

G418 Disulfate Solution (50 mg/ml in Water)

PRODUCT DATA SHEET

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Product Name:	G418 Disulfate Solution (50 mg/ml in Water)
Product Number:	G020-G021
CAS Number:	108321-42-2
Molecular Formula:	$C_{20}H_{40}N_4O_{10} \cdot 2H_2SO_4$
Molecular Weight:	692.71 g/mol
Form:	Solution
Appearance:	Clear and colorless solution
Source:	<i>Micromonospora rhodorangea</i>
Biological Assay:	ED50 Resistant: Not less than 2,500µg/mL ED50 Sensitive: Not more than 400µg/mL
Elemental Analysis:	Carbon: 28.80 - 36.07% Hydrogen: 5.76 - 7.76% Nitrogen: 6.72 - 8.41% Waters of Hydration: 0 to 6
Ammonia:	Not more than 1.0%
Water Content (Karl Fischer):	(Powder) Not more than 12.0%
Potency (on a dry basis):	Not less than 720µg/mg
Absorbance:	280nm (1mg/mL): Not more than 0.015 570nm (100mg/mL): Not more than 0.10
pH:	4.6 - 6.0
Optical Rotation:	+104° to +121°
Storage Conditions:	2-8°C
Description:	<p>G418 Disulfate Solution (50 mg/ml in Water) is an aqueous solution of G418 Disulfate. G418 Disulfate, an aminoglycoside antibiotic originally isolated from <i>Micromonospora rhodorangea</i>, is routinely used for gene selection in cell culture. The aqueous format allows for streamlined workflows.</p> <p>We also offer:</p> <ul style="list-style-type: none">• G418 Disulfate (<u>G001</u>)• G418 Disulfate, EvoPure (<u>G030</u>)

Mechanism of Action:	G418 Disulfate, along with other aminoglycosides, prevent protein synthesis. Resistance to G418 Disulfate is conferred by the neomycin resistance gene (<i>neo</i>) from either Tn5 or Tn601 (903) transposons. Cells successfully transfected with resistance plasmids containing the <i>neo</i> resistance gene can express aminoglycoside 3'-phosphotransferase (APT 3' I or APT 3' II) which covalently modifies G418 to 3-phosphoric G418, which has negligible potency and has low-affinity for prokaryotic and eukaryotic ribosomes.
Spectrum:	G418 disulfate is toxic to susceptible prokaryotic and eukaryotic cells including fungi (yeasts and molds), bacteria, mammalian and plant cells.
Microbiology Applications	G418 disulfate can be used as a selection agent for G418 resistant bacteria or fungi after transformation.
References:	<p>References for G418 Disulfate from TOKU-E:</p> <p>Delrue I, Pan Q, Baczmanska AK, Callens BW and Verdoodt LLM (2018) Determination of the selection capacity of antibiotics for gene selection. <i>Biotechnol. J.</i> 13(8):1700747 PMID 29436782</p> <p>Foltyn M et al (2019) The physiological mTOR complex 1 inhibitor DDIT4 mediates therapy resistance in glioblastoma. <i>B. J. Cancer</i> 120:481-487</p> <p>Suasnavas EA (2013) Characterization and potential utility of porcine trophoblast-derived stem-like cells. MS thesis, Utah State University, Logan, UT</p> <p>General:</p> <p>Aragão FJL and Brasileiro ACM (2002) Positive, negative and marker-free strategies for transgenic plant selection. <i>Braz. J. Plant Physiol.</i> 14(1):1-10</p> <p>Davis, BD (1987) Mechanism of bactericidal action of aminoglycosides. <i>Microbiol. Rev.</i> 51(3):341-50</p> <p>Lin-Cereghino, J et al (2008) Direct selection of <i>Pichia pastoris</i> expression strains using new G418 resistance vectors. <i>Yeast</i> 25:293-99.</p> <p>Shin, Y (2007) Selection of NptII transgenic sweet potato plants Using G418 and paromomycin. <i>J. Plant Biol.</i> 50(2):206-12</p>

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