Product Information

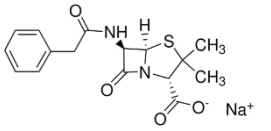
# MilliShot™ Antibiotic Antimycotic Solution

BioReagent, Suitable for Cell Culture

**A9571**

Storage Temperature: -20 °C

## Penicillin G Sodium Salt

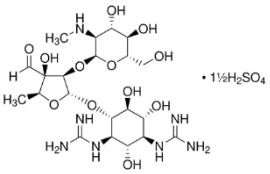


CAS Number: 69-57-8

Molecular Formula: $C_{16}H_{17}N_2NaO_4S$

Molecular Weight: 356.37

## Streptomycin Sulfate Salt

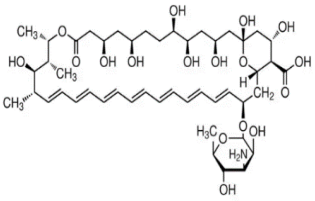


CAS Number: 3810-74-0

Molecular Formula: $C_{21}H_{39}N_7O_{12} \cdot 1.5\ H_2SO_4$

Molecular Weight: 728.69

## Amphotericin B



CAS Number: 1397-89-3

Molecular Formula: $C_{47}H_{73}NO_{17}$

Molecular Weight: 924.08

Melting Point: >170 °C with decomposition

## Product Description

The MilliShot™ Antibiotic Antimycotic Solution is a broad-spectrum antimicrobial agent designed to prevent bacterial and fungal contamination in cell culture applications. It combines Penicillin, Streptomycin, and Amphotericin B. Penicillin, a beta-lactam antibiotic, effectively targets gram-positive bacteria by inhibiting cell wall synthesis, specifically breaking down peptidoglycan and activating autolysins that kill the cell. It is effective only on actively dividing cells. Streptomycin targets gram-negative bacteria by binding to the 30S ribosomal subunit, inhibiting protein synthesis regardless of cell division.

Amphotericin B, derived from *Streptomyces nodosus*, binds to ergosterol in fungal membranes, disrupting membrane integrity and leading to cell death.

Together, these antibiotics work synergistically to inhibit a wide range of bacteria and fungi, maintaining sterile conditions in various cell culture settings, including mammalian, primary, and transformed cell lines. This solution is widely used in research laboratories, biopharmaceutical production, and clinical applications to ensure cultures remain free from microbial contamination, preserving experimental integrity.

Additionally, the MilliShot™ Antibiotic Antimycotic Solution supports the growth of sensitive cell lines by minimizing the risk of infections that could affect cell viability. It is particularly beneficial in high-exposure environments, such as tissue engineering and regenerative medicine, and enhances the reproducibility of experimental results by reducing variability caused by microbial contamination. The solution is available in a liquid formulation for easy dilution and incorporation into various culture media.

The MilliShot™ Antibiotic Antimycotic Solution is available in liquid form formulated to contain 10,000 units penicillin, 10 mg streptomycin and 25 µg Amphotericin B per mL solubilized in a proprietary citrate buffer, allowing for easy incorporation into cell culture media. The recommended optimal working concentration is 10 mL/L – achieved by adding a single vial of MilliShot™ Antibiotic Antimycotic Solution to 500 mL media. This concentration effectively inhibits bacterial and fungal growth while minimizing any potential adverse effects on cell viability and function.

## 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 and Stability

Store MilliShot™ Antibiotic Antimycotic Ready Made Solution at -20 °C. The product is stable for at least 2 years in its supplied form. Avoid repeated freeze-thaw cycles.

## References


1. Kuehn, M. W., & O'Brien, J. A. (2005). "Use of Antibiotic Antimycotic Solutions in Cell Culture." *Methods in Molecular Biology*, 290, 113-119.
2. Freshney, R. I. (2010). "Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications." Wiley-Blackwell. This book provides comprehensive information on cell culture techniques, including the use of antibiotics and antimycotics.
3. Roush, W. (2002). "Antibiotics in Cell Culture: A Review." *Nature Biotechnology*, 20(2), 109-113.
4. Karp, J. M., et al. (2001). "The role of antibiotics in cell culture." *Tissue Engineering*, 7(3), 351-359.
5. Harlow, E., & Lane, D. (1988). "Antibodies: A Laboratory Manual." Cold Spring Harbor Laboratory Press. This manual discusses the use of antibiotics in cell culture.
6. Kato, Y., et al. (2013). "The role of antibiotics in cell culture: A review of the literature." *Journal of Biotechnology*, 166(4), 507-515.
7. Hentze, M. W., et al. (2010). "The role of antibiotics in cell culture." *Nature Reviews Molecular Cell Biology*, 11(5), 307-319.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23218508 Rev 05/25