# G418 disulfate BioChemica

*Antibiotic G418*
**Product No. A2167**

## Description

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| **Formula**: | $C_{20}H_{40}N_4O_{10} \cdot 2H_2SO_4$ |
| **M** : | 692.70 g/mol |
| **CAS-No.**: | 108321-42-2 |
| **HS-No.**: | 29419000 |
| **Storage**: | room temperature |
| **Safety**: | LGK : 6.1 B<br>R: 61, S: 53-36/37/39-45<br>toxic for reproduction |

Corresponds to Geneticin® disulfate, a trademark of Gibco Division of Life Technologies

**Specification**:

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| Assay (TLC | min. 98 % |
| Water (K.F.) | max. 10 % |
| Activity (on dry basis) | min. 620 U/mg |

**Comment**:
G418 dislufate (equivalent to Geneticin disulfate®) blocks protein synthesis in mammalian cells by interfering with ribosomal function. It is an aminoglycoside antibiotic, similar in structure to neomycin, gentamycin, and kanamycin. G418 disulfate is used for the selection of stably transformed cells, which have incorporated the neomycin resistance gene (aminoglycoside phosphotransferase) derived from the transposons Tn 5 and Tn 601, respectively.

Since this antibiotic is toxic for many cells, one has to determine the optimal concentration for each cell type. In general this concentration varies from 50 to 1000 µg/ml. At a concentration of 500 µg/ml 70 % of HepG2-cells are killed within one week of incubation and 100 % stop growing (2). Different lots of G418 disulfate can have different potencies. Therefore it is recommended to buy a large amount of one lot to standardize selection conditions. Cells will divide once or twice in the presence of lethal dosis of G418 disulfate, so the effects of the antibiotic take several days to become apparent (3).

**Stability and Solubility**: G418 is stable at +4°C. Solutions are stored at -20°C and are stable for up to 2 years. Stock solutions of G418 should be prepared in a highly buffered solution (e. g. 100 mM Hepes, pH 7.3; see Ref. 3), so that addition of the drug does not alter the pH of the medium. Stock solutions can be prepared at a concentration of 50 mg/ml.

Literature:

(1) Liscovitch, M. *et al*. (1991) *Biochem. J.* **279**, 319-321. Inhibition of neural phospholipase D activity by aminoglycoside antibiotics.
(2) Kumar, S. *et al*. (1994) *Biochem. Mol. Biol. Int*. **32**, 1059-1066. A comparative evaluation of three transfection procedures as assessed by resistance to G418 conferred to HEG2 cells.
(3) Ausubel, F.A., Brent, R., Kingston, R.E., Moore, D.D., Seidman, J.G., Smith, J.A. & Struhl, K. (eds.) 2000. *Currrent Protocols in Molecular Biology*. Page 9.5.7 Suppl. 39 John Wiley & Sons, New York.