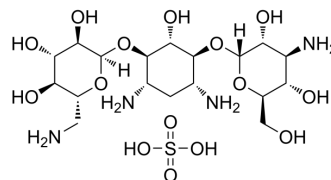


Kanamycin sulfate

Cat. No.:	HY-16566A
CAS No.:	25389-94-0
Molecular Formula:	C ₁₈ H ₃₈ N ₄ O ₁₅ S
Molecular Weight:	582.58
Target:	Bacterial; Antibiotic
Pathway:	Anti-infection
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H₂O : ≥ 25 mg/mL (42.91 mM)
 DMSO : < 1 mg/mL (insoluble or slightly soluble)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	1.7165 mL	8.5825 mL	17.1650 mL
	5 mM	0.3433 mL	1.7165 mL	3.4330 mL
	10 mM	0.1717 mL	0.8583 mL	1.7165 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 50 mg/mL (85.83 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: Saline
Solubility: 50 mg/mL (85.83 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Kanamycin (Kanamycin A) sulfate is an orally active antibacterial (gram-negative/positive bacteria) agent, inhibits translocation and causes miscoding by binding to the 70 S ribosomal subunit. Kanamycin sulfate shows good inhibitory activity to both *M. tuberculosis* (sensitive and drug-resistant) and *K. pneumonia*, which can be used in studies of tuberculosis and pneumonia^{[1][2][3][4]}.

In Vitro

Kanamycin sulfate (0.1-100 µg/mL; 2 weeks) exhibits good antibacterial activity (MIC=1-5 µg/mL) to various strains of mycobacteria in vitro^[1].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.
 Cell Viability Assay^[1]

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In Vivo	<p>Kanamycin sulfate (2, 4 mg/kg; s.c.; once daily, 6 times a week for 3 weeks) inhibits growth of bovine tubercle bacilli in lung and spleen of mice^[1].</p> <p>Kanamycin sulfate (1.25, 5 mg/kg; s.c.; single (at 3 h after infection)) inhibits the multiplication of K. pneumonia DT-S in lung, trachea, and blood of mice and in proportion to the dose administration, and also increases the survival rate of mice^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Inbred strain normal mice (14-16 g; bovine tubercle bacilli (Ravenel strain) infected model)^[1].</td> </tr> <tr> <td>Dosage:</td> <td>2, 4 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Subcutaneous injection; once daily, 6 times a week for 3 weeks.</td> </tr> <tr> <td>Result:</td> <td>Exerted a marked effect to inhibit the multiplication of the tuberculosis in vivo, especially in the lung of mice.</td> </tr> </table> <table border="1"> <tr> <td>Animal Model:</td> <td>Slc:ICR male mice (4-week-old; 18-24 g; K. pneumonia DT-S infection model (by the aerosol method))^[2].</td> </tr> <tr> <td>Dosage:</td> <td>1.25, 5 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Subcutaneous administration; single (at 3 h after infection).</td> </tr> <tr> <td>Result:</td> <td>Suppressed the growth of K. pneumonia DT-S in lung, trachea, and blood in proportion to the dose administration. Resulted in 90% survival at 6 days after infection (negative control group: all died within 4 days), and cleared the K. pneumonia DT-S from lung, trachea, and blood of mice within 48 h (when dosage at 5 mg/kg).</td> </tr> </table>	Animal Model:	Inbred strain normal mice (14-16 g; bovine tubercle bacilli (Ravenel strain) infected model) ^[1] .	Dosage:	2, 4 mg/kg	Administration:	Subcutaneous injection; once daily, 6 times a week for 3 weeks.	Result:	Exerted a marked effect to inhibit the multiplication of the tuberculosis in vivo, especially in the lung of mice.	Animal Model:	Slc:ICR male mice (4-week-old; 18-24 g; K. pneumonia DT-S infection model (by the aerosol method)) ^[2] .	Dosage:	1.25, 5 mg/kg	Administration:	Subcutaneous administration; single (at 3 h after infection).	Result:	Suppressed the growth of K. pneumonia DT-S in lung, trachea, and blood in proportion to the dose administration. Resulted in 90% survival at 6 days after infection (negative control group: all died within 4 days), and cleared the K. pneumonia DT-S from lung, trachea, and blood of mice within 48 h (when dosage at 5 mg/kg).
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CUSTOMER VALIDATION

- Nucleic Acids Res. 2022 Dec 12;gkac1141.
- Cell Death Dis. 2021 May 18;12(6):509.
- Food Chem. 2022 Sep 26;403:134399.
- Microb Biotechnol. 2021 Mar 15.
- ACS Infect Dis. 2024 Apr 12;10(4):1327-1338.

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REFERENCES

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- [1]. YANAGISAWA K, et al. Studies on kanamycin, a new antibiotic against tubercle bacilli. I. Effect on virulent tubercle bacilli in vitro and in mice. J Antibiot (Tokyo). 1957 Nov;10(6):233-5.
- [2]. Nishi T, et al. Experimental respiratory tract infection with Klebsiella pneumoniae DT-S in mice: chemotherapy with kanamycin. Antimicrob Agents Chemother. 1980 Mar;17(3):494-505.
- [3]. Misumi M, et al. Interaction of kanamycin and related antibiotics with the large subunit of ribosomes and the inhibition of translocation. Biochem Biophys Res Commun. 1978 Sep 29;84(2):358-65.
- [4]. Misumi M, et al. Mechanism of inhibition of translocation by kanamycin and viomycin: a comparative study with fusidic acid. Biochem Biophys Res Commun. 1980 Jan 29;92(2):647-54.
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Caution: Product has not been fully validated for medical applications. For research use only.

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