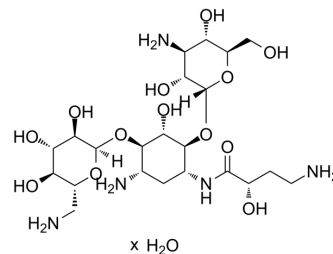


Amikacin hydrate

Cat. No.:	HY-B0509
CAS No.:	1257517-67-1
Molecular Formula:	C ₂₂ H ₄₃ N ₅ O ₁₃ ·xH ₂ O
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	H ₂ O : 50 mg/mL (Need ultrasonic) DMSO : < 1 mg/mL (insoluble or slightly soluble)
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BIOLOGICAL ACTIVITY

Description	Amikacin hydrate (BAY 41-6551 hydrate) is an aminoglycoside antibiotic and a semisynthetic analog of kanamycin. Amikacin hydrate is bactericidal, acting directly on the 30S and 50S bacterial ribosomal subunits to inhibit protein synthesis. Amikacin hydrate is very active against most Gram-negative bacteria including gentamicin- and tobramycin-resistant strains. Amikacin hydrate also inhibits the infections caused by susceptible <i>Nocardia</i> and nontuberculous mycobacteria ^{[1][2]} .								
IC₅₀ & Target	Aminoglycoside								
In Vitro	Amikacin offers definite advantages for treating infections caused by organisms resistant to other aminoglycosides. Amikacin is affected by relatively few aminoglycoside-modifying enzymes. Amikacin is useful in the treatment of infections caused by <i>Nocardia asteroides</i> , <i>Mycobacterium avium-intracellulare</i> , and certain species of "rapid-growing" mycobacteria (that is, <i>M. chelonae</i> and <i>M. fortuitum</i>) ^[1] . Amikacin (100-1500 μM) causes a reliable dose-dependent loss of lateral line zebrafish hair cells with a LD ₅₀ value of 453 μM ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.								
In Vivo	Amikacin (320 mg/kg; subcutaneous injection; daily; for 10 days; male Fischer rats) treatment increases the chance of serious hearing loss in rats <i>in vivo</i> ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.								
	<table border="0"> <tr> <td>Animal Model:</td> <td>Male Fischer 344 rats (40-50-day-old)^[3]</td> </tr> <tr> <td>Dosage:</td> <td>320 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>Subcutaneous injection; daily; for 10 days</td> </tr> <tr> <td>Result:</td> <td>Induced hearing loss in rats.</td> </tr> </table>	Animal Model:	Male Fischer 344 rats (40-50-day-old) ^[3]	Dosage:	320 mg/kg	Administration:	Subcutaneous injection; daily; for 10 days	Result:	Induced hearing loss in rats.
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CUSTOMER VALIDATION

- Nat Commun. 2022 Mar 2;13(1):1116.
- Int J Antimicrob Agents. 2018 Aug;52(2):269-271.
- ACS Infect Dis. 2024 Apr 12;10(4):1327-1338.
- J Antimicrob Chemother. 2020 Sep 1;75(9):2609-2615.
- J Antimicrob Chemother. 2020 Jul 1;75(7):1850-1858.

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REFERENCES

- [1]. Edson, R.S. and C.L. Terrell, The aminoglycosides. Mayo Clin Proc, 1999. 74(5): p. 519-28.
- [2]. Ristuccia AM, et al. An overview of amikacin. Ther Drug Monit. 1985;7(1):12-25.
- [3]. Siân R Kitcher, et al. ORC-13661 Protects Sensory Hair Cells From Aminoglycoside and Cisplatin Ototoxicity. JCI Insight. 2019 Aug 8;4(15):e126764.
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Caution: Product has not been fully validated for medical applications. For research use only.

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