Ceralasertib

Cat. No.: HY-19323

CAS No.: 1352226-88-0

Molecular Formula: $C_{20}H_{24}N_6O_2S$

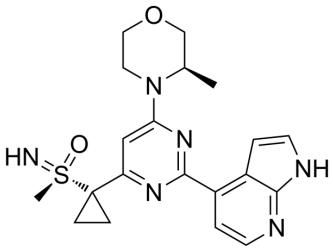
Molecular Weight: 412.51

Target: ATM/ATR

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

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	1 year
	-20°C	6 months



SOLVENT & SOLUBILITY

In Vitro

DMSO : 83.33 mg/mL (202.01 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4242 mL	12.1209 mL	24.2418 mL
5 mM	0.4848 mL	2.4242 mL	4.8484 mL
10 mM	0.2424 mL	1.2121 mL	2.4242 mL

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 10 mg/mL (24.24 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 6.67 mg/mL (16.17 mM); Clear solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.04 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.04 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ceralasertib (AZD6738) is an orally active and bioavailable inhibitor of ATR kinase with an IC_{50} of 1 nM.

IC_{50} & Target

ATR	PI3Kδ	DYRK
1 nM (IC_{50})	6.8 μM (IC_{50})	10.8 μM (IC_{50})

In Vitro	Ceralasertib (AZD6738) is a potent inhibitor of ATR kinase activity with an IC_{50} of 0.001 μM against the isolated enzyme and 0.074 μM against ATR kinase-dependent CHK1 phosphorylation in cells. Ceralasertib (AZD6738) induces cell death and senescence in non-small cell lung cancer (NSCLC) cell lines. Ceralasertib (AZD6738) impairs viability of four Kras mutant cell lines: H23, H460, A549, and H358. , with the lowest GI_{50} and greatest maximal inhibition in H460 and H23 cells (1.05 μM, 88.0% and 2.38 μM, 86.2%, respectively). Ceralasertib (AZD6738) potentiates the cytotoxicity of CDDP and NSC 613327 in NSCLC cell lines with intact ATM kinase signaling, and potently synergizes with CDDP in ATM-deficient NSCLC cells[1]. Ceralasertib (AZD6738) inhibits human breast cancer cell lines with IC_{50} values less than 1 μM using MTT assay. Ceralasertib (AZD6738) induces cell cycle arrest and apoptosis. It downregulates DNA damage response molecules and cell proliferative signaling molecules[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Daily administration of Ceralasertib (AZD6738) and ATR kinase inhibition for 14 consecutive days is tolerated in mice and enhances the therapeutic efficacy of CDDP in xenograft models. Remarkably, the combination of CDDP and Ceralasertib (AZD6738) resolves ATM-deficient lung cancer xenografts[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	Ceralasertib (AZD6738) is dissolved in DMSO at 30 mM and diluted in DMSO to desired working concentrations. The final DMSO concentration in media for all conditions and controls is 0.1% for Ceralasertib (AZD6738) dose response experiments, 0.05% for Ceralasertib (AZD6738) + chemotherapy viability experiments, and 0.025% for all experiments involving 0.3 μM and 1.0 μM doses of Ceralasertib (AZD6738)[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Mice[1] Ceralasertib (AZD6738) is dissolved in DMSO at a concentration of 25 mg/mL or 50 mg/mL and diluted 1:5 in propylene glycol. Ceralasertib (AZD6738) is administered by oral gavage at 25 mg/kg (H23) or 50 mg/kg (H460) for 14 consecutive days. The dosing volume is 10 mL/kg.[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2024 Feb 16;15(1):1446.
- Nat Commun. 2022 Aug 4;13(1):4520.
- Nat Commun. 2020 Jan 8;11(1):123.
- Nucleic Acids Res. 2023 Nov 1:gkad973.
- Redox Biol. 2023 Jul 7, 102810.

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REFERENCES

[1]. Vendetti FP, et al. The orally active and bioavailable ATR kinase inhibitor AZD6738 potentiates the anti-tumor effects of CDDP to resolve ATM-deficient non-small cell lung cancer in vivo.

[2]. Kim HJ, et al. Anti-tumor activity of the ATR inhibitor AZD6738 in HER2 positive breast cancer cells. Int J Cancer. 2017 Jan 1;140(1):109-119.

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

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