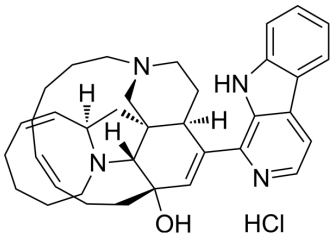
Manzamine A hydrochloride

Cat. No.:	HY-117025A
CAS No.:	104264-80-4
Molecular Formula:	$C_{36}H_{45}ClN_4O$
Molecular Weight:	585.22
Target:	GSK-3; Parasite; Proton Pump; Autophagy; CDK; HSV
Pathway:	PI3K/Akt/mTOR; Stem Cell/Wnt; Anti-infection; Membrane Transporter/Ion Channel; Autophagy; Cell Cycle/DNA Damage
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 : 5.88 mg/mL (10.05 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7088 mL	8.5438 mL	17.0876 mL
	5 mM	0.3418 mL	1.7088 mL	3.4175 mL
	10 mM	0.1709 mL	0.8544 mL	1.7088 mL

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

BIOLOGICAL ACTIVITY

Description

Manzamine A hydrochloride, an orally active beta-carboline alkaloid, inhibits specifically GSK-3β and CDK-5 with IC_{50}s of 10.2 μM and 1.5 μM, respectively. Manzamine A hydrochloride targets vacuolar ATPases and inhibits autophagy in pancreatic cancer cells. Manzamine A hydrochloride has antimalarial and anticancer activities. Manzamine A hydrochloride also shows potent activity against HSV-1[1][2][3][4].

IC_{50} & Target

GSK-3β 10.2 μM (IC_{50})	Plasmodium	CDK5 1.5 μM (IC_{50})	vacuolar ATPases
Malaria	HSV-1		

In Vitro

Manzamine A (5-50 μM, 18 h) hydrochloride decreases tau phosphorylation, measured with ELISA[1].
Manzamine A (10 μM) hydrochloride inhibits yeast S. cerevisiae growth by 30%[2].
Manzamine A hydrochloride displays a few enlarged vacuoles in yeast[2].
Manzamine A (2.5-10 μM, 24 h) hydrochloride increases acidity in pancreatic cancer cells and non-malignant Vero cells[2].
Manzamine A (1 μM, 24 h) hydrochloride inhibits HSV-1 infection in SIRC cells[4].

Manzamine A hydrochloride shows antimalarial activity with an IC_{50} of 8.0 nM (D6 clone) and 11 nM (W2 clone)[5].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[4]

Cell Line:	SIRC cell
Concentration:	0.1, 0.5, 1, 2, 3, 5, and 10 μM
Incubation Time:	72 h
Result:	Inhibited SIRC cell viability with an IC_{50} of 5.6 μM.

In Vivo

Manzamine A (50 and 100 mol/kg, p.o. or i.p.) hydrochloride inhibits the growth of the rodent malaria parasite Plasmodium berghei in infected mice[6].

Manzamine A (8 mg/kg, i.p., daily for 8 consecutive days) hydrochloride prolongs the survival of SW mice to 20 days[7].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Plasmodium berghei in infected mice[6]
Dosage:	50 or 100 mol/kg
Administration:	Intraperitoneal injection (i.p.) or oral administration (p.o.)
Result:	Inhibited the growth of the rodent malaria parasite Plasmodium berghei.Prolonged the survival of highly parasitaemic mice.

CUSTOMER VALIDATION

- Mar Drugs. 2023, 21(3), 151.

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REFERENCES

[1]. Wahba AE, et al. Structure-activity relationship studies of manzamine A: amidation of positions 6 and 8 of the beta-carboline moiety. Bioorg Med Chem. 2009 Nov 15;17(22):7775-82.

[2]. Donia M, et al. Marine natural products and their potential applications as anti-infective agents. Lancet Infect Dis. 2003 Jun;3(6):338-48.

[3]. El Sayed KA, et al. New manzamine alkaloids with potent activity against infectious diseases. J Am Chem Soc. 2001 Mar 7;123(9):1804-8.

[4]. Hamann M, et al. Glycogen synthase kinase-3 (GSK-3) inhibitory activity and structure-activity relationship (SAR) studies of the manzamine alkaloids. Potential for Alzheimer's disease. J Nat Prod. 2007;70(9):1397-1405.

[5]. Winkler JD, et al. Antimalarial activity of a new family of analogues of manzamine A. Org Lett. 2006;8(12):2591-2594.

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[7]. Palem JR, et al. Manzamine A as a novel inhibitor of herpes simplex virus type-1 replication in cultured corneal cells. Planta Med. 2011;77(1):46-51.

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

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