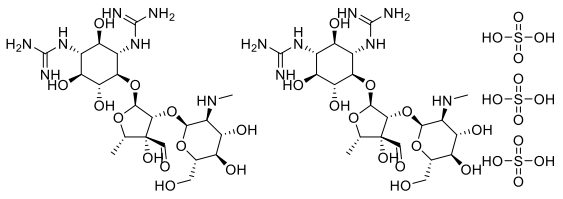
Product data sheet

MedKoo Cat#: 318758 Name: Streptomycin sulfate CAS#: 3810-74-0 (sulfate) Chemical Formula: $C_{21}H_{38}N_7O_{12}$ Molecular Weight: 580.57	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Streptomycin is an antibiotic (antimycobacterial) drug, the first of a class of drugs called aminoglycosides to be discovered, and it was the first effective treatment for tuberculosis. It is derived from the actinobacterium Streptomyces griseus. Streptomycin is a bactericidal antibiotic. Adverse effects of this medicine are ototoxicity, nephrotoxicity, fetal auditory toxicity, and neuromuscular paralysis.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
To be determined	To be determined	To be determined

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.72 mL	8.61 mL	17.22 mL
5 mM	0.34 mL	1.72 mL	3.44 mL
10 mM	0.17 mL	0.86 mL	1.72 mL
50 mM	0.03 mL	0.17 mL	0.34 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Song Y, Fan Z, Bai X, Liu W, Han Y, Xu L, Wang M, Li J, Zheng Q, Zhang D, Wang H. PARP-1-modulated AIF translocation is involved in streptomycin-induced cochlear hair cell death. Acta Otolaryngol. 2016 Jun;136(6):545-50. doi: 10.3109/00016489.2016.1143968. Epub 2016 Mar 10. PMID: 26963167; PMCID: PMC4861077.
2. Wrześniok D, Beberok A, Otręba M, Buszman E. Effect of streptomycin on melanogenesis and antioxidant status in melanocytes. Mol Cell Biochem. 2013 Nov;383(1-2):77-84. doi: 10.1007/s11010-013-1756-x. Epub 2013 Jul 19. PMID: 23867989.

In vivo study

1. Duffy SC, Lupien A, Elhaji Y, Farag M, Marcus V, Behr MA. Establishment of persistent enteric mycobacterial infection following streptomycin pre-treatment. Gut Pathog. 2023 Oct 3;15(1):46. doi: 10.1186/s13099-023-00573-w. PMID: 37789445; PMCID: PMC10546655.
2. Sancho E, Granados-Chinchilla F, Barquero-Calvo E. Determination of streptomycin and doxycycline using LC/MS towards an effective treatment against an experimental Brucella abortus infection in mice. J Microbiol Methods. 2022 Mar;194:106436. doi: 10.1016/j.mimet.2022.106436. Epub 2022 Feb 25. PMID: 35219705.

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7. Bioactivity

Biological target:

Streptolydigin inhibits nucleic acid chain elongation by binding to RNA polymerase, thus inhibiting RNA synthesis inside a cell. Streptolydigin inhibits bacterial RNA polymerase, but not eukaryotic RNA polymerase.

In vitro activity

This study examined the effect of streptomycin on melanogenesis and antioxidant defense system in cultured normal human melanocytes (HEMa-LP). Streptomycin induced concentration-dependent loss in melanocytes viability. EC50 value was about 5.0 mM. It has been shown that streptomycin causes inhibition of tyrosinase activity and reduces melanin content in human melanocytes in a concentration-dependent manner.

Reference: Mol Cell Biochem. 2013 Nov;383(1-2):77-84. https://pubmed.ncbi.nlm.nih.gov/23867989/

In vivo activity

A streptomycin pre-treatment mouse model could be used to improve enteric infection with MAP and investigate other modifications underlying MAP enteritis. Streptomycin pre-treatment of mice followed by Mycobacterium avium subsp. paratuberculosis (MAP) gavage consistently improved bacterial infection post-oral inoculation. This model led to chronic MAP infection of the intestines and mesenteric lymph nodes (MLNs) up to 24-weeks post-gavage, however there was no evidence of inflammation or disease.

Reference: Gut Pathog. 2023 Oct 3;15(1):46. https://pubmed.ncbi.nlm.nih.gov/37789445/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.