LY294002

Phosphatidylinositol 3-kinase Inhibitor

Catalog # tlrl-ly29

For research use only

Version # 16F16-MM

PRODUCT INFORMATION

Content:

• 5 mg LY294002

Storage and stability:

- LY294002 is provided as a powder and shipped at room temperature. Store at -20°C. Solid product is stable 1 year at -20°C.
- Upon resuspension, LY294002 should be aliquoted and stored at -20°C. Avoid repeated freeze-thaw cycles. Resuspended product is stable for 6 months at -20°C when properly stored.

Quality control:

- Purity: ≥99% (UHPLC)
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

LY294002 is a potent, cell permeable inhibitor of phosphatidylinositol 3-kinase (PI3K) that acts on the ATP binding site of the enzyme[1]. The PI3K pathway is extensively studied for its property in inhibiting apoptosis. PI3K is also known to regulate TLR-mediated inflammatory responses[2, 3]. Furthermore, PI3K is required for autophagy[4]. Autophagy is a complex pathway in which cell material can be sequestered and delivered to the lysosome for degradation. Inhibition of PI3K with LY294002 can inhibit autophagic sequestration[4].

1. Vlahos CJ. *et al.*, 1994. A specific inhibitor of phosphatidylinositol 3-kinase, 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4-one (LY294002). J. Biol. Chem 69:5241-8. **2. Kuo CC. *et al.*, 2006.** Class I and III Phosphatidylinositol 3'-Kinase Play Distinct Roles in TLR Signaling Pathway. J. Immunol., 176: 5943- 9. **3. Guiducci C. *et al.*, 2008.** PI3K is critical for the nuclear translocation of IRF-7 and type I IFN production by human plasmacytoid predendritic cells in response to TLR activation. J. Exp. Med., 205:31-22. **4. Blommaart EF. et al., 1997.** The phosphatidylinositol 3-kinase inhibitors wortmannin and LY294002 inhibit autophagy in isolated rat hepatocytes. Eur. J. Biochem. 243: 240–246. **5. Rhee SH. et al., 2003.** Toll-like receptors 2 and 4 activate STAT1 serine phosphorylation by distinct mechanisms in macrophages. J Biol Chem. 278:22506-12. **6. Siren A. et al., 2001.** Erythropoietin prevents neuronal apoptosis after cerebral ischemia and metabolic stress. PNAS. 98:4044-9.

CHEMICAL PROPERTIES

CAS number: 154447-36-6

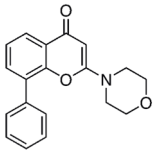
Synonym: 2-(4-morpholino)-8-phenyl-4H-1-benzopyran-4-one

Formula: $C_{19}H_{17}NO_3$

Molecular weight: 307.35

Solubility: DMSO (10 mg/ml)

Structure:



METHODS

Preparation of stock solution (20 mM)

1. Add 813 µl DMSO to 5 mg LY294002.
2. Vortex until complete solubilization. Prepare aliquots and store at -20°C. Once LY294002 is solubilized, dilutions can be prepared with aqueous buffers.

Working concentrations: 1-100 µM in cell culture assays

PROTOCOLS

For reference only; as described in the indicated publications.

Cell Culture Assay[1]
Cells: Human neutrophils
Working concentration: 50 µM
Incubation time: 10 min
Method: Kinase activity assays

Cell Culture Assay[3]
Cells: Plasmacytoid dendritic cells (pDCs)
Working concentration: 1 - 5 µM
Incubation time: 20 min - 5 h
Method: Flow cytometry, real-time quantitative PCR (TaqMan) analysis, confocal microscopy

Cell Culture Assay[5]
Cells: RAW264.7 mouse macrophages
Working concentration: 1 - 10 µM
Incubation time: 2 - 3 h
Method: RT-PCR and Western blotting

Cell Culture Assay[6]
Cells: Neurons
Working concentration: 100 µM
Incubation time: 5 days
Method: Western blotting

RELATED PRODUCTS

Product	Description	Catalog Code
BEZ235	PI3K inhibitor	inh-bez2
Metformin	PI3K inhibitor	tlrl-metf
PI-103	PI3K inhibitor	inh-pi10
Wortmannin	PI3K inhibitor	tlrl-wtm

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