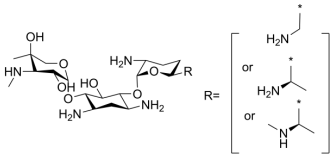
Gentamicin

Cat. No.:	HY-A0276A
CAS No.:	1403-66-3
Molecular Formula:	$C_{24}H_{53}N_7O_7^{3*}$
Target:	Antibiotic; Bacterial
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Gentamicin, an orally active aminoglycoside antibiotic, inhibits the growth of both gram-positive and gram-negative bacteria and to inhibit several strains of mycoplasma in tissue culture. Gentamicin inhibits DNase I with an IC_{50} of 0.57 mM[1][2][3][4].
IC_{50} & Target	Aminoglycoside
In Vitro	Gentamicin is a more effective in vitro bacterial inhibitor than combined penicillin-streptomycin, is nontoxic to tissue culture monolayers, and does not inhibit virus replication[2]. Gentamicin has been used with success as an additive in commercial mycology media to inhibit growth of bacteria and has been shown to be bactericidal for a wider range of organisms (Pseudomonas aeruginosa, Proteus sp., and Streptococcus faecalis) than penicillin and streptomycin[2]. Gentamicin does not interfere with the production of cytopathic effect by certain echoviruses and polioviruses in tissue culture, is nontoxic to Rhesus monkey kidney, HeLa, and human amnion cells, and is stable at autoclave temperatures[2]. Gentamicin is produced by various species of the genus Micromonospora[3]. Gentamicin C1a binds in the major groove of the A-site of the RNA[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Gentamicin (oral and injectable forms) exhibits effective antibacterial activity against Yersinia pestis as demonstrated in a mouse infection model[3]. Gentamicin (0.27 g/kg) shows a significant reduction of bacteria on the foreign body in mouse[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell. 2024 Feb 15;187(4):882-896.e17
- Nat Microbiol. 2023 Mar;8(3):410-423.
- Nat Commun. 2022 Mar 2;13(1):1116.
- Emerg Microbes Infect. 2024 Dec;13(1):2321981.
- ACS Appl Mater Interfaces. 2019 Oct 16;11(41):38190-38204.

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REFERENCES

[1]. Xu W, et al. A rapid and sensitive method for kinetic study and activity assay of DNase I in vitro based on a GO-quenched hairpin probe. Anal Bioanal Chem. 2016 May;408(14):3801-9.

[2]. Rudin A, et al. Antibacterial activity of gentamicin sulfate in tissue culture. Appl Microbiol. 1970 Dec;20(6):989-90.

[3]. Kumar CG, et al. Microbial biosynthesis and applications of gentamicin: a critical appraisal. Crit Rev Biotechnol. 2008;28(3):173-212.

[4]. Espersen F, et al. Effect of treatment with methicillin and gentamicin in a new experimental mouse model of foreignbody infection. Antimicrob Agents Chemother. 1994 Sep;38(9):2047-53.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA