

## Product Information

# MilliShot™ G418 Ready Made Solution

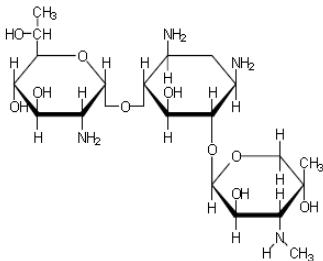
0.2 µm Filtered, BioReagent, Suitable for Cell Culture

**G9570**

Storage Temperature: 2–8 °C

Concentration: 50 mg/mL

CAS: 108321-42-2



Molecular weight: 692.7

Molecular formula: C<sub>20</sub>H<sub>40</sub>N<sub>4</sub>O<sub>10</sub> • 2H<sub>2</sub>SO<sub>4</sub>

Specific Rotation: +104.4°

(c = 0.3% in H<sub>2</sub>O at 26 °C)

By applying MilliShot™ G418 Solution, researchers can study gene function and regulation, providing insights into cellular processes and pathways.

MilliShot™ G418 Solution can be combined with other antibiotics to enhance selection strategies.

The antibiotic inhibits protein synthesis by binding to the 30S ribosomal subunit, causing misreading of mRNA and producing nonfunctional proteins. This mechanism makes MilliShot™ G418 Solution effective in both bacterial and eukaryotic systems.

Recommended concentrations vary for bacteria and algae, 5 µg/mL; for mammalian cell lines during selection, 300 to 500 µg/mL; and for maintaining transfected mammalian cell lines, 200 µg/mL.

The MilliShot™ G418 Ready Made Solution is available in liquid form formulated to be added as a single vial to 500 mL media.

## Product Description

The MilliShot™ G418 Ready Made Solution is a potent aminoglycoside antibiotic widely used in molecular biology and genetic engineering, resembling gentamicin and exhibiting toxicity toward both eukaryotic and prokaryotic cells. It serves primarily as a selective agent for isolating and maintaining genetically modified mammalian cells that express the neomycin resistance gene (neo).

In cell transfection experiments, plasmid DNA containing the neo gene is introduced into cells. Only those cells that successfully uptake the plasmid can survive in the presence of MilliShot™ G418 Solution, while non-transfected cells are eliminated. This selection process enables researchers to isolate and propagate stable cell lines that continuously express the transgene, ensuring that only cells expressing the neomycin resistance gene remain.

## Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Storage/Stability

Store MilliShot™ G418 Ready Made Solution at 2–8 °C. The product is stable for at least 2 years in its supplied form.

## References

1. Kuehn, M. W., & O'Brien, J. A. (2005). "G418 as a selective agent for the establishment of stable cell lines." *Methods in Molecular Biology*, 290, 113-119.
2. Lentz, T. L., & Gibbons, R. S. (1987). "Selection of transformed algal cells using G418." *Plant Molecular Biology*, 8(4), 271-279.
3. Housman, D. E., et al. (1985). "Transfection of mammalian cells with plasmid DNA: a comparison of methods." *Molecular and Cellular Biology*, 5(1), 1-8.
4. Southern, E. M., & Berg, P. (1982). "Transformation of mammalian cells with an antibiotic resistance gene." *Molecular and Cellular Biology*, 2(5), 523-531.
5. Hirt, B., & Schmid, W. (1987). "Selection of transformed mammalian cells: a review." *Journal of Cell Science*, 88(2), 217-224.

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