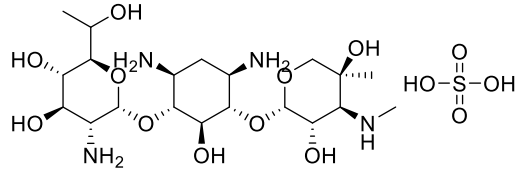


Product data sheet



MedKoo Cat#: 563714 Name: Geneticin G418 CAS: 108321-42-2 (sulfate) Chemical Formula: C ₂₀ H ₄₂ N ₄ O ₁₄ S Exact Mass: 594.2418 Molecular Weight: 594.63	
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:

Geneticin G418 is an aminoglycoside antibiotic, blocking polypeptide synthesis by inhibiting the elongation step in both prokaryotic and eukaryotic cells.

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
PBS (pH 7.2)	100.0	168.17
Water	92.32	155.25

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.44 mL	7.22 mL	14.44 mL
5 mM	0.29 mL	1.44 mL	2.89 mL
10 mM	0.14 mL	0.72 mL	1.44 mL
50 mM	0.03 mL	0.14 mL	0.29 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. Koutsogiannis Z, MacLeod ET, Maciver SK. G418 induces programmed cell death in *Acanthamoeba* through the elevation of intracellular calcium and cytochrome c translocation. *Parasitol Res.* 2019 Feb;118(2):641-651. doi: 10.1007/s00436-018-6192-0. Epub 2019 Jan 7. PMID: 30617503; PMCID: PMC6349814.
2. Yallop CA, Svendsen I. The effects of G418 on the growth and metabolism of recombinant mammalian cell lines. *Cytotechnology.* 2001 Mar;35(2):101-14. doi: 10.1023/A:1017550902771. PMID: 19003287; PMCID: PMC3449461.

In vivo study

1. Arshad H, Patel Z, Mehrabian M, Bourkas MEC, Al-Azzawi ZAM, Schmitt-Ulms G, Watts JC. The aminoglycoside G418 hinders de novo prion infection in cultured cells. *J Biol Chem.* 2021 Sep;297(3):101073. doi: 10.1016/j.jbc.2021.101073. Epub 2021 Aug 12. PMID: 34390689; PMCID: PMC8413896.
2. Heier CR, DiDonato CJ. Translational readthrough by the aminoglycoside geneticin (G418) modulates SMN stability in vitro and improves motor function in SMA mice in vivo. *Hum Mol Genet.* 2009 Apr 1;18(7):1310-22. doi: 10.1093/hmg/ddp030. Epub 2009 Jan 15. PMID: 19150990; PMCID: PMC2655772.

7. Bioactivity

Biological target:

Product data sheet



G-418 disulfate (Geneticin sulfate), is an aminoglycoside antibiotic, inhibits protein synthesis in eukaryotes and prokaryotes.

In vitro activity

Higher G418 concentration led also to same but prompter and devastating results. Interestingly, identical treatment with G418 in NSB at room temperature failed to mediate cell death in *Acanthamoeba*, making temperature stress a precondition to cell death induction. In addition, G418 is able to cause cell death in trophozoites cells even after its removal after an hour which is an indication that it is an initiator of cell death rather than the executor (Fig. 2B).

Reference: Parasitol Res. 2019 Feb;118(2):641-651. <https://pubmed.ncbi.nlm.nih.gov/30617503/>

In vivo activity

Preparations of G418 obtained from three different manufacturers interfered with RML prion infection in CAD5(pIRESneo3) cells (Fig. 2H). Moreover, this effect was not specific to the RML strain since G418 also hindered infection of CAD5(pcDNA3) cells with the 22L strain of mouse prions (Fig. 2, I and J). Thus, G418 obstructs de novo prion infection in cells challenged with mouse prion strains.

Reference: J Biol Chem. 2021 Sep;297(3):101073. <https://pubmed.ncbi.nlm.nih.gov/34390689/>

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.