Product Information

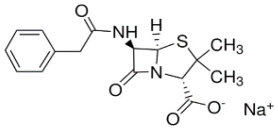
# MilliShot™ Penicillin-Streptomycin Ready Made Solution

0.2 µm Filtered, BioReagent, Suitable for Cell Culture

**P9080**

Storage Temperature: -20 °C

## Penicillin G Sodium Salt

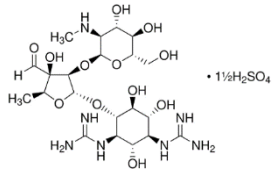


CAS Number: 69-57-8

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

## Product Description

The MilliShot™ Penicillin-Streptomycin Ready Made Solution is a broad-spectrum antibiotic solution used in cell culture to prevent bacterial contamination. It contains two potent antibiotics: penicillin, effective against gram-positive bacteria, and streptomycin, which targets gram-negative bacteria. Penicillin, a beta-lactam antibiotic, inhibits bacterial cell wall synthesis by breaking down peptidoglycan and activating autolysins that kill the cell. It is effective only on actively dividing cells. Streptomycin interferes with protein synthesis by binding to the 30S ribosomal subunit, inhibiting protein synthesis regardless of cell division.

Together, these antibiotics provide a synergistic effect that maintains sterility in cell cultures, making them essential for researchers working with sensitive eukaryotic cells. This solution is valuable for various applications, including the culture of mammalian, primary, and transformed cell lines. It is widely used in research laboratories, tissue engineering, biopharmaceutical production, and clinical settings to ensure cultures remain free from bacterial contamination, preserving experimental integrity.

Additionally, it supports the growth of sensitive cell lines by preventing contamination and maintaining cell functionality. Its convenient liquid formulation allows easy incorporation into various culture media, essential for promoting healthy growth conditions for primary and stem cells. MilliShot™ Penicillin-Streptomycin Solution reduces contamination risk during cell handling, particularly in high-exposure environments.

The MilliShot™ Penicillin-Streptomycin Solution is available in liquid form formulated to contain 10,000 units penicillin and 10 mg/mL of streptomycin solubilized in a proprietary citrate buffer, allowing for easy dilution and incorporation into cell culture media. The optimal working concentration is generally 100-200 units/mL for penicillin and 100-200 µg/mL for streptomycin achieved by adding a single vial of MilliShot™ Penicillin-Streptomycin Solution to 500 mL media. This concentration effectively inhibits bacterial 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 the MilliShot™ Penicillin-Streptomycin 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 Penicillin-Streptomycin in Cell Culture." *Methods in Molecular Biology*, 290, 113-119.
2. Karp, J. M., et al. (2001). "The role of antibiotics in cell culture." Tissue Engineering, 7(3), 351-359.
3. Roush, W. (2002). "Antibiotics in cell culture: A review." *Nature Biotechnology*, 20(2), 109-113.
4. Harlow, E., & Lane, D. (1988). "Antibodies: A Laboratory Manual." Cold Spring Harbor Laboratory Press. This manual discusses the use of antibiotics in cell culture.
5. 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.
6. 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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