SCR7 pyrazine

Cat. No.: HY-107845

CAS No.: 14892-97-8

Molecular Formula: $C_{18}H_{12}N_4OS$

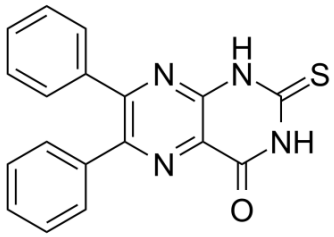
Molecular Weight: 332.38

Target: CRISPR/Cas9; DNA/RNA Synthesis; Apoptosis

Pathway: Cell Cycle/DNA Damage; Apoptosis

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 : 100 mg/mL (300.86 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0086 mL	15.0430 mL	30.0860 mL
	5 mM	0.6017 mL	3.0086 mL	6.0172 mL
	10 mM	0.3009 mL	1.5043 mL	3.0086 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.52 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.52 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SCR7 pyrazine is a DNA ligase IV inhibitor that blocks nonhomologous end-joining (NHEJ) in a ligase IV-dependent manner. SCR7 pyrazine is also a CRISPR/Cas9 enhancer which increases the efficiency of Cas9-mediated homology-directed repair (HDR). SCR7 pyrazine induces cell apoptosis and has anticancer activity[1][2].

IC_{50} & Target

DNA Ligase IV[1]
CRISPR/Cas9[2]

In Vitro

SCR7 pyrazine (20-100 μM; 24 hours; MCF7 cells) treatment interferes with NHEJ in cells, leading to accumulation of unrepaired double-strand breaks (DSBs)[1].
SCR7 pyrazine treatment shows a dose-dependent decrease in cell proliferation with IC_{50} values of 40 μM, 34 μM, 44 μM, 8.5

μM, 120 μM, 10 μM and 50 μM for MCF7, A549, HeLa, T47D, A2780, HT1080 and Nalm6 cells, respectively[1].
In MCF7 cells, SCR7 pyrazine (20, 40 μM) treatment increases phosphorylation of ATM and activates p53, decreases MDM2, BCL2, resulting in activation of proapoptotic proteins, PUMA and BAX. And the shorter fragments of MCL1, PARP1, Caspase 3, and Caspase 9 cleavage are upregulated in a dose-dependent manner[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	MCF7 cells
Concentration:	20 μM, 40 μM, 100 μM
Incubation Time:	24 hours
Result:	Showed an increase in levels of gH2AX foci and protein.

In Vivo

SCR7 pyrazine (10 mg/kg; intraperitoneal injection; six doses; BALB/c mice) treatment significantly reduces breast adenocarcinoma-induced tumor and increases lifespan[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	BALB/c mice injected with breast adenocarcinoma cells[1]
Dosage:	10 mg/kg
Administration:	Intraperitoneal injection; on alternate days (0, 2, 4, 6, 8, and 10)
Result:	Significantly reduced breast adenocarcinoma-induced tumor and increased lifespan.

CUSTOMER VALIDATION

- EMBO Rep. 2019 Mar;20(3):e46821.
- J Immunol. 2020 Feb 19. pii: ji1900305.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.
- Onco Targets Ther. 2018 Aug 17;11:4945-4953.

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REFERENCES

[1]. Srivastava M, et al. An inhibitor of nonhomologous end-joining abrogates double-strand break repair and impedes cancer progression. Cell. 2012 Dec 21;151(7):1474-87.

[2]. Lin C, et al. Increasing the Efficiency of CRISPR/Cas9-mediated Precise Genome Editing of HSV-1 Virus in Human Cells. Sci Rep. 2016 Oct 7;6:34531.

Caution: Product has not been fully validated for medical applications. For research use only.

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