GNF179

Cat. No.: HY-15975

CAS No.: 1261114-01-5

Molecular Formula: $C_{22}H_{23}ClFN_5O$

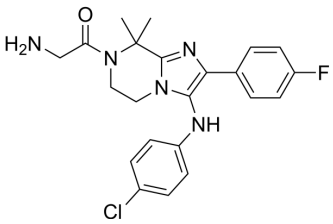
Molecular Weight: 427.9

Target: Parasite

Pathway: Anti-infection

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (233.70 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3370 mL	11.6850 mL	23.3699 mL
5 mM	0.4674 mL	2.3370 mL	4.6740 mL
10 mM	0.2337 mL	1.1685 mL	2.3370 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: ≥ 2.08 mg/mL (4.86 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.86 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.86 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

GNF179 is an optimized 8,8-dimethyl imidazolopiperazine analog that exhibits antimalarial potency (IC_{50} of 4.8 nM against the multidrug resistant strain W2). GNF179 is orally active[1].

IC_{50} & Target

Plasmodium

In Vitro

GNF179 does not rapidly inhibit parasite protein biosynthesis nor is it likely to target parasite cytochrome bc1, which has been validated as a hepatic stage target for Atovaquone (HY-13832). GNF179 may act against sporozoites instead of hepatic

stages[1].

GNF179 (5-100 nM; 48 h) shows high inhibition of gametocyte sexual life cycle progression in the mosquito as it abolished oocyst formation at 5 nM[2].

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

In Vivo

GNF179 (15 mg/kg; p.o.; single dose) shows antimalarial activity in rodent malaria model[1].

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

Animal Model:	Naïve Balb/C mice infected with P. berghei[1]
Dosage:	15 mg/kg
Administration:	Oral, single dose
Result:	Protected against an infectious P. berghei sporozoite.

Animal Model:	Naïve Balb/C mice[1]
Dosage:	3 or 20 mg/kg
Administration:	IV or PO (Pharmacokinetic Analysis)
Result:	Pharmacokinetics of GNF179 in naïve Balb/C mice.

Dose	$AUC_{(0-\infty)}$ (hrs*μM)	AUC/dose	$t_{1/2}$ (hrs)	MRT (hrs)	CL (ml/min/kg)	V_{ss} (L/kg)	C_0 or C_{max} (μM)	F (%)
3 mg/kg i.v.	8.88	3.0	8.9	9.0	22	11.8	6.1	nd
20 mg/kg p.o.	20.70	1.0	8.4	nd	nd	nd	1.2	58

AUC, Area Under the Curve; $T_{1/2}$, half life; CL, clearance; V_{SS}, steady-state volume of distribution; C_0, initial concentration; C_{max} maximum concentration; F, fraction of dose absorbed; hrs, hours; nd, not determined.

REFERENCES

[1]. Ouologuem DT, et al. A Novel Ex Vivo Drug Assay for Assessing the Transmission-Blocking Activity of Compounds on Field-Isolated Plasmodium falciparum Gametocytes. Antimicrob Agents Chemother. 2022 Nov 2:e0100122.

[2]. Meister S, et al. Imaging of Plasmodium liver stages to drive next-generation antimalarial drug discovery. Science. 2011 Dec 9;334(6061):1372-7.

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

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA