Small Molecules

1-Oleoyl Lysophosphatidic Acid

Lysophosphatidic acid (LPA)1 and LPA2 agonist

Catalog #	72692	1 mg
	72694	5 mg

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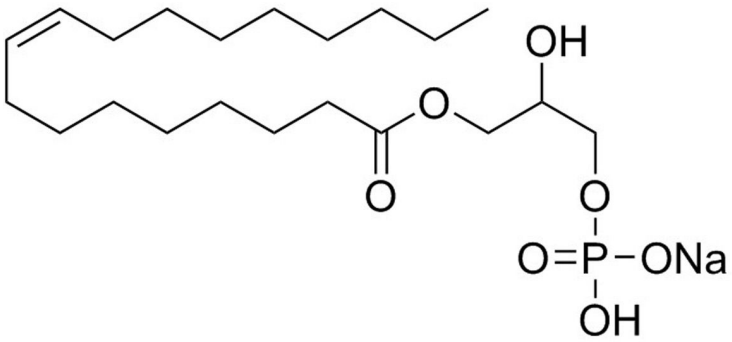
Product Description

1-Oleoyl Lysophosphatidic Acid is a species of lysophosphatidic acid (LPA) containing oleic acid at the ***sn***-1 position. LPA binds to four different G-protein-linked receptors (Chun et al.) to mediate a variety of biological responses including cell proliferation, smooth muscle contraction, platelet aggregation, neurite retraction, and cell motility (Moolenaar). 1-Oleoyl Lysophosphatidic Acid is the most potent of the LPA analogs for calcium mobilization in A431 cells (Jalink et al.) and for growth stimulation of a variety of cell lines (van Corven et al.). This product is supplied as the sodium salt of the molecule.

Molecular Name:	1-Oleoyl Lysophosphatidic Acid (Sodium Salt)
Alternative Names:	Oleoyl-sn-3-glycerophosphate
CAS Number:	22556-62-3
Chemical Formula:	$C_{21}H_{40}O_7P \cdot Na$
Molecular Weight:	458.5 g/mol
Purity:	≥ 95%
Chemical Name:	sodium;[2-hydroxy-3-[(Z)-octadec-9-enoyl]oxypropyl] hydrogen phosphate
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· PBS (pH 7.2) ≤ 18 mM For example, to prepare a 10 mM stock solution in PBS, resuspend 1 mg in 218 µL of PBS (pH 7.2). Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in PBS at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use.

Published Applications

DIFFERENTIATION
· Stimulates neuronal differentiation in cultured mouse or rat neural progenitor cells (Cui & Qiao; Fukushima et al.; Spohr et al.).
· Inhibits human embryonic stem (ES) cell-derived neural stem cells (NSCs) from forming neurospheres and differentiating into neurons in vitro (Dottori et al.).
· Stimulates differentiation of human adipose tissue-derived mesenchymal stem cells to myofibroblast-like cells in vitro (Jeon et al.).

References

Chun J et al. (2002) International Union of Pharmacology. XXXIV. Lysophospholipid receptor nomenclature. Pharmacol Rev 54(2): 265–9.
Cui HL & Qiao JT. (2006) Promotive action of lysophosphatidic acid on proliferation of rat embryonic neural stem cells and their differentiation to cholinergic neurons in vitro. Sheng Li Xue Bao 58(6): 547–55.
Dottori M et al. (2008) Lysophosphatidic acid inhibits neuronal differentiation of neural stem/progenitor cells derived from human embryonic stem cells. Stem Cells 26(5): 1146–54.
Fukushima N et al. (2007) Lysophosphatidic acid stimulates neuronal differentiation of cortical neuroblasts through the LPA1-G(i/o) pathway. Neurochem Int 50(2): 302–7.
Jalink K et al. (1995) Lysophosphatidic acid-induced Ca2+ mobilization in human A431 cells: structure-activity analysis. Biochem J 307 (Pt 2): 609–16.
Jeon ES et al. (2008) Cancer-derived lysophosphatidic acid stimulates differentiation of human mesenchymal stem cells to myofibroblast-like cells. Stem Cells 26(3): 789–97.
Moolenaar WH. (1994) LPA: a novel lipid mediator with diverse biological actions. Trends Cell Biol 4(6): 213–9.
Spohr TCS et al. (2008) Lysophosphatidic acid receptor-dependent secondary effects via astrocytes promote neuronal differentiation. J Biol Chem 283(12): 7470–9.
Van Corven EJ et al. (1992) Mitogenic action of lysophosphatidic acid and phosphatidic acid on fibroblasts. Dependence on acyl-chain length and inhibition by suramin. Biochem J 281 (Pt 1): 163–9.

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