Small Molecules

AZD8055

mTOR pathway inhibitor; Inhibits mTOR

Catalog # 73002 1 mg
73004 10 mg

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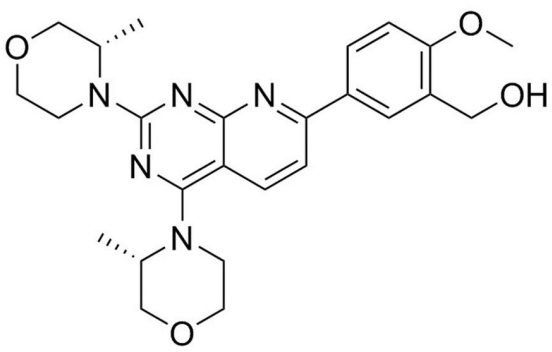
Product Description

AZD8055 is a potent, selective ATP-competitive inhibitor of mammalian target of rapamycin (mTOR), with an IC_{50} value of 0.8 nM (Chresta et al.). It is very specific, with ~1,000-fold selectivity for mTOR over all PI3K isoforms and exhibits no activity against a panel of 260 kinases at concentrations up to 10 µM (Chresta et al.).

Molecular Name:	AZD8055
Alternative Names:	CCG-168
CAS Number:	1009298-09-2
Chemical Formula:	$C_{25}H_{31}N_5O_4$
Molecular Weight:	465.5 g/mol
Purity:	≥ 98%
Chemical Name:	5-[2,4-bis[(3S)-3-methyl-4-morpholinyl]pyrido[2,3-d]pyrimidin-7-yl]-2-methoxy-benzenemethanol
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 2 mM · Absolute ethanol ≤ 1 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.15 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 A549 and H838 small-cell lung cancer cell lines in vitro, and inhibits tumor growth from a variety of human tumor xenografts in mice after oral administration (Chresta et al.).
· Inhibits cell proliferation, increases cell death and reduces migration in tamoxifen-resistant (TamR) and estrogen deprivation-resistant (MCF7-X) breast cancer cell lines (Jordan et al.).
· Induces apoptosis and inhibits proliferation in Hep-2, a human laryngeal cancer cell line (Zhao et al.).
· In combination with ABT-737, synergistically induces apoptosis in rhabdomyosarcoma (RMS) cells by suppressing expression of myeloid leukemia cell differentiation protein (MCL1; Preuss et al.).
· Inhibits proliferation and glycolysis, and induces apoptosis, in HeLa human cervical cancer cell line (Li et al.).

References

Chresta CM et al. (2010) AZD8055 is a potent, selective, and orally bioavailable ATP-competitive mammalian target of rapamycin kinase inhibitor with in vitro and in vivo antitumor activity. Cancer Res 70(1): 288–98.
Jordan NJ et al. (2014) Impact of dual mTORC1/2 mTOR kinase inhibitor AZD8055 on acquired endocrine resistance in breast cancer in vitro. Breast Cancer Res 16(1): R12.
Li S et al. (2013) The mTOR inhibitor AZD8055 inhibits proliferation and glycolysis in cervical cancer cells. Oncol Lett 5(2): 717–21.
Preuss E et al. (2013) Pan-mammalian target of rapamycin (mTOR) inhibitor AZD8055 primes rhabdomyosarcoma cells for ABT-737-induced apoptosis by down-regulating Mcl-1 protein. J Biol Chem 288(49): 35287–96.
Zhao L et al. (2014) mTOR inhibitor AZD8055 inhibits proliferation and induces apoptosis in laryngeal carcinoma. Int J Clin Exp Med 7(2): 337–47.

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