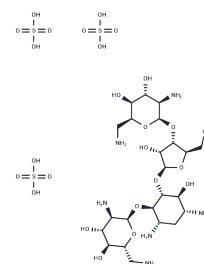


Neomycin sulfate

Chemical Properties

| | |
|-------------------|---|
| CAS No. : | 1405-10-3 |
| Formula: | C ₂₃ H ₄₆ N ₆ O ₁₃ ·3H ₂ SO ₄ |
| Molecular Weight: | 908.87 |
| Storage: | Powder: -20°C for 3 years In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA. |



Biological Description

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|---------------|--|
| Description | Neomycin sulfate (Framycin sulfate) is a broad-spectrum aminoglycoside antibiotic that blocks the synthesis of bacterial proteins in order to exert antimicrobial activity. Neomycin sulfate is commonly used to screen prokaryotic and eukaryotic cells for Neo resistance genes. |
| Targets(IC50) | ribosome,Antibacterial,Antibiotic,Phospholipase |
| In vitro | <p>METHODS: BHK-21 cells, VERO cells and FEA cells were treated with Neomycin sulfate (1000-20000 µg/mL) for 24 h. Cell viability was measured by MTT.</p> <p>RESULTS: The viability of BHK-21 cells was significantly reduced by 9000-20000 µg/mL Neomycin treatment. 3000 µg/mL Neomycin treatment significantly reduced the viability of FEA cells. 20000 µg/mL Neomycin treatment did not affect the viability of VERO cells. [1]</p> <p>METHODS: Mouse cochlear hair cells HEI-OC-1 were treated with Neomycin sulfate (2 mM) for 24 h. Apoptosis was detected by Flow Cytometry.</p> <p>RESULTS: 20 µM GM1 significantly reduced Neomycin sulfate-induced cell death in HEI-OC-1 cells. [2]</p> |
| In vivo | <p>METHODS: To assay in vivo activity, Neomycin sulfate (20 mg/mouse) and bacitracin (20 mg/mouse) were administered by gavage to C57BL/10 mice once daily for seven days.</p> <p>RESULTS: The combination of Neomycin and bacitracin decreased intestinal permeability and increased gene expression of ZO-1, JAM-A, and occludin in the ileum and ZO-1, claudin-3, and claudin-4 in the colon. [3]</p> <p>METHODS: To deplete the intestinal microbiota of mice, the antibiotics (ABX) vancomycin (0.5 g/L), ampicillin (1 g/L), Neomycin sulfate (1 g/L), and metronidazole (1 g/L) were administered to mice by drinking water for two weeks.</p> <p>RESULTS: Antibiotics significantly reduced the diversity and composition of the gut microbiota. [4]</p> |

Solubility Information

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|------------|--|
| Solubility | DMSO: Insoluble, H ₂ O: 460 mg/mL (506.12 mM) (< 1 mg/ml refers to the product slightly soluble or insoluble) |
|------------|--|

| | |
|---------------------|---|
| In vivo Formulation | <p>PBS: 100 mg/mL (110.03 mM)</p> <p><i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i></p> |
|---------------------|---|

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|-------|-----------|-----------|------------|
| 1 mM | 1.1003 mL | 5.5013 mL | 11.0027 mL |
| 5 mM | 0.2201 mL | 1.1003 mL | 2.2005 mL |
| 10 mM | 0.110 mL | 0.5501 mL | 1.1003 mL |
| 50 mM | 0.022 mL | 0.110 mL | 0.2201 mL |

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

- Kovacik A, et al. Cytotoxic effect of aminoglycoside antibiotics on the mammalian cell lines. *J Environ Sci Health A Tox Hazard Subst Environ Eng.* 2021;56(1):1-8.
- Shan T, Huang Y, Zhao Z, et al. Ketogenic diet restrains herpes simplex encephalitis via gut microbes. *Microbes and Infection.* 2022: 105061.
- Li F, Wang Y, Song X, et al. The intestinal microbial metabolite nicotinamide n-oxide prevents herpes simplex encephalitis via activating mitophagy in microglia. *Gut Microbes.* 2022, 14(1): 2096989
- Li Y, et al. The Ganglioside Monosialotetrahexosylganglioside Protects Auditory Hair Cells Against Neomycin-Induced Cytotoxicity Through Mitochondrial Antioxidation: An in vitro Study. *Front Cell Neurosci.* 2021 Sep 27;15: 751867.
- Zhang Z, Ye J, Liu X, et al. Huangqi Guizhi Wuwu decoction alleviates oxaliplatin-induced peripheral neuropathy via the gut-peripheral nerve axis. *Chinese Medicine.* 2023, 18(1): 1-15.
- Nevado R, et al. Neomycin and bacitracin reduce the intestinal permeability in mice and increase the expression of some tight-junction proteins. *Rev Esp Enferm Dig.* 2015 Nov;107(11):672-6.
- Sun C, Su J, Wang J, et al. Lycium barbarum polysaccharide increases thermogenesis and energy metabolism through modulation of the gut microbiota to confer resistance to cold temperatures. *The FASEB Journal.* 2024, 38(17): e70010.
- Li F, et al. The intestinal microbial metabolite nicotinamide n-oxide prevents herpes simplex encephalitis via activating mitophagy in microglia. *Gut Microbes.* 2022 Jan-Dec;14(1):2096989.
- Jiang Y, Huang Z, Sun W, et al. Roseburia intestinalis-derived butyrate alleviates neuropathic pain. *Cell Host & Microbe.* 2024

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