Kanamycin Sulfate, USP
PRODUCT DATA SHEET

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Product Name:	Kanamycin Sulfate, USP
Product Number:	K008
CAS Number:	133-92-6; 25389-94-0
Molecular Formula:	$C_{18}H_{36}N_4O_{11} \cdot H_2SO_4$
Molecular Weight:	582.58 g/mol
Form:	Powder
Appearance:	White to off-white crystalline powder
Solubility:	Water: Freely soluble
Source:	*Streptomyces Kanamyceticus.*
Storage Conditions:	Stock solutions should be stored at 2-8 °C.
Description:	Kanamycin, USP is an aminoglycoside antibiotic often used to select for bacteria which have been successfully transformed with a plasmid conferring kanamycin resistance. Standard grade kanamycin is composed of a mixture of three different fractions: Kanamycin A, B, and C. TOKU-E offers five forms of kanamycin: • Kanamycin sulfate • Kanamycin acid sulfate (both BP grade and EP grade) • Kanamycin A sulfate, EvoPure® • Kanamycin B sulfate, EvoPure® EvoPure® products are purified single antibiotic fractions, most >99% pure. High purity EvoPure® kanamycin products can be used to analyze the specific effects of individual kanamycin fractions.
Mechanism of Action:	Aminoglycosides target the 30S ribosomal subunit resulting in an inability to read mRNA ultimately producing a faulty or nonexistent protein. Kanamycin is very soluble in aqueous solution at 92.3 mg/mL.
Spectrum:	Kanamycin sulfate is a broad spectrum antibiotic but is most active against aerobic Gram-negative bacteria.

Microbiology Applications

Kanamycin sulfate is commonly used as a selective agent to select for resistant mammalian, fungal, or bacterial cells that contain the kanMX marker or other kanamycin resistance genes. Kanamycin sulfate is typically used at a concentration of 50 µg/mL.

Pryjma, et al. from the University of British Columbia used TOKU-E kanamycin sulfate to select for transformed kanamycin resistant *Campylobacter jejuni* cells: "FdhTU-Modulated Formate Dehydrogenase Expression and Electron Donor Availability Enhance Recovery of Campylobacter jejuni following Host Cell Infection"

Media Supplements

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

Kanamycin Aesculin Azide Agar - *Enterococci* isolation in food

Perfringens Agar - SFP and TSC selective supplements for the isolation of *Clostridium perfringens*

Plant Biology Applications

Kanamycin is often used in the *Agrobacterium* mediated transformation while using the npt II gene as selection marker. Kaur and Bansal (2010) used kanamycin in combination with cefotaxime to control bacterial growth while transforming tomato.

References:

Davis, Bernard D. "Mechanism of Bactericidal Action of Aminoglycosides."Microbiological Reviews 51.3 (1987): 341-50.

United States. National Institutes of Health. *Kanamycin Compound Summary*. *PubChem*. Web. 21 Aug. 2012.