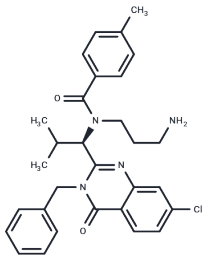
Data Sheet (Cat.No.T2103)

TargetMol

Ispinesib

Chemical Properties



CAS No. : 336113-53-2

Formula: C30H33ClN4O2

Molecular Weight: 517.06

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Ispinesib (SB-715992), a selective, effectvie and reversible inhibitor of kinesin spindle protein (KSP), is derived from quinazolinone, with antineoplastic properties.
Targets(IC50)	Apoptosis,Kinesin,KSP
In vitro	In PC-3 prostate cancer cells, Ispinesib (5 nM and 30 nM) inhibited cell proliferation and induced apoptosis by modulating the level of gene expression of signals. In breast cancer cell lines, Ispinesib (7.4 nM-600 nM) exhibited broad-spectrum inhibitory activity. In tumor cell lines (Colo205, Colo201, HT-29, M5076, Madison-109, and MX-1), Ispinesib (IC50=1.2-9.5 nM) is highly cytotoxic.
In vivo	In PC-3 prostate cancer cells, Ispinesib (5 nM and 30 nM) inhibited cell proliferation and induced apoptosis by modulating the level of gene expression of signals. In breast cancer cell lines, Ispinesib (7.4 nM-600 nM) exhibited broad-spectrum inhibitory activity. In tumor cell lines (Colo205, Colo201, HT-29, M5076, Madison-109, and MX-1), Ispinesib (IC50=1.2-9.5 nM) is highly cytotoxic.
Kinase Assay	Steady-State Kinetic Analysis of Human KSP ATPase Activity and Inhibition by Ispinesib: Kinesin specificity analysis is carried out using a pyruvate kinase-lactate dehydrogenase detection system that couples the production of ADP to oxidation of NADH. Absorbance changes are monitored at 340 nm. Steady-state studies using nanomolar concentrations of KSP are performed using a sensitive fluorescence-based assay utilizing a pyruvate kinase, pyruvate oxidase, and horseradish peroxidase (HRP) coupled detection system that couples the generation of ADP to oxidation of Amplex Red to fluorescent resorufin. Generation of resorufin is monitored by fluorescence (λexcitation = 520 nm and λemission = 580 nm). Steady-state biochemical experiments are performed in PEM25 buffer [25 mM Pipes-K+ (pH 6.8), 2 mM MgCl2, 1 mM EGTA] supplemented with 10 μM paclitaxel for experiments involving microtubules. The IC50 for steady-state inhibition is determined at 500 μM ATP, 5 μM Microtubules, and 1 nM KSP in PEM25 buffer. Ki app (apparent inhibitor dissociation constant) values of Ispinesib are extracted from the dose-response curves, with explicit correction for enzyme concentration by using the Morrison equation. Inhibitor modality (e.g., competitive, noncompetitive, uncompetitive, or mixed) under steady-state conditions is determined by measuring the effect of inhibitor concentration on initial velocity as a function of substrate concentrations. Data are fit using equations in GraFit to velocity equations for the various modes of inhibition.

Cell Research	Cells are plated in log phase of growth in 96-well plates and treated with Ispinesib for 72 hours. Then, cell growth is measured using CellTiter-Glo, and luminescence is detected using BioTek FLx800. Data are analyzed and the IC50 value, defined as the drug concentration that results in 50% growth inhibition relative to control, is calculated. (Only for Reference)

Solubility Information

Solubility	Ethanol: 95 mg/mL (183.73 mM),Sonication is recommended. DMSO: 95 mg/mL (183.73 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.934 mL	9.6701 mL	19.3401 mL
5 mM	0.3868 mL	1.934 mL	3.868 mL
10 mM	0.1934 mL	0.967 mL	1.934 mL
50 mM	0.0387 mL	0.1934 mL	0.3868 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Lad L, et al. Biochemistry, 2008, 47(11), 3576-3585.
Johnson RK, et al. Proc Am Assoc Cancer Res, 2002, 43, 269.
Davis DA, et al. BMC Cancer, 2006, 6, 22.
Purcell JW, et al. Clin Cancer Res, 2010, 16(2), 566-576.