Gentamicin Sulfate Solution (50 mg/mL in Water) PRODUCT DATA SHEET

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Product Name:	Gentamicin Sulfate Solution (50 mg/mL in Water)
Product Number:	G046
CAS Number:	1405-41-0
Molecular Formula:	$C_{21}H_{43}N_5O_7$
Molecular Weight:	477.60
Form:	Solution
Storage Conditions:	2-8°C
Description:	Gentamicin Sulfate Solution (50 mg/ml in Water) contains Gentamicin Sulfate dissolved in water and filter-sterilized for use in prevention and control of bacterial contamination. The product is sterile. Gentamicin Sulfate is an aminoglycoside antibiotic complex discovered in 1963 and is derived from fermentation of *Micromonospora purpurea* or *M. echinospora* composed of different components including the Gentamicin C complex (gentamicin C1, gentamicin C1a, and gentamicin C2) which makes up 80% of the compound and has the highest antibacterial activity. Gentamicin A, B, X, and a few others make up the remaining 20% of the compound and have lower antibiotic activity. For more Gentamicin products, click here.
Mechanism of Action:	Aminoglycosides target the 30S ribosomal subunit, blocking the translocation of peptidyl-tRNA from acceptor to donor. This results in an inability to read mRNA ultimately producing a faulty or nonexistent protein.
Spectrum:	Gentamicin Sulfate is broad-spectrum antibiotic targeting Gram-positive and Gram-negative bacteria. It is effective against several strains of *Mycoplasma*. It also combats certain β-lactam sensitive VRE or vancomycin resistant *Enterococcus*; a "superbug."

Microbiology Applications

Gentamicin sulfate is commonly used as a selective agent to select for cells containing the gentamicin resistance gene, aacj-AaphD or aacC1. Gentamicin sulfate is generally used at a concentration of 10 - 50 µg/mL for eukaryotic cells and 15 µg/ml for prokaryotic cells.

Media Supplements

Gentamicin can be used as a selective agent in several types of isolation media:

Columbia Blood Agar - *Gardnerella vaginalis* Selective Supplement

VRE Medium - VRE Selective Supplement

Burkholderia cepacia Agar Base - *Burkholderia cepacia* Selective Supplement

Plant Biology Applications

Gentamicin sulfate inhibited differentiation of tracheary elements in pith parenchyma cells in cultures of romaine lettuce (*Lactuca sativa* L. var. *Romana*) at concentrations of 50-100 µg/ml. Similar results were obtained with cultured explants of Jerusalem artichoke tuber (*Helianthus tuberosus* L.). Callus formation was suppressed with increasing levels of Gentamicin Sulfate in both tissue systems. When studying cell division or xylem differentiation in culture, it is best to use ≤ 10 µg/ml.

Cancer Applications

Ovarian melanoma tumor cells was studied in 3D culture and Gentamicin Sulfate was used to prevent contamination when studying ovarian cell lines (OVCAR3, SKOV3, 222, EG, and A2780-PAR) and normal ovarian surface epithelial cell lines (HIO 1120 and HIO 180). Tumor cells formed matrix-rich tubular networks containing channels surrounding spheroids of tumor cells, and this network may represent either a primitive microcirculatory-like network, or a remodeled vascularized portion of a tumor (Sood et al, 2001).

References:

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