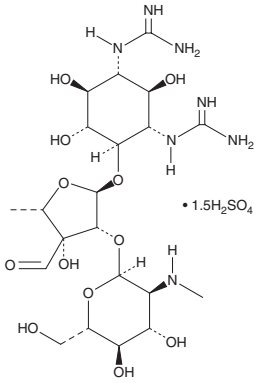
PRODUCT INFORMATION

Streptomycin (sulfate)

Item No. 21211



CAS Registry No.:	3810-74-0
Formal Name:	O-2-deoxy-2-(methylamino)-α-L-glucopyranosyl-(1→2)-*O*-5-deoxy-3-C-formyl-α-L-lyxofuranosyl-(1→4)-N^1,N^3-*bis*(aminoiminomethyl)-D-streptamine
MF:	$C_{21}H_{39}N_7O_{12} \bullet 1.5H_2SO_4$
FW:	728.7
Purity:	≥95%
UV/Vis.:	λ_{max}: 231 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Streptomycin (sulfate) is supplied as a crystalline solid. A stock solution may be made by dissolving the streptomycin (sulfate) in the solvent of choice, which should be purged with an inert gas. Streptomycin (sulfate) is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of streptomycin (sulfate) in these solvents is approximately 2 and 13 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of streptomycin (sulfate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of streptomycin (sulfate) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Streptomycin is an aminoglycoside antibiotic that inhibits growth of both Gram-negative (MICs = 1 and 16 µg/mL for *K. pneumoniae* and *S. marcescens*, respectively) and Gram-positive bacteria (MIC = 0.25 µg/mL for *S. pneumoniae*).[1] It inhibits growth of *M. tuberculosis* H37Rv (MIC = 5 µg/mL) and of susceptible strains from clinical isolates (MICs = ≤0.125-1 µg/mL).[2,3] Streptomycin (150 mg/kg), in combination with isoniazid (Item No. 20378), rifapentine (Item No. 20307), and moxifloxacin (Item No. 14830), administered once per week over 6 months to *M. tuberculosis*-inoculated mice results in clearance of the pathogen from the lungs of the majority of treated mice.[4] However, after 3 months without treatment, 58% of treated mice produce a positive lung culture. Streptomycin acts by inhibiting protein synthesis in prokaryotes by binding to the 30S ribosomal subunit.[5-8] It has been used, in combination with penicillin G (Item No. 21615), in antibiotic cocktails to prevent bacterial growth in cell culture.[9] Formulations containing streptomycin in combination with other antibiotics have been used to treat tuberculosis.

References

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3. Franzblau, S.G., Witzig, R.S., McLaughlin, J.C., *et al.* Rapid, low-technology MIC determination with clinical Mycobacterium tuberculosis isolates by using the microplate Alamar Blue assay. *J. Clin. Microbiol.* **36(2)**, 362-366 (1998).
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9. Varghese, D.S., Parween, S., Ardah, M.T., *et al.* Effects of aminoglycoside antibiotics on human embryonic stem cell viability during differentiation in vitro. *Stem Cells Int.* **2451927** (2017).

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