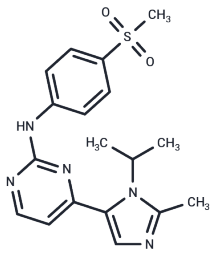
Data Sheet (Cat.No.T2506)

TargetMol

AZD-5438

Chemical Properties



CAS No. : 602306-29-6

Formula: C18H21N5O2S

Molecular Weight: 371.46

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	AZD-5438 is an effective inhibitor of CDK, for CDK1(IC50=16 nM), CDK2(IC50=6 nM), CDK9 (IC50=20 nM).
Targets(IC50)	CDK
In vitro	In the SW620 xenograft model, AZD5438 exhibits dose-dependent inhibition on various cell cycle proteins, such as phospho-histone H3 (phH3), phospho-nucleophosmin, and PP1a. AZD5438, administered orally, demonstrates tumor-suppressive effects across various cancer types including breast, colon, lung, prostate, and ovarian cancers.
In vivo	AZD5438 effectively inhibits the kinase activity of p25-cdk5 and glycogen synthase kinase 3β, with IC50 values of 14 nM and 17 nM, respectively. In various tumor cell lines (lung, colorectal, breast, prostate, and blood tumors), AZD5438 (IC50=0.2-1.7 μM) induces cell cycle arrest and inhibits cell proliferation by hindering the phosphorylation of cdk-dependent substrates. Furthermore, AZD5438 demonstrates potent inhibition of cyclin-dependent kinases (cdks) including E-cdk2 (IC50=6 nM), A-cdk2 (IC50=45 nM), B1-cdk1 (IC50=16 nM), D3-cdk6 (IC50=21 nM), and T-cdk9 (IC50=20 nM), showcasing its broad efficacy in targeting various components of the cell cycle mechanism.
Kinase Assay	Recombinant Kinase Assays [1]: The ability of AZD5438 to inhibit cdk activity is examined using a scintillation proximity assay with recombinant cdk-cyclin complexes of cyclin-Ecdk2, cdk2-cyclin A, cdk4-cyclin D, and recombinant retinoblastoma substrate (amino acids 792-928) or cdk1-cyclin B1 with a peptide substrate derived from the in vitro p34cdc2 phosphorylation site of histone H1 (biotin-X-Pro-Lys-Thr-Pro-Lys-Lys-Ala-Lys-Lys-Leu). The activity of AZD5438 against recombinant cdk5/p25 (at 2 μM ATP) is determined in a scintillation proximity assay-based assay using peptide substrate (AKKPKTPKKAKKLOH). Inhibition of glycogen synthase kinase 3β activity is determined with scintillation proximity assay based on the use of human purified glycogen synthase kinase 3βenzyme and eukaryotic initiation factor 2B substrate (at 1 μM ATP). AZD5438 is screened against active recombinant human cdk6-cyclin D3, cdk7-cyclin H/MAT1 (cdk activating kinase complex), and cdk9-cyclin T using the kinase selectivity screening service.
Cell Research	AZD5438 is tested against solid tumor cell lines. Briefly, cells are incubated for 48 hours with AZD5438 at a range of concentrations. At the end of incubation, the cells are pulsed with 5-bromo-2′-deoxyuridine (BrdUrd) and the amount of DNA synthesis is measured. The IC50 for inhibition of proliferation is specifically determined

Cell Research	death. Multiple myeloma cell lines are seeded into 96-well plates in RPMI 1640 supplemented with 10% FCS and glutamine and dosed with AZD5438 for 72 hours. Cell growth is measured using AlamarBlue and GI50 values are calculated with reference to pretreatment control values.(Only for Reference)

Solubility Information

Solubility	H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: 63 mg/mL (169.6 mM),Sonication is recommended. DMSO: 74 mg/mL (199.21 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (5.38 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6921 mL	13.4604 mL	26.9208 mL
5 mM	0.5384 mL	2.6921 mL	5.3842 mL
10 mM	0.2692 mL	1.346 mL	2.6921 mL
50 mM	0.0538 mL	0.2692 mL	0.5384 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Byth KF, et al. Mol Cancer Ther. 2009, 8(7), 1856-1866.