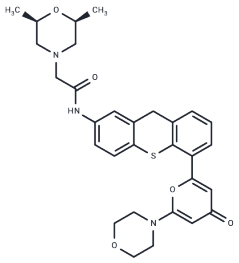
Data Sheet (Cat.No.T2474)

TargetMol

KU60019

Chemical Properties



CAS No. : 925701-46-8

Formula: C30H33N3O5S

Molecular Weight: 547.67

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	Ku-60019 is a potent, reversible inhibitor of ATM kinase (IC50: 6.3 nM). It is much less effective or without effect against a panel of 229 other kinases.
Targets(IC50)	ATM/ATR
In vitro	KU-60019 is an improved inhibitor of the ATM kinase with an IC50 of 6.3 nM, approximately half that of KU-55933. The IC50 values for DNA-PKcs and ATR are 1.7 and >10 μM, respectively, almost 270-and 1600-fold higher than for ATM [1]. KU-60019 at 300 nM completely inhibited p53 and H2AX phosphorylation as quickly as 15 min after application. When U1242 cells were treated with KU-60019 for 1 h, washed to remove KU-60019 and then challenged with IR, the inhibitory effects of KU-60019 were reversed as early as 15 min after washout [2].
In vivo	Despite PTEN-deficient control tumors reaching a 4-fold increase in size before PTEN wild-type controls, KU-60019-treated PTEN-deficient tumors displayed a statistically significant slowing in growth. This growth inhibition was especially evident at the start of the experiment (days 5–12) just after KU-60019 was administered (days 1–5) [3]. When mice harboring U1242/luc-GFP tumors were treated with KU-60019 administered from an osmotic pump followed by 2 Gy of irradiation, we were able to demonstrate a complete elimination of tumor cells on day 20 by bioluminescence imaging (BLI) 7 days after radiation [4].
Cell Research	Cell growth was determined by AlamarBlue. U1242 cells were serially diluted, allowed to attach for 6 h and then exposed to KU-60019 at 3 μM. At days 1, 3 and 5 after seeding, AlamarBlue was added to the medium to the recommended final concentration. Plates were incubated for 1 h at 37°C and fluorescence determined on a FluoroCount plate reader (excitation 530 nm, emission 590 nm) and values taken as a measure of cell growth [1].
Animal Research	Cells (3 × 10^7) were implanted into male Fox Chase Severe Combined Immunodeficiency (SCID) mice. Administration of doxycycline was started when tumors reached 100 mm3 in volume and was performed every 48 hours up to removal of the animal from the experiment. Forty-eight hours after PTEN induction, animals were administered KU-60019 (100 mg/kg) for 5 consecutive days and measured until they reached a target 400 mm3 volume. Measurements of tumor volume and body weight took place every 3 days using calipers [3].

Solubility Information

Solubility	DMSO: 160 mg/mL (292.15 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.8259 mL	9.1296 mL	18.2592 mL
5 mM	0.3652 mL	1.8259 mL	3.6518 mL
10 mM	0.1826 mL	0.913 mL	1.8259 mL
50 mM	0.0365 mL	0.1826 mL	0.3652 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

Golding SE, et al. Improved ATM kinase inhibitor KU-60019 radiosensitizes glioma cells, compromises insulin, AKT and ERK prosurvival signaling, and inhibits migration and invasion. Mol Cancer Ther. 2009 Oct;8(10):2894-902.
Ha G H, Ji J H, Chae S, et al. Pellino1 regulates reversible ATM activation via NBS1 ubiquitination at DNA double-strand breaks. Nature communications. 2019 Apr 5;10(1):1577.
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Ha G H, Ji J H, Chae S, et al. Pellino1 regulates reversible ATM activation via NBS1 ubiquitination at DNA double-strand breaks[J]. Nature communications. 2019 Apr 5;10(1):1577.

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