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ProductInformation

Anti-Lipid Phosphate Phosphatase (LPP) 2
Developed in Rabbit, Fractionated Antibody

Product Number **L 2790**

Product Description

Anti-Lipid Phosphate Phosphatase (LPP) 2 is developed in rabbit using as immunogen a unique peptide derived from the human LPP2 protein. The antiserum is purified by ammonium sulfate fractionation. Anti-LPP2 specifically recognizes human LPP2 (35 kDa). It has been used in immunoblotting applications.

Phosphatidic acid phosphatase type 2 (PAP2) was originally identified as a six-transmembrane-domain integral protein localized to the plasma membrane that catalyzes the dephosphorylation of the putative second messenger, phosphatidic acid (PA), to diacylglycerol (DG). Subsequently, multiple isoforms of PAP2 were cloned and found to dephosphorylate a number of lipid phosphates in addition to PA and lyso-PA including the potent bioactive lipids lysophosphatidic acid (LPA) and sphingosine 1-phosphate (S1P).[1-4] Due to this, the members of the PAP2 family have been renamed lipid phosphate phosphohydrolases (LPPs). By lowering the levels of lysophosphatidic acid/sphingosine 1-phosphate, which serve as agonists for gene receptors, LPPs regulate cell division, differentiation, apoptosis, and mobility.

Four members of the LPP family have been cloned and designated LPP1, LPP1a, LPP2 and LPP3.[5] LPPs do not require Mg^{2+} for full activity and are insensitive to N-ethylmaleimide (NEM). All LPP isoforms dephosphorylate *N*-oleoylethanolamine PA. LPP3 may have a greater catalytic efficiency (V_{max}/K_m) for the glycerolipid substrates, while LPP2 dephosphorylates the glycerolipid and sphingolipid substrates with similar efficiencies. LPP2 is found mainly in lysophosphatidic acid/sphingosine 1phosphate brain, pancreas, and placenta while mRNA for LPP3 is expressed relatively uniformly in all human tissues. On the cellular level LPP1 and LPP2 are expressed predominantly in plasma membranes, with the active sites outside the cell. hLPP3 may have a post-Golgi localization based on the sensitivity of its oligosaccharide chain to endo-β-glycosidase.[5]

Presence of LPPs in plasma membranes indicates their role in cell signaling. LPPs cross-talk with lysophosphatidic acid/sphingosine 1phosphate and growth factor receptors regulating the responses of the cell to lipid phosphate mediators of signal transduction. LPPs are involved in intracellular signaling by dephosphorylating PA formed by PLD or DAG kinase. PA activates the NADPH oxidase system in neutrophils and stimulates protein kinases, phospholipase Cγ and the Ras-Raf-Map kinase pathway, as well as the formation of the actin cytoskeleton. LPPs negatively regulate LPA signaling pathway by degrading the ligand. LPPs can also act as “ecto-enzymes” regulating signaling by exogenous LPA and S1P secreted by autocrine or paracrine mediators.[6]

Reagent

Anti-LPP2, at approximately 1 mg/ml, is supplied as a solution in phosphate buffered saline containing 0.08% sodium azide. The amount of the reagent is sufficient for 10 blots.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

Store at –20 °C. For extended storage, upon initial thawing, freeze in working aliquots. Do not store in frost-free freezers. Avoid repeated freezing and thawing to prevent denaturing the antibody. Working dilution samples should be discarded if not used within 12 hours. The antibody is stable for at least 6 months when stored appropriately.

Product Profile

A recommended working concentration of 10 to 15 µg/ml is determined by immunoblotting using ransfected HEK-293 (human embryonic kidney) cells.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

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