Small Molecules

GDC-0941

PI3K/AKT pathway inhibitor; Inhibits Class I PI3Ks

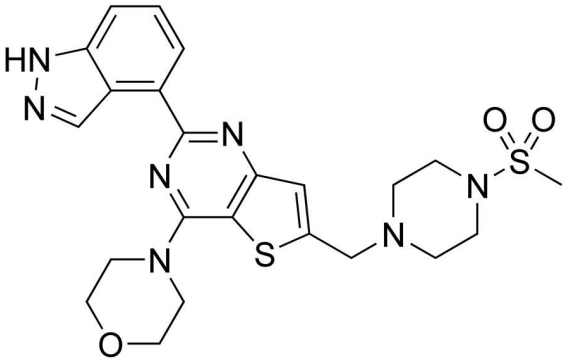
Catalog # 73152

10 mg

STEMCELL™ TECHNOLOGIES
Scientists Helping Scientists™ | WWW.STEMCELL.COM
TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Product Description

GDC-0941 is an inhibitor of phosphatidylinositol-4,5-bisphosphate 3-kinase (PI3K). It inhibits class I catalytic subunits of PI3K p110α, β, δ, and γ with IC_{50} values of 3, 33, 3, and 75 nM, respectively, by binding near the ATP binding pocket (Folkes et al.; Berndt et al.). It shows selectivity against class II, III, and IV PI3K isoforms as well, but with lower efficacy; for example, it inhibits phosphatidylinositol-4-phosphate 3-kinase C2 domain subunit β (C2β, Class II) and mammalian target of rapamycin (mTOR, Class IV) in the high nanomolar range and most others in the micromolar range (Folkes et al.).

Molecular Name:	GDC-0941
Alternative Names:	GNE 0941; Pictilisib; Pictrelisib
CAS Number:	957054-30-7
Chemical Formula:	$C_{23}H_{27}N_7O_3S_2$
Molecular Weight:	513.6 g/mol
Purity:	≥ 98%
Chemical Name:	2-(1H-indazol-4-yl)-6-[[4-(methylsulfonyl)-1-piperazinyl]methyl]-4-(4-morpholinyl)-thieno[3,2-d]pyrimidine
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 ≤ 45 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 1.95 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO 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

CANCER RESEARCH
· Inhibits proliferation of multiple cancer cell lines, such as U87MG (glioblastoma), PC3 (prostate) and MDA-MB-361 (breast) lines, in vitro and in mouse xenograft models (Folkes et al.; Raynaud et al.; O'Brien et al.).
· Induces apoptosis and inhibits xenograft tumor growth in combination with a MAP/ERK kinase (MEK) inhibitor GDC-0973 (Hoeflich et al.).

References

Berndt A et al. (2010) The p110 delta structure: mechanisms for selectivity and potency of new PI(3)K inhibitors. Nat Chem Biol 6(2): 117–24.
Folkes AJ et al. (2008) The identification of 2-(1H-indazol-4-yl)-6-(4-methanesulfonyl-piperazin-1-ylmethyl)-4-morpholin-4-yl-thieno[3,2-d]pyrimidine (GDC-0941) as a potent, selective, orally bioavailable inhibitor of class I PI3 kinase for the treatment of cancer . J Med Chem 51(18): 5522–32.
Hoeflich KP et al. (2012) Intermittent administration of MEK inhibitor GDC-0973 plus PI3K inhibitor GDC-0941 triggers robust apoptosis and tumor growth inhibition. Cancer Res 72(1): 210–9.
O'Brien C et al. (2010) Predictive biomarkers of sensitivity to the phosphatidylinositol 3' kinase inhibitor GDC-0941 in breast cancer preclinical models. Clin Cancer Res 16(14): 3670–83.
Raynaud FI et al. (2009) Biological properties of potent inhibitors of class I phosphatidylinositide 3-kinases: from PI-103 through PI-540, PI-620 to the oral agent GDC-0941. Mol Cancer Ther 8(7): 1725–38.

Related Small Molecules

For a complete list of small molecules available from STEMCELL Technologies, please visit our website at www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.