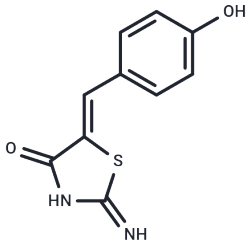
Data Sheet (Cat.No.T3134)

TargetMol

(Z)-Mirin

Chemical Properties



CAS No. : 1198097-97-0

Formula: C10H8N2O2S

Molecular Weight: 220.25

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	(Z)-Mirin is a potent Mre11-Rad50-Nbs1 (MRN) complex inhibitor, and inhibits Mre11-associated exonuclease activity.
Targets(IC50)	Apoptosis,ATM/ATR
In vitro	Mirin inhibits DSB-induced ATM activation, the ATM-dependent phosphorylation of the downstream targets Nbs1 and Chk2 and the MRN-dependent autophosphorylation of ATM at Ser1981 in response to DSBs. Mirin also inhibits the G2 checkpoint in TOSA4 cells, and homology-dependent DNA repair in HEK293 cells. [1] In cells with integrated HPV16 (SiHa), Mirin sensitizes HPV episomes to PA25 resulting in a ~5-fold reduction of the PA25 IC50. [2] Pretreatment with mirin also decreases cell viability and inhibits proliferating cell nuclear antigen expression in cisplatin-treated human embryonic kidney 293 cells. [3]
Kinase Assay	Nuclease assay: Reactions with oligonucleotide nonhairpin substrates contains 25 mM MOPS (pH 7.0), 60 mM KCl, 0.2% Tween 20, 2 mM DTT, 1 mM or 5 MnCl2 (or 5 mM MgCl2, or 5 mM CaCl2), 0.1 pmol of DNA substrate, and 0.3 pmol of Mre11 (or an equivalent amount of Mre11 complexed with Rad50) in a volume of 10 µl, and are incubated at 37°C for 30 min. SDS, EDTA, and proteinase K are then added to final concentrations of 0.2%, 5 mM, and 0.1 mg/ml, respectively, and incubated for another 15 min. 4 µl of each reaction is mixed with 4 µl of formamide loading buffer, and then loaded onto a sequencing gel containing 10% acrylamide and 7 M urea. After the run, each gel is analyzed using a phosphorimaging system. Reactions containing hairpin substrates are identical to those with nonhairpin substrates except that 3 pmol of Mre11 is added to reactions as indicated, and the reactions are incubated at room temperature overnight. Nonhomologous end-joining reactions contains 25 mM MOPS (pH 7.0), 60 mM KCl, 0.2% Tween 20, 2 mM DTT, 4 mM MgCl2, 2 mM MnCl2, 0.5 mM ATP, 4 ng of plasmid DNA, 10% polyethylene glycol, 0.01 pmol of human DNA ligase I, and 0.06 pmol of Mre11 or 0.1 units of E. coli exonuclease III (GIBCO-BRL), in a volume of 10 µl. After incubation at 37°C for 25 min, Tween 20 is added to a final concentration of 0.5%, and a 2.5 µl aliquot is amplified by PCR using primers DAR5 and DAR147. PCR products are cloned using the TA cloning kit and sequenced using an automated ABI Capillary Genetic Analyzer.
Cell Research	Human embryonic kidney (HEK) 293 cells are maintained in RPMI-1640 supplemented with 5% heat-inactivated fetal bovine serum, penicillin (100 U/mL), and streptomycin (100 mg/mL) in humidified air with 5% CO2 at 37 °C. Cells are given fresh medium at 48 h

Cell Research	intervals. The cells are seeded in 96-well plates in regular growth medium. Cells are pretreated with mirin (100 μM for 1 h before the cisplatin (20 μM) treatment followed by incubation for 8 and 24 h. The MTT assay is performed using the EZ-Cytox cell viability assay kit according to the manufacturer's protocol and MTT reduction is measured at a 450 nm wavelength using a micro-plate reader. (Only for Reference)

Solubility Information

Solubility	DMSO: 75 mg/mL (340.52 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 (9.08 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	4.5403 mL	22.7015 mL	45.403 mL
5 mM	0.9081 mL	4.5403 mL	9.0806 mL
10 mM	0.454 mL	2.2701 mL	4.5403 mL
50 mM	0.0908 mL	0.454 mL	0.9081 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

Dupré A, et al. Nat Chem Biol. 2008, 4(2), 119-125.
Edwards TG, et al. PLoS One. 2013, 8(10):e75406.
Kim YJ, et al. Environ Toxicol Pharmacol. 2015, 40(1), 12-17.