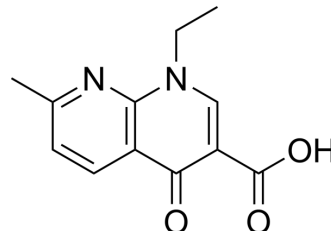


Nalidixic acid

Cat. No.:	HY-B0398		
CAS No.:	389-08-2		
Molecular Formula:	C ₁₂ H ₁₂ N ₂ O ₃		
Molecular Weight:	232.24		
Target:	Bacterial; Antibiotic; Topoisomerase		
Pathway:	Anti-infection; Cell Cycle/DNA Damage		
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 : 6 mg/mL (25.84 mM; Need ultrasonic)
 H₂O : 5 mg/mL (21.53 mM; ultrasonic and warming and heat to 80°C)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	4.3059 mL	21.5295 mL	43.0589 mL
	5 mM	0.8612 mL	4.3059 mL	8.6118 mL
	10 mM	0.4306 mL	2.1529 mL	4.3059 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
 Solubility: ≥ 0.5 mg/mL (2.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nalidixic acid, a quinolone antibiotic, is effective against both gram-positive and gram-negative bacteria. Nalidixic acid acts in a bacteriostatic manner in lower concentrations and is bactericidal in higher concentrations. Nalidixic acid inhibits a subunit of DNA gyrase and topoisomerase IV and reversibly blocks DNA replication in susceptible bacteria^[1].

IC₅₀ & Target

Quinolone

Topoisomerase

In Vitro

Nalidixic acid is against a variety of microorganisms, it is against with *Escherichia coli*, *Pasteurella* spp., *Klebsiella pneumoniae*, *Aerobacter aerogenes*, *Proteus* spp., *Salmonella* spp., *Shigella* spp. and *Brucella* spp. with MIC values of 5.0-12.5 µg/ml, 0.5-2.5 µg/ml, 0.8-25.0 µg/ml, 1.0-25.0 µg/ml, 1.25-30.0 µg/ml, 8-3.2 µg/ml, and 7.5-10.0 µg/ml, respectively^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

The in vivo activity of Nalidixic acid is most pronounced against Gram-negative bacteria, while Gram-positive organisms are generally more resistant. Maximal activity is observed against systemic infections caused by *E. coli*, *A. aerobacter*, *Proteus mirabilis*, *Shigella flexneri*, the ED₅₀ values are 25 mg/kg, 60 mg/kg, 50 mg/kg, and 62 mg/kg, respectively^[1].

The acute toxicity (LD₅₀) of Nalidixic acid in mice following oral and parenteral administration is: oral, 3300 mg/kg; intravenous, 176 mg/kg, and subcutaneous, 500 mg/kg^[1].

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

CUSTOMER VALIDATION

- J Biol Chem. 2021 Dec 29;101554.

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REFERENCES

- [1]. antibiotic, DNA gyrase, susceptible bacteria, *Escherichia coli*, *Klebsiella pneumoniae*, *Aerobacter aerogenes*, *Proteus* spp, *Salmonella* spp.
- [2]. Anna Fàbrega, et al. Mechanism of Action of and Resistance to Quinolones. *Microb Biotechnol*

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

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