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Product Information

1,2-Dipalmitoylphosphatidylinositol-3,4-diphosphate tetrasodium salt

Catalog Number **P6990**
Storage Temperature –20 °C

CAS RN 226889-52-7 (free acid)
Synonyms: PtdIns-(3,4)-P_2, PI(3,4)P_2, Dipalmitoyl-L-α-phosphatidyl-D-*myo*-Inositol 3,4-bisphosphate, 1-(1,2-dihexadecanoylphosphatidyl)inositol-3,4-diphosphate

Product Description

Molecular Formula: $C_{41}H_{77}Na_4O_{19}P_3$
Molecular Weight: 1058.92

Phosphorylated phosphatidylinositols and their metabolic products play critical roles in the generation and transmission of cellular signals and in cell-to-cell adhesion.[1,2] Phosphatidylinositol-3,4-diphosphate is a membrane phospholipid that is involved in regulating the actin cytoskeleton of platelets and the cytoskeletal reorganization induced by thrombin.[2,3] Thrombin challenge induces an increase in phosphatidylinositol 3,4-diphosphate that correlates with the development of irreversible platelet aggregation.[4] The activity of phosphatidylinositol 3,4-diphosphate is blocked by the action of phosphatidylinositol 4-phosphatase (PI4P) or by PTEN, a lipid phosphatase that removes the 3-phosphate.[4,5] Phosphatidylinositol 3,4-diphosphate activates Akt (protein kinase B) *in vitro* and *in vivo* by binding with high affinity to the pleckstrin homology (PH) domain of this enzyme.[6]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

The product is soluble in aqueous detergent solutions. It forms a clear solution at 8 mg/ml in 50 mM HEPES buffer, pH 7.0, containing 5 mM EDTA and 16 mg/ml sodium deoxycholate. It is also soluble in a 3:2:1 mixture of chloroform:methanol:water at 10 mg/ml and will form an opaque suspension at 1 mg/ml in phosphate-buffered saline (PBS), pH 7.2. Aqueous solutions remain active for less than 24 hours.

Storage/Stability

The product ships on wet ice and storage at –20 °C is recommended. As supplied, it remains active for at least one year at –20 °C.

References

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2. Payrastre, B., et al., Phosphoinositides: key players in cell signalling, in time and space. Cell. Signal., **13**, 377-387 (2001).
3. Torti, M., et al., The platelet cytoskeleton regulates the aggregation-dependent synthesis of phosphatidylinositol 3,4-bisphosphate induced by thrombin. FEBS Lett., **466**, 355-358 (2000).
4. Munday, A.D., et al., The inositol polyphosphate 4-phosphatase forms a complex with phosphatidylinositol 3-kinase in human platelet cytosol. Biochemistry, **96**, 3640-3645 (1999).
5. Leevers, S.J., et al., Signalling through phosphoinositide 3-kinases: the lipids take centre stage. Curr. Opin. Cell Biol., **11**, 219-225 (1999).
6. Franke, T.F., et al. Direct regulation of the AKT proto-oncogen product by phosphatidylinositol-3,4-biphosphate. Science, **275**, 665-668 (1997).

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