Neomycin Sulfate, USP
PRODUCT DATA SHEET

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Product Name:	Neomycin Sulfate, USP
Product Number:	N003
CAS Number:	1405-10-3
Molecular Formula:	$C_{23}H_{46}N_6O_{13} \cdot 3\ H_2SO_4$
Molecular Weight:	908.88
Form:	Powder
Appearance:	White or yellowish powder
Source:	*Streptomyces fradiae.*
pH:	5.0-7.5
Storage Conditions:	2-8°C
Description:	Neomycin Sulfate, USP is a broad-spectrum aminoglycoside antibiotic composed of related compounds including Neomycin A (neamine), Neomycin B (framycetin), Neomycin C, and a few minor compounds. Neomycin B is the most active, followed by C and A. The quantities of these components vary from lot-to-lot. Neomycin Sulfate, USP conforms to United States Pharmacopoeia specifications. For additional Neomycin products, click here. **Custom manufacturing and testing**: We are able to prepare custom Neomycin Sulfate suitable for your unique specifications for use in cell culture, or as ancillary material in upstream biopharma manufacturing. Additionally, we offer additional testing including endotoxin content, arsenic content, cell line testing, spectral analysis, and more. For more information, please contact us.
Mechanism of Action:	Aminoglycosides target the 30S ribosomal subunit resulting in an inability to read mRNA ultimately producing a faulty or nonexistent protein.
Spectrum:	Neomycin is broad-spectrum, but is mostly used against Gram-negative bacteria.

Microbiology Applications

Neomycin can be used for gene selection, via exploiting the resistance gene (NPT II) (Aragão, 2009).

Neomycin is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram-positive and Gram-negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options. Representative effective ranges include:

- *Pseudomonas aeruginosa* 0.5 µg/mL – 64 µg/mL
- *Haemophilus influenzae* 1.6 µg/mL – 6.3 µg/mL
- For a representative list of Neomycin MIC values, click here.

Neomycin Sulfate can also be used for food testing in TSN agar to select for *Clostridium perfringins* and inhibit growth of *Enterobacteria* and *Clostridium bifermentans.*

Plant Biology Applications

Neomycin is commonly used in gene selection wtih *Agrobacterium* transformation protocols to select for plants that have taken up the plasmid conferring resistance to Neomycin.

References:

TOKU-E Reference

Our Neomycin Sulfate was used to study its synergistic effects with blue light irradiation against *S. aureus* as a biofilm disruptor in antimicrobial photodynamic therapy in: Investigating inhibitory synergy between blue light irradiation and antibiotic treatment of *Staphylococcus aureu*s (Fox et al, 2013).

References

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Dai et al (2001) Comparative analysis of transgenic rice plants obtained by *Agrobacterium*-mediated transformation and particle bombardment. Mol. Breeding 7: 25–33:2001

Davis BD (1987) Mechanism of bactericidal action of aminoglycosides. Microbiol. Rev. 51(3):341-50

Robertson JH (1971) Antimicrobial activity of Neomycin C against *Staphylococcus epidermidis*. App. Micro. 22(6):1164-1165

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