



G418 Sulfate Selective Antibiotic

Catalog Numbers	170-3220	G418 Powder, 1 g
	170-3221	G418 Powder, 5 g
	170-3222	G418 Powder, 25 g
	170-3223	G418 Solution, 50 mg/ml, 20 ml

Lot number See product label.

Quality control Biological (>650 µg/mg). See product label.
Potency:
Biological ED50 Sensitivity Assay ≤ 400 µg/ml
QC Assay: ED50 Resistance Assay ≥ 2,500 µg/ml

Absorbance At a concentration of 1 mg/ml, UV absorbance at 280 nm is < 0.015 O.D. In the visible range at a concentration of 100 mg/ml, absorbance at 570 nm is < 0.1 O.D.

Warning Harmful if inhaled, if in contact with skin, or if swallowed. Do not breathe dust. Avoid contact with skin and eyes. Wear protective gloves. For additional information, see MSDS.

Storage conditions Shipped at room temperature. Powder should be stored at room temperature. Liquid should be stored at -20 °C. Working solutions may be stored at 4 °C. Shelf life of stock G418 is guaranteed for 1 year when stored at -20 °C.

Product use G418 sulfate is an aminoglycoside antibiotic used as a selective agent for eukaryotic (primarily mammalian) cells transfected with aminoglycoside phosphotransferase resistant genes. The resistance genes reside on Tn5 and Tn903 transposons. In addition, G418 may also be used to select for transformed yeast, plant, and *Dictyostelium* cells.

The amount of G418 sulfate needed for selection in culture media will vary depending on cell type, cell density, and other growth conditions. Amounts should be recalibrated with each new lot of G418 purchased. The table below and following information describe how the solution or powder should be made for mammalian cell lines.¹ Additional information for yeast,² *Dictyostelium*,³ and plant cells⁴ is in the references.

Concentration	Application	Transposon	Gene
400 mg/L	For selection	Tn5	APH(3)-11
200 mg/L	For maintenance		

For powder To prepare a stock solution of 50 mg/ml active G418, dissolve the required amount to make up a solution of 50 mg/ml active G418. Use the formula $1/\text{potency} \times 50 = \text{active mg/ml}$, where potency is expressed as a decimal fraction. For example, if potency is 700 $\mu\text{g/mg}$ (or 0.7 mg/mg) add $(1/0.7) \times 50 \text{ mg/ml} = 71.4 \text{ mg/ml}$. For mammalian cells, first filter sterilize the 50 mg/ml stock, then add it to sterile growth media.

For solution The antibiotic is also provided as a sterile solution at a concentration of 50 mg/ml active G418. Using aseptic technique, add to growth media to achieve the desired final concentration.

- References**
1. Southern, P. J. and Berg, P., *J. Mol. Biol. and Applied Genetics*, **1**, 327 (1982).
 2. Jimenz, A. and Davies, J., Expression of Transposable Antibiotic Resistance Element in *Saccharomyces*, *Nature*, **287**, 869–871 (1980).
 3. Canaani, D. and Berg, P., Regulated Expression of Human Interferon B1 Gene After Transduction into Cultured Mouse and Rabbit Cells, *Proc. Natl. Acad. Sci. USA*, **79**, 5166–5170 (1982).
 4. Ursic, D., Kemp, J. D. and Helgeson, J. P., *Biochem. Biophys. Res. Comm.*, **101**, 1031 (1981).

For research purposes only