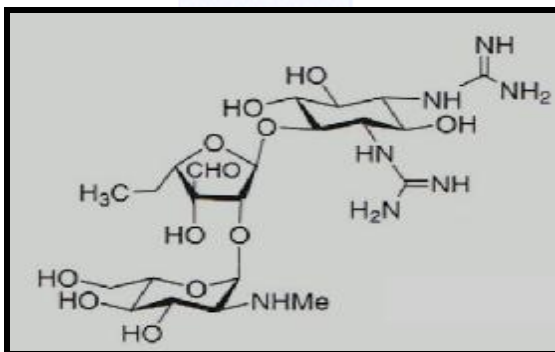
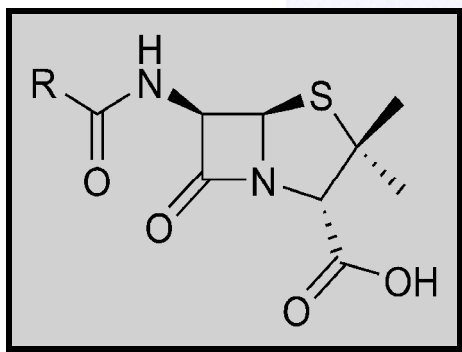


### Product Profile



<b>Product Name:</b>	<i>Penicillin-Streptomycin Solution, 10,000 units/ml Penicillin G Sodium Salt, 10 mg/ml Streptomycin Sulfate</i>
<b>Product Catalog Number</b>	03-031-1
<b>Concentration:</b> Penicillin G(Sodium Salt) Streptomycin Sulfate NaCl	10,000 units/ml 10mg/ml(10,000µg/ml) 0.85% Saline
<b>Unit Size Availability:</b>	(B)100ml;(C)20ml
<b>Formulation:</b>	Frozen Solution
<b>Defined Storage Conditions:</b>	-20°C
<b>Stability: (Under Ideal Handling &amp; Storage)</b>	<i>Please Refer To Product Label</i>

**Important Note!** Please read the *MSDS* and *Product Profile* carefully in their entirety before using this material for possible safety precautions and potential hazards.

#### *Product Description*

Penicillin-Streptomycin is an Aminoglycoside-β Lactam antibiotic combination solution. It accords broad-spectrum bactericidal activity against both gram-positive and gram-negative bacteria. The Mode of Action (MOA) of Penicillin G interferes with the final stage of synthesis of the bacterial cell wall 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, a β-Lactam moiety when combined with Streptomycin, an Aminoglycoside moiety, synergistically enhance their range of activities and increase their effectiveness as opposed to when utilized on an individual basis.

The efficacy of a 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 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. In this case, there is even evidence of synergism between the two-drugs.

**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.

#### *Some of the Predominant Characteristics of Penicillin-Streptomycin Solution include:*

- Easy-To-Use
- Antibactericidal Broad-Spectrum Combination Antibiotic
- Frozen Solution
- Sterile-Filtered(0.1µ)
- Cell Culture-Tested

**Instructions/Procedure**

The product should be stored at -20°C and allowed to thaw to room temperature prior to use. The contents should not be left in the light for prolonged periods as it is light-sensitive. When stored in the dark under ideal conditions, the product is stable until the expiry date.

- 1) Take a bottle out from proper storage conditions at -20°C and read the label.
- 2) Thaw to room temperature.
- 3) Ensure that the cap of the bottle is tight.
- 4) Gently swirl the solution in the bottle.
- 5) Wipe the outside of the bottle with a disinfectant solution such as 70% ethanol.
- 6) Using aseptic/sterile technique under a laminar-flow culture hood, work according to established protocols.
- 7) Recommended Use: 1: 100

**Quality Control**

Test	Specification
Cell Culture:	Test & Record
Osmolality:	320-340 mOsm/Kg
pH:	4.5-6.5
Sterility:	Sterile

**Auxiliary Products**

Product Name	Catalog Number	Storage Temperature
Dulbecco's Phosphate Buffered Saline(DPBS) without Calcium and Magnesium	02-023-1	Room Temperature (15-30°)
Amphotericin B 250 micrograms/ml	03-028-1	-20°C
Amphotericin B 2500 micrograms/ml	03-029-1	-20°C
Penicillin-Streptomycin 10X Solution	03-031-5	-20°C
Penicillin-Streptomycin Nystatin Solution	03-032-1	-20°C
Nystatin Cell Culture-Tested Biochemicals (γ-Irradiated)	41-506-1/5	-20°C
<b>Note:</b> For a list of Serum, other antibiotics, or Biological Industries' Products, please refer to our Product Catalog/Product Profiles/Guides and Internet Site.		

**References:**

- 1) 14th Edition Of Merck Index, pps.1224,1514
- 2) Current Editions USP/E Ph
- 3) Biological Industries(BI) Specifications
- 4) Martindale, The Extra Pharmacopeia, 28<sup>th</sup> Edition, Royal Pharmaceutical Society: London, England pps.1076-1086.
- 5) Walsh, Christopher. Antibiotics: Actions, Origins and Resistance, ASM Press: Washington, D.C., 2003, pps.107-120:222-226)
- 6) Gallagher, Jason C. and MacDougall, Conan. Antibiotics Simplified, Jones & Bartlett Press: Boston, Massachusetts, 2007, pps.37-48;73-76)
- 7) Barile, Frank A. Clinical Toxicology: Principles and Mechanisms, CRC Press: Boca Raton, Florida, 2004.
- 8) Homburger, Freddy, Hayes, John A. and Pelikan, Edward W. A Guide To General Toxicology, Karger Press: Basel, Switzerland, 1984, pps.101-102
- 9) Hansel, Donna E. and Dintzis. Pathology, Lipponcott Williams & Wilkins Press: Baltimore, Maryland, 2006

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