9-Aminoacridine

Cat. No.: HY-B1422

CAS No.: 90-45-9

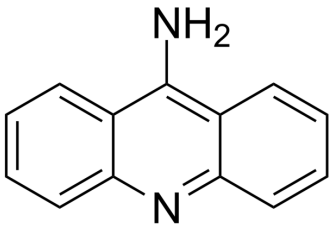
Molecular Formula: $C_{13}H_{10}N_2$

Molecular Weight: 194.23

Target: HIV; Bacterial

Pathway: Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 27.5 mg/mL (141.58 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	5.1485 mL	25.7427 mL	51.4854 mL
	5 mM	1.0297 mL	5.1485 mL	10.2971 mL
	10 mM	0.5149 mL	2.5743 mL	5.1485 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: ≥ 2.75 mg/mL (14.16 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.75 mg/mL (14.16 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

9-Aminoacridine, a fluorescent probe, acts as an indicator of pH for quantitative determination of transmembrane pH gradients (inside acidic). 9-Aminoacridine is an antimicrobial. 9-Aminoacridine exerts its antimicrobial activity by interacting with specific bacterial DNA and disrupting the proton motive force in K. pneumoniae. 9-Aminoacridine is a HIV-1 inhibitor and inhibits HIV LTR transcription highly dependent on the presence and location of the amino moiety. 9-Aminoacridine inhibits virus replication in HIV-1 infected cell lines. 9-Aminoacridine is used as a Rifampin (RIF; HY-B0272) adjuvant for the multidrug-resistant K. pneumoniae infections[1][2][3].

IC_{50} & Target

HIV-1

In Vitro

9-Aminoacridine has a strong antimicrobial effect on K. pneumoniae, with MICs from 8 to 16 μg/mL[1].
9-Aminoacridine (0-64 μg/mL) shows moderate cytotoxicity to normal (LO2, HK2, HMC3) and tumor (HepG2, 786-O, U251)

	human cell lines, but when used as a RIF adjuvant, the reduced dosage of 9-Aminoacridine further diminishes its toxicity[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	9-Aminoacridine (Aminacrine; 15 mg/kg; subcutaneously) with a single dose decreases the abscess area in the skin subcutaneous abscess mice model[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	7-week-old ICR female mice with the skin subcutaneous abscess model[2]
Dosage:	15 mg/kg
Administration:	Subcutaneously
Result:	A single dose of 15 mg/kg 9-AA decreased the abscess area. A single dose of 15 mg/kg 9-AA or 20 mg/kg Rifampin (RIF; HY-B0272) did not significantly reduce the viable bacterial loads in the abscess. The combined use of the drugs significantly decreased the bacterial load by 3.15 $\log_{10}$ CFU/abscess.

CUSTOMER VALIDATION

- Sci Data. 2022 Oct 8;9(1):610.
- Microbiol Spectr. 2023 Apr 10;e0447422.

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REFERENCES

[1]. Pengfei She, et al. Repurposing 9-Aminoacridine as an Adjuvant Enhances the Antimicrobial Effects of Rifampin against Multidrug-Resistant Klebsiella pneumonia. Microbiol Spectr. 2023 Jun 15;11(3):e0447422.

[2]. Irene Guendel, et al. 9-Aminoacridine inhibition of HIV-1 Tat dependent transcription. Virol J. 2009 Jul 24:6:114.

[3]. S Grzesiek, et al. The 'delta pH'-probe 9-aminoacridine: response time, binding behaviour and dimerization at the membrane. Biochim Biophys Acta. 1988 Mar 3;938(3):411-24.

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