AT-533

Cat. No.: HY-148877

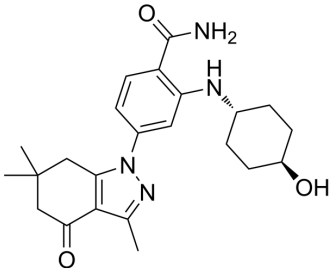
CAS No.: 908112-37-8

Molecular Formula: $C_{23}H_{30}N_4O_3$

Molecular Weight: 410.51

Target: HSP; HSV; HIF/HIF Prolyl-Hydroxylase; VEGFR; NF-κB; ERK; Akt; FAK

Pathway: Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Anti-infection; Protein Tyrosine Kinase/RTK; NF-κB; MAPK/ERK Pathway; Stem Cell/Wnt; PI3K/Akt/mTOR



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 (81.19 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.4360 mL	12.1800 mL	24.3599 mL
	5 mM	0.4872 mL	2.4360 mL	4.8720 mL
	10 mM	0.2436 mL	1.2180 mL	2.4360 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 (6.09 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.09 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.09 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AT-533 is a potent Hsp90 and HSV inhibitor. AT-533 suppresses tumor growth and angiogenesis by blocking the HIF-1α/VEGF/VEGFR-2 signaling pathway. AT-533 also inhibits the activation of the downstream pathways, including Akt/mTOR/p70S6K, Erk1/2 and FAK. AT-533 inhibits the tube formation, cell migration, and invasion of human umbilical vein endothelial cells (HUVECs)[1][2][3].

IC_{50} & Target	HSP90	HSV-1	ERK1	ERK2

	NF-κB	Akt	HIF-1α	VEGF/VEGFR-2

In Vitro

AT-533 (0-1350 nM; 24 h or 48 h) inhibits 20 ng/mL VEGF-induced tube formation, cell migration, and invasion of HUVECs[1].
AT-533 (2 μM or 75 μM; 24 h) inhibits the HIF-1α/VEGF signaling pathway in hypoxia-induced breast cancer cells, as well as inhibiting Akt/mTOR/p70S6K, Erk1/2, and FAK phosphorylation[1].
AT-533 (10 nM, 50 nM; 48 h) shows anti-angiogenic ability in chorioallantoic membrane (CAM) model[1].
AT-533 (0.5 μM; 2 h, 4 h) decreases TNF-α, IL-1β and IL-6 production in RAW264.7 and BV2 cells induced by HSV-1[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Human umbilical vein endothelial cells (HUVECs): MCF-7 and MDA-MB-231
Concentration:	0, 5.6, 16.7, 50, 150, 450, and 1350 nM
Incubation Time:	12 h, 24 h, 48 h, and 72 h
Result:	Inhibited cell viability at 48 h with an IC_{50} value of 50.1 nM.

Western Blot Analysis[1]

Cell Line:	MCF-7 cells and MDA-MB-231 cells
Concentration:	5 nM, 10 nM, 50 nM, and 75 nM
Incubation Time:	24 h
Result:	Inhibited the phosphorylation of VEGF-2, Akt, mTOR, Erk1/2, FAK.

In Vivo

AT-533 (10 mg/kg; i.p.; once daily for 21 d) suppresses the expression of the HIF-1α/VEGF signaling pathway-related proteins in MDA-MB-231 breast cancer xenografts tumor model in mouse[1].
AT-533 (1, 2 and 4 mg/kg; i.p.; once daily for 30 d) has no mortality, loss of appetite and body weight, adverse reactions in Sprague-Dawley rats in subacute toxicity test[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male C57BL/6 mice with MDA-MB-231 breast cancer xenografts[1]
Dosage:	10 mg/kg;
Administration:	Intraperitoneal injection; once daily for 21 days
Result:	Significantly downregulated HIF-1α and VEGF expression.

REFERENCES

[1]. Zhang PC, et al. AT-533, a novel Hsp90 inhibitor, inhibits breast cancer growth and HIF-1α/VEGF/VEGFR-2-mediated angiogenesis in vitro and in vivo. Biochem Pharmacol. 2020 Feb;172:113771.

[2]. Li F, et al. AT-533, a Hsp90 inhibitor, attenuates HSV-1-induced inflammation. Biochem Pharmacol. 2019 Aug;166:82-92.

[3]. Wu Y, et al. Subacute toxicological evaluation of AT-533 and AT-533 gel in Sprague-Dawley rats. Exp Ther Med. 2021 Jun;21(6):632.

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

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