphatases (LPPs). Currently, there are four members of this family called LPP1, LPP1a, LPP2 and LPP3 [6].

S1P [7] and LPA [8] regulate the proliferation, differentiation, apoptosis and migration of cells by binding to a family of G protein-coupled receptors. Thus, EDG1/S1P1, EDG3/S1P3, EDG5/S1P2/AGR16/H218, EDG6/S1P4 and EDG8/S1P5/nrg-1 are high affinity S1P receptors [7] whereas EDG2/LPA1, EDG4/LPA2 and EDG7/LPA3 have high affinity for LPA [8].

Recently, the over-expression of LPP1 was shown to limit LPA-stimulated signalling in Rat2 fibroblasts [9] and LPA-stimulated DNA synthesis in HEK 293 cells [10]. Similarly, over-expression of LPP1, LPP1a and LPP2 attenuate S1P-signalling to the p42/p44 mitogen activated protein kinase cascade [11].

Ordering Information

Catalog Number
X1528P

Size
100 µg

Form
Unconjugated

Host/Clone
Rabbit

Formulation
Provided as solution in phosphate buffered saline with 0.08% sodium azide

Concentration
See vial for concentration

Isotype
IgG

Applications
Western Blot

Species Reactivity
Human

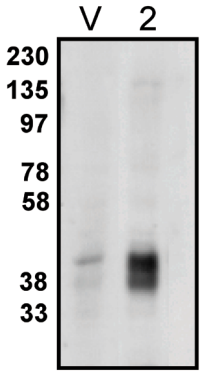
Accession Number

Human	O43688

Immunogen

Unique peptide derived from the human lysophospholipid phosphatase 2 protein.

Western blot analysis using LPP2 antibody on vector-controlled HEK-293 cells (V) and HEK-293 cells overexpressing LPP2 protein (2) at 1 µg/ml



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Positive Control/Tissue Expression

Transfected HEK-293 cells

Comments

This antibody can be used for Western blotting (10-15 μg/ml). Optimal concentration should be evaluated by serial dilutions. **NOTE:** Boiling LPP2 with sample buffer will aggregate the protein. Lysates should be prepared by mixing cells with lysis buffer (possibly with extra detergent) to solubilize the protein before adding sample buffer and lysate SHOULD NOT be boiled/heated.

Purification

Ammonium Sulfate Precipitation

Ship Conditions

Ship at ambient temperature, freeze upon arrival

Storage Customer

Product should be stored at -20ºC. Aliquot to avoid freeze/thaw cycles

Stability

Products are stable for one year from purchase when stored properly

References

1. Jamal, Z., et al. (1991) Plasma membrane fractions from rat liver contain a phosphatidate phosphohydrolase distinct from that in the endoplasmic reticulum and cytosol. *J. Biol. Chem.* **266**, 2988-2996.
2. Kai, M., et al. (1997) Cloning and characterisation of two human isozymes of Mg2+-independent phosphatidic acid phosphatase. *J. Biol. Chem.* **272**, 24572-24578.
3. Roberts, R., et al. (1998) Human type 2 phosphatidic phosphohydrolases. Substrate specificity of the type 2a, 2b and 2c enzymes and cell surface activity of the 2a isoforms. *J. Biol. Chem.* **273**, 22059-22067.
4. Leung, D.W., et al. (1998) Molecular cloning of two alternatively spliced forms of human phosphatidic acid phosphatase cDNAs that are differentially expressed in normal and tumor cells. *DNA Cell. Biol.* **17**, 377-385.
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6. Brindley, D.N & Waggoner, D.W. (1998) Mammalian lipid phosphate phosphohydrolases. *J. Biol. Chem.* **273**, 24281-24284.
7. Pyne, S. & Pyne, N.J. (2000) Sphingosine 1-phosphate in mammalian cells. *Biochem. J.* **349**, 385-402.
8. Kranenberg, O. & Moolenaar, W.H. (2001) Ras-MAP kinase signaling by lysophosphatidic acid and other G protein-coupled receptor agonists. *Oncogene* **20** 1540-1546.
9. Xu, J., et al. (2000) Lipid phosphate phosphatase-1 and Ca2+ control lysophosphatidate through EDG-2 receptors. *J. Biol. Chem.* **275**, 27520-27530.
10. Hooks, S.B., et al. (2001) Lysophosphatidic acid induced mitogenesis is regulated by lipid phosphate phosphatases and is EDG receptor independent. *J. Biol. Chem.* **276**, 4611-4621.
11. Alderton, F., et al. (2001) *J. Biol. Chem.* **276**, 13452-13460.

Product Specific References

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