Gentamicin Sulfate, EP
PRODUCT DATA SHEET

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Product Name:	Gentamicin Sulfate, EP
Product Number:	G007
CAS Number:	1405-41-0
Molecular Formula:	$C_{21}H_{43}N_5O_7 \cdot H_2SO_4$
Molecular Weight:	575.67 g/mol
Solubility:	Soluble in water (50 mg/mL)
Water Content (Karl Fischer):	Not more than 15.0%
pH:	3.5 - 5.5
Description:	Gentamicin Sulfate, EP is an aminoglycoside antibiotic complex discovered in 1963 derived from fermentation of *Micromonospora purpurea* or *M. echinospora.* Gentamicin is composed of different components including Gentamicin C complex (gentamicin C1, gentamicin C1a, and gentamicin C2) which makes up 80% of the compound and has the highest antibacterial activity, along with Gentamicin A, B, X, and a few others which make up the remaining 20% of Gentamicin and have lower antibiotic activity. Gentamicin Sulfate is suitable for use in cell culture to prevent and control bacterial contamination and the compound is soluble in water (50 mg/ml). Gentamicin Sulfate, EP conforms to European Pharmacopoeia specifications. For more Gentamicin products, click here.
Mechanism of Action:	Aminoglycosides are a widespread and versatile group of bioactive natural products. They 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, EP is a 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 generall used at a concentration of 10 - 50 µg/mL for eukaryotic cell culture and 15 ug/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 inhbited tracheary element differentiation in cultured explants of pith parenchyma from romaine lettuce (*Lactuca sativa* L. var. *Romana*) at 50 to 100 µg/ml. Similar results were obtained with cultured explants of Jerusalem artichoke tuber (*Helianthus tuberosus* L.). Callus formation was suppressed by Gentamicin Sulfate in both tissue systems. When studying cell division and xylem differentiation in plant tissue culture, concentrations of 10 µg/ml or less is suggested.

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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