

## PI3K Lipid Substrate Mix 1

PI, PE, PS, PC, and SM  
based on PI

Cat. No.	Amount
LI-011	1 mg based on PI, 3.23 mg total lipids

For *in vitro* use only  
Quality guaranteed for 12 months  
Store at -20°C

**Form**  
Lyophilized.

**Solubility**  
Soluble in chloroform, yields a suspension in aqueous solution.

**Composition**  
30.95% L- $\alpha$ -Phosphatidylinositol (PI)  
26.19% L- $\alpha$ -Phosphatidylethanolamine (PE)  
28.57% L- $\alpha$ -Phosphatidyl-L-serine (PS)  
11.91% L- $\alpha$ -Lysophosphatidylcholine (PC)  
2.38% Sphingomyelin (SM).

**Application**  
Dissolve in 200  $\mu$ l Chloroform and take an aliquot of 2.6  $\mu$ l per reaction. Evaporate the chloroform (for fast evaporation use a stream of nitrogen) and resuspend in 30  $\mu$ l kinase buffer. Sonicate for 1 h in a water bath. The total kinase assay reaction volume should be 50  $\mu$ l.

**Purity**  
 $\geq$  98%

### Description

The PI3K Lipid Substrate Mix 1 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.

### Selected References:

- Maier *et al.* (1999) Roles of Non-catalytic Subunits in G $\beta$ -induced Activation of Class I Phosphoinositide 3-Kinase Isoforms  $\beta$  and  $\gamma$ . *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.