Mirin

Cat. No.: HY-117693

CAS No.: 299953-00-7

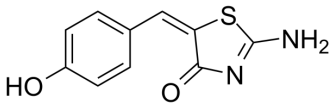
Molecular Formula: $C_{10}H_8N_2O_2S$

Molecular Weight: 220.25

Target: ATM/ATR

Pathway: Cell Cycle/DNA Damage; PI3K/Akt/mTOR

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 83.33 mg/mL (378.34 mM; Need ultrasonic)

Preparing Stock Solutions	Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
	1 mM	4.5403 mL	22.7015 mL	45.4030 mL
	5 mM	0.9081 mL	4.5403 mL	9.0806 mL
	10 mM	0.4540 mL	2.2701 mL	4.5403 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Mirin is a potent Mre11-Rad50-Nbs1 (MRN) complex inhibitor. Mirin prevents MRN-dependent activation of ATM (IC_{50}=12 μM) without affecting ATM protein kinase activity, and it inhibits Mre11-associated exonuclease activity. Mirin abolishes the G2/M checkpoint and homology-dependent repair in mammalian cells. Mirin prevents ATM activation in response to DNA double-strand breaks (DSBs) and blocks homology-directed repair (HDR) in mammalian cells[1].

In Vitro

Mirin inhibits H2AX phosphorylation with an IC_{50} of 66 μM. Mirin also inhibits 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 induces a substantial G2 arrest at concentrations of 50 μM and 100 μM. Mirin (10-100 μM) inhibits homology-dependent DNA repair in TOSA4 cells[1].
BRCA2-deficient cells also showed hypersensitivity to the Mre11 inhibitor Mirin[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- bioRxiv. 2023: 2023.11

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REFERENCES

[1]. Dupré A, et al. A forward chemical genetic screen reveals an inhibitor of the Mre11-Rad50-Nbs1 complex. Nat Chem Biol. 2008;4(2):119-125.

[2]. Ying S, et al. Mre11-dependent degradation of stalled DNA replication forks is prevented by BRCA2 and PARP1. Cancer Res. 2012;72(11):2814-2821.

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