



## PI3K Lipid Substrate Mix 2

PI-4,5-P<sub>2</sub>, PE, PS, PC, and SM  
based on PI-4,5-P<sub>2</sub>

Cat. No.	Amount
LI-012	100 µg

### For *in vitro* use only!

**Shipping:** shipped on blue ice

**Storage Conditions:** store at -20 °C

**Shelf Life:** 12 months

**Molecular Formula:** C<sub>41</sub>H<sub>81</sub>NO<sub>19</sub>P<sub>3</sub>

**Molecular Weight:** 970.99 g/mol

**Purity:** ≥ 98 %

**Form:** lyophilized

**Solubility:** soluble in Chloroform, yields a suspension in aqueous solution

### Applications:

Dissolve the mix in 200 µl Chloroform and take an aliquot of 3 µl per reaction. Evaporate the chloroform (for fast evaporation use a stream of nitrogen) and resuspend in 30 µl kinase buffer. Sonicate for 1 h in a water bath. The total kinase assay reaction volume should be 50 µl.

### Description:

The PI3K Lipid Substrate Mix 2 is recommended for PI3K kinase activity assays (Maier *et al.*, 1999; Stephens *et al.* 1993). Phosphoinositide 3-kinases (PI3Ks) phosphorylate phosphatidylinositols (PIs) at their 3' OH position generating lipid second messengers and thereby regulate numerous biological processes including cell growth, differentiation, survival, proliferation, migration and metabolism.

### Composition:

4.92% L-α-Phosphatidylinositol-4,5-bisphosphate (PI-4,5-P<sub>2</sub>)  
36.07% L-α-Phosphatidylethanolamine (PE)  
39.34% L-α-Phosphatidyl-L-serine (PS)  
16.39% L-α-Lysophosphatidylcholine (PC)  
3.28% Sphingomyelin (SM).

### Selected References:

Maier *et al.* (1999) Roles of Non-catalytic Subunits in Gβγ-induced Activation of Class I Phosphoinositide 3-Kinase Isoforms β and γ. *J. Biol. Chem.* **274**:29311.

Stephens *et al.* (1993) Synthesis of phosphatidylinositol 3,4,5-trisphosphate in permeabilized neutrophils regulated by receptors and G-proteins. *J. Biol. Chem.* **268**:17162.

Vanhaesebroeck *et al.* (2001) Synthesis and function of 3-phosphorylated inositol lipids. *Ann. Rev. Biochem.* **70**:535.

Balla (2001) Pharmacology of phosphoinositides, regulators of multiple cellular functions. *Curr. Pharm. Des.* **7**:475.

Wymann (2003) Phosphoinositide 3-kinase signalling - which way to target? *Trend Pharmacol. Sci.* **24**:323.

Foukas *et al.* (2002) Direct effects of caffeine and theophylline on p110 delta and other phosphoinositide 3-kinases. Differential effects on lipid kinase and protein kinase activities. *J. Biol. Chem.* **277**:37124.