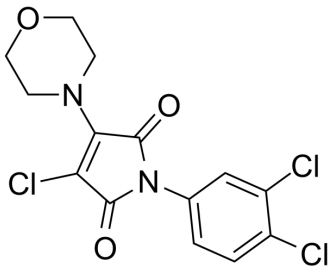
RI-1

Cat. No.:	HY-15317
CAS No.:	415713-60-9
Molecular Formula:	$C_{14}H_{11}Cl_3N_2O_3$
Molecular Weight:	361.61
Target:	RAD51
Pathway:	Cell Cycle/DNA Damage
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 33.33 mg/mL (92.17 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.7654 mL	13.8271 mL	27.6541 mL
5 mM	0.5531 mL	2.7654 mL	5.5308 mL
10 mM	0.2765 mL	1.3827 mL	2.7654 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.91 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

RI-1 is a RAD51 inhibitor, with IC_{50}s ranging from 5 to 30 μM. RI-1 binds covalently to the surface of RAD51 protein at cysteine 319. RI-1 inactivates RAD51 by directly binding to a protein surface that serves as an interface between protein subunits in RAD51 filaments. RI-1 can disrupt homologous recombination in human cells[1].

IC_{50} & Target

IC50: 5-30 μM (RAD51)[1]

In Vitro

RI-1 (1-50 μM; 24 h) specifically inhibits homologous recombination (HR) in U2OS cells and stimulates single-strand annealing (SSA) in HEK293 cells[1].
RI-1 (5-20 μM; 30 min) inhibits HsRAD51 in a concentration-dependent manner[1].
RI-1 (20 μM; 8 h) disrupts the formation of RAD51 foci after DNA damage in immortalized human fibroblasts[1].
RI-1 (15-25 μM; 24 h) sensitizes human cancer cells (HeLa, MCF-7 and U2OS) to cross-linking chemotherapy[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

RI-1 (50 mg/kg; i.p. every 3 d for 30 d) significantly reduces triple negative breast cancer (TNBC) tumor growth in mice[2].

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Animal Model:	Female BALB/c nude mice (6 weeks) bearing TNBC tumor[2]
Dosage:	50 mg/kg
Administration:	I.p. every 3 days for 30 days
Result:	Resulted in significant inhibition of tumor growth. Did not cause body weight loss significantly.

CUSTOMER VALIDATION

- Neoplasia. 2019 Apr 24;21(6):533-544.
- Hum Mol Genet. 2019 Oct 15;28(20):3422-3430.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.

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REFERENCES

[1]. Budke B, et, al. RI-1: a chemical inhibitor of RAD51 that disrupts homologous recombination in human cells. Nucleic Acids Res. 2012 Aug;40(15):7347-57.

[2]. Shi Y, et, al. DAXX, as a Tumor Suppressor, Impacts DNA Damage Repair and Sensitizes BRCA-Proficient TNBC Cells to PARP Inhibitors. Neoplasia. 2019 Jun;21(6):533-544.

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