

Product Name:	Neomycin Sulfate, EP
Product Number:	N012
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
Solubility:	Ethanol: 0.10 mg/mL Methanol: 0.23 mg/mL Water: 50 mg/mL
Source:	<i>Streptomyces fradiae</i> .
Elemental Analysis:	Sulphate: 27.0-31.0%
pH:	5.0-7.5
Optical Rotation:	+53.5° to +59.4°
Storage Conditions:	2-8°C
Description:	<p>Neomycin Sulfate, EP 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.</p> <p>Neomycin Sulfate, EP conforms to European Pharmacopoeia specifications. For additional Neomycin products, click here.</p> <p>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.</p>
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 a broad spectrum antibiotic, however, it 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 be used for food testing in TSN agar to select for *Clostridium perfringens* and inhibit growth of *Enterobacteria* and *Clostridium bifermentans*.

**Plant Biology
Applications**

Neomycin is commonly used in negative selections for plants which have been successfully been transformed with a plasmid conferring resistance via *Agrobacterium*-mediated transformation

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 aureus*. (Fox et al, 2013).

Other References:

Aragão FJL and Brasileiro ACM (2002) Positive, negative and marker-free strategies for transgenic plant selection. Braz. J. Plant Physiol. 14(1):1-10

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

Tsuji K and Robertson JH (1969) Comparative study of responses to Neomycins B and C by microbiological and gas-liquid chromatographic assay methods. App. Microbiol. 18(3):396-398

Yuan L and Wei H (2006) Rapid analysis of native Neomycin components on a portable capillary electrophoresis system with potential gradient detection. Analytic. Bioanalyt. Chem. 385(8):1575-1579