Spiramycin

Cat. No.: HY-100593

CAS No.: 8025-81-8

Molecular Formula: $C_{43}H_{74}N_2O_{14}$

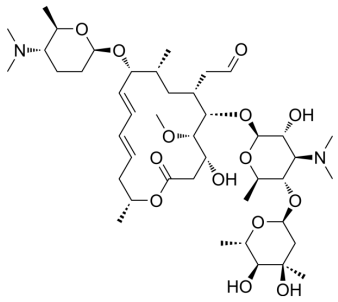
Molecular Weight: 843.05

Target: Bacterial; Parasite; Antibiotic

Pathway: Anti-infection

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 : ≥ 100 mg/mL (118.62 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.1862 mL	5.9308 mL	11.8617 mL
5 mM	0.2372 mL	1.1862 mL	2.3723 mL
10 mM	0.1186 mL	0.5931 mL	1.1862 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 (2.97 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (2.97 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (2.97 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Spiramycin (Rovamycin) is a macrolide antibiotic produced by Streptomyces ambofaciens with against bacteria and Toxoplasma gondii activities, and also has antiparasitic effect. Spiramycin is composed of a 16-member lactone ring, on which three sugars (mycaminose, forosamine, and mycarose) are attached[1][2].

IC_{50} & Target		
	Macrolide	Toxoplasma

In Vitro

Spiramycin (24 hours; 1-1000 μM; T. gondii infected HeLa cells and HeLa cells) treatment reduces the cytotoxicity, and shows anti-Toxoplasma gondii activity, with IC_{50} values of 189 μM for HeLa cells; and 262 μM for T. gondii-infected HeLa cells[3].

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

Cell Cytotoxicity Assay[3]

Cell Line:	T. gondii infected HeLa cells and HeLa cells
Concentration:	1-1000 μM
Incubation Time:	24 hours
Result:	Reduced the cytotoxicity.

In Vivo

Spiramycin (100 mg/kg; intraperitoneal injection; every day; for 4 days; female KM mice) treatment reduces the number of tachyzoites, and reduces hepatotoxicity and significantly enhances antioxidative effects. Spiramycin treatment also decreases in the degree of granulomatous inflammation in the liver[3].

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

Animal Model:	36 female KM mice with T.gondii[3]
Dosage:	100 mg/kg
Administration:	Intraperitoneal injection; every day; for 4 days
Result:	The number of tachyzoites was significantly reduced. Reduced hepatotoxicity and significantly enhanced antioxidative effects. Granuloma and cyst formation were inhibitied.

CUSTOMER VALIDATION

- Cell Prolif. 2021 Jan;54(1):e12953.

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REFERENCES

[1]. Nguyen HC, et al. Post-PKS tailoring steps of the spiramycin macrolactone ring in Streptomyces ambofaciens. Antimicrob Agents Chemother. 2013 Aug;57(8):3836-42.

[2]. Etewa SE, et al. Assessment of spiramycin-loaded chitosan nanoparticles treatment on acute and chronic toxoplasmosis in mice. J Parasit Dis. 2018 Mar;42(1):102-113.

[3]. Guo HY, et al. Synthesis and Biological Evaluation of (+)-Usnic Acid Derivatives as Potential Anti-Toxoplasma gondii Agents. J Agric Food Chem. 2019 Aug 28;67(34):9630-9642.

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