

Small Molecules

LY294002

PI3K/AKT pathway inhibitor; Inhibits PI3K

Catalog # 72152
72154

5 mg
25 mg



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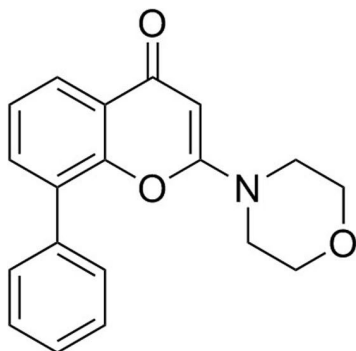
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Product Description

LY294002 is a phosphoinositide 3-kinase (PI3K) inhibitor that has a greater potency and selectivity than quercetin, the structure on which it is based. LY294002 inhibits PI3K ($IC_{50} = 1.4 \mu M$) and also shows activity against casein kinase 2 (CK2), but not PI4K, EGFR, PDGFR, MAPK, PKA, or PKC (Davies et al.; Vlahos et al.).

Molecular Name: LY294002
Alternative Names: Not applicable
CAS Number: 154447-36-6
Chemical Formula: $C_{19}H_{17}NO_3$
Molecular Weight: 307.3 g/mol
Purity: $\geq 98\%$
Chemical Name: 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4-one
Structure:



Properties

Physical Appearance: A crystalline solid
Storage: Product stable at $-20^{\circ}C$ as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:

- DMSO ≤ 50 mM
- Absolute ethanol ≤ 50 mM
- PBS (pH 7.2) $\leq 160 \mu M$

For example, to prepare a 10 mM stock solution in DMSO, resuspend 5 mg in 1.63 mL of fresh DMSO.

Prepare stock solution fresh before use. Stock solutions in DMSO or ethanol are stable for up to 6 months if stored at $-20^{\circ}C$. 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.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

MAINTENANCE AND SELF-RENEWAL

- Suppresses proliferation and self-renewal of mouse embryonic stem (ES) cells (Lianguzova et al., Paling et al.).

DIFFERENTIATION

- Promotes differentiation to insulin-producing cells from mouse ES cells (Hori et al.).
- Inhibits myotube formation from myoblasts (Coolican et al., Jiang et al.).

References

- Coolican SA et al. (1997) The mitogenic and myogenic actions of insulin-like growth factors utilize distinct signaling pathways. *J Biol Chem* 272(10): 6653–62.
- Davies SP et al. (2000) Specificity and mechanism of action of some commonly used protein kinase inhibitors. *Biochem J* 351(Pt 1): 95–105.
- Hori Y et al. (2002) Growth inhibitors promote differentiation of insulin-producing tissue from embryonic stem cells. *Proc Natl Acad Sci U S A* 99(25): 16105–10.
- Jiang BH et al. (1998) An essential role of phosphatidylinositol 3-kinase in myogenic differentiation. *Proc Natl Acad Sci U S A* 95(24): 14179–83.
- Lianguzova MS et al. (2007) Phosphoinositide 3-kinase inhibitor LY294002 but not serum withdrawal suppresses proliferation of murine embryonic stem cells. *Cell Biol Int* 31(4): 330–7.
- Paling NRD et al. (2004) Regulation of embryonic stem cell self-renewal by phosphoinositide 3-kinase-dependent signaling. *J Biol Chem* 279(46): 48063–70.
- 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* 269(7): 5241–8.

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