

Product Name

Name: Penicillin-Streptomycin Solution, 10X Conc.

100,000 units/mL Penicillin G Sodium Salt

100 mg/mL Streptomycin Sulfate

Cat. No.: C3421-0100

Size: 100 mL

Product Description

Penicillin-Streptomycin is a combination solution of an aminoglycoside (streptomycin) and β -lactam antibiotic (penicillin). It accords a broad-spectrum bacteriocidal activity against both gram-positive and gram-negative bacteria. The mode of action (MOA) of penicillin G interferes with the final stage of bacterial cell wall synthesis causing disruption of the osmotic pressure gradient with ensuing lysis and cell death, whereas the MOA of streptomycin sulfate modifies the permeability of the cell wall, interferes with prokaryote protein synthesis and cellular respiration by irreversibly binding to the 30S ribosome subunit to cause a misreading/miscoding of the mRNA. In essence, this activity freezes the 30S initiation complex (i.e., 30S-mRNA-tRNA) and interrupts any further progress in the initiation phase to chain-elongating ribosome. Both antibiotics, penicillin when combined with streptomycin synergistically enhance their range of activities and increase their effectiveness as opposed to when utilized on an individual basis.

The efficacy of the penicillin-streptomycin synergistic combination is accomplished when two individual drugs (i.e., both are bactericidal) interfere with different constituents in the bacterial cellular or metabolic pathways. The result is an effect greater than could be attributed to their additive action. In theory, a drug affecting the permeability of the cell membrane (i.e., streptomycin), plus a drug affecting the cell wall (i.e., penicillin), when used in combination, may be more effective than either drug used alone.

Important note: In some cases, some antibiotics when used in combination often exert atypical cytotoxic effects at lower concentrations than when utilized on an individual basis. Please consult other comprehensive pharmacology references regarding antibiotic properties, characteristics, interactions and possible incompatibilities.

Predominant Characteristics

- Easy to use
- Anti-bactericidal broad-spectrum combination antibiotic
- Frozen solution
- Sterile filtered (0.1 μ m)
- Cell culture performance tested

Storage and Stability

The product should be kept at **-20°C**.

The product is **light-sensitive** and therefore should not be left in the light.

Shelf life: 12 months from date of manufacture.

Procedure

1. Take a bottle from the freezer at -20°C and read the label.
2. Ensure that the cap of the bottle is tight.
3. Allow to thaw to room temperature prior to use.
4. Gently swirl the solution in the bottle intermittently until all the content is thawed.
5. Wipe the outside of the bottle with a disinfectant solution such as 70% ethanol.
6. Pipette appropriate volume using an aseptic/sterile technique under a laminar-flow culture hood.
7. Aliquot the remaining solution and put them back to freezer to avoid repeated freezing and thawing.
8. Recommended dilution ratio for use: 1:1000.

Quality Control

Penicillin-Streptomycin Solution, 10X Conc. is tested for sterility.

Precaution and Disclaimer

For research use only, not for clinical diagnosis, and treatment.