Small Molecules

LY294002

PI3K/AKT pathway inhibitor; Inhibits PI3K

Catalog #	72152	5 mg
	72154	25 mg

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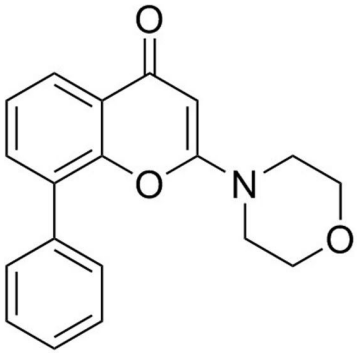
Product Description

LY294002 is a phosphoinositide 3-kinase (PI3K) inhibitor that has greater potency and selectivity than quercetin, the structure on which it is based. LY294002 inhibits PI3K (IC_{50} = 1.4 µM) 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:	≥ 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°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) ≤ 160 µM 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°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.
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Jiang BH et al. (1998) An essential role of phosphatidylinositol 3-kinase in myogenic differentiation. Proc Natl Acad Sci USA 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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