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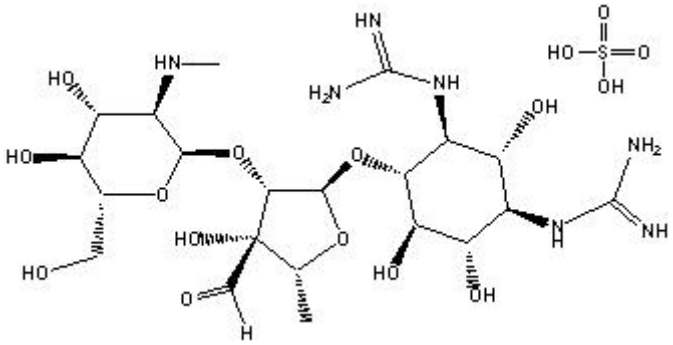
TECHNICAL INFORMATION

Catalog Number: 100556, 194541, 194797
Streptomycin Sulfate

Structure:



Molecular Formula: $C_{42}H_{84}N_{14}O_{36}S_3$
Molecular Weight: 1457.38
CAS #: 38100-74-0
Synonyms: O-2-Deoxy-2-(methylamino)-a-L- glucopyranosyl-(1->2)-O-5-deoxy-3-C-formyl-a-L- lyxofuranosyl- (1->4)- N,N'-bis(aminoiminomethyl)-D-streptamine; Streptomycin A
Physical Description: White powder
Solubility: Soluble in aqueous solution (1 g/10 ml water - clear,colorless solution). Stock solututions should be sterile filtered and stored at 2-8°C for up to one month or aliquoted and stored at -20°C for up to 4 to 6 months. Solutions are stable at 37°C for approximately 3 days. Changes in solution color that occur when solutions are exposed to light are not necessarily accompanied by loss of activity; however, solutions should preferably be stored in the dark.
Description: An aminoglucoside antibiotic in which streptidine is linked glycosidically to the disaccharide streptobiosamine.[1] It is most active in a slightly alkaline medium. Inhibits initiation and causes misreading of rRNA in protein synthesis. Effective against gram-negative and gram-positive bacteria. Typically used at a concentration of 50-100 mg/liter. The half-life in plasma is about 2-4 hours. About one-third of streptomycin in the circulation is bound to plasma proteins. About 30-90% of a dose is excreted unchanged in the urine in 24 hours.[3,6,7]
Some Representative Minimum Inhibitory Concentrations (MIC) values have been reported:[6]

– 1-2 ug/ml for *Klebsiella sp*.
– 16-64 ug/ml for *Ps. aeruginosa*
– 4-16 ug/ml for *Salmonella sp*.
– 0.5 ug/ml for *M. tuberculosis*
– 2-4 ug/ml for *E. coli* (complete inhibition of *E. coli* has been reported at > 20 ug/ml[5]).

Mode of Action: Inhibits prokaryote protein synthesis by preventing the transition from initiation complex to chain-elongating ribosome and casues miscoding: Binds to S12 protein of 30S ribosomal subunit causing the misreading or the inhibition of initiation.
Mode of Resistance: Mutation in rpsL (gene for S12 ribosomal protein) prevents binding of streptomycin to ribosome. Aminoglycoside phosphotransferase also inactivates.
Inactivation: Streptomycin is inactivated by acids, alkalis, oxidizing and reducing agents, urea and other carbonyl-containing compounds, as well as by cysteine and other sulfhydryl-containing substances.[6]
Loss in potency was reported:[6]

pH	Temperature	Activity Loss
6.5	95°C	50% in 4 hours
9.5	28°C	50% in 12 days

0.8	28°C	50% in 4 days

Availability:

Catalog Number	Description	Size
100556	Streptomycin Sulfate	5 g 25 g 50 g 100 g 1 kg
194797	Streptomycin Sulfate, molecular biology reagent, gamma-irradiated	25 mg 50 mg
194541	Streptomycin Sulfate, cell culture reagent	5 g 25 g 50 g 100 g

References:

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