

# Antibiotics and Antifungal Drugs for cell culture



PAN-Biotech offers a wide range of high quality antibiotics and antifungal drugs for the use in cell culture.

Product	Size	Product-No.	Concentration	Stability*
Amphotericin B, 250 µg/ml	50 ml 100 ml	P06-01050 P06-01100	10 ml/L	3 days
Gentamicin sulfate, 10 mg/ml	50 ml 100 ml	P06-03050 P06-03100	5 ml/L	5 days
Kanamycin sulfate, 5 mg/ml	50 ml 100 ml	P06-04050 P06-04100	20 ml/L	5 days
Penicillin-Streptomycin, 10,000 U/ml	50 ml 100 ml	P06-07050 P06-07100	10 ml/L	3 days

\* at 37 °C in solution

#### Usage:

For research use only. Not suitable for diagnostic or therapeutic purposes on animals and humans.

If possible cells should be cultured without the addition of antibiotics.

Cell culture media provide ideal growth conditions not only for cells but also for microorganisms such as bacteria or fungi.

As a result, there are situations that require the urgent addition of antibiotics (e.g. an existing contamination or unique cells).

## Advantages of antibiotics

- Antibiotics are strong germicidal and bacterial growth inhibitory
- Preventive protection of your cell culture and research results
- The antibiotics and antifungals produced by PAN-Biotech are reliable, effective and easy to use in their application.

Unexpected contamination with microorganism usually leads to the loss of the cell culture and experimental research results.

Contamination can be avoided by preventive measures such as sterile production and by adding antibiotics and antifungals.

Your expert around cell culture.

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## Amphotericin B

Amphotericin B is a polyene macrolactone from *Streptomyces nodosum*, an actinobacterium of the genus *Streptomyces*. It is successfully used as an antifungal agent for the treatment on fungal infections.

Amphotericin B results in an interaction with the cell membrane module ergosterol, which is part of the sterols and occurs in plants and fungi, but not in vertebrates.

This results in an increase in the permeability of the membrane for ions ( $K^+$ ,  $Mg^{2+}$ ) and other low molecular weight substances.

Nearly all human pathogenic fungi are sensitive to Amphotericin B. Additionally, it is effective against protozoa such as *Trichomonas*, *Leishmania*, *Trypanosoma* and *Entamoeba*.

## Gentamicin

Gentamicin is sourced from the bacterial form of *Micromonospora purpurea* and belongs to the drug class of aminoglycoside antibiotics.

Actually, it is a mixture of the three molecules that are very similar in structure. Gentamicin has an mortifying effect on the bacteria during the growth and multiplication phase, as well as in the resting stage of the bacteria.

Gentamicin attaches itself to the ribosomes of bacteria, thereby preventing protein synthesis. The vital functions are that much affected, so bacteria die.

Gentamicin is particularly effective against staphylococci (immovable, roundish, grapes similarly arranged, non-spore forming bacteria), enterobacteria and streptococci.

## Kanamycin

Kanamycin sulfate is a water soluble antibiotic. It penetrates the bacterial cell wall and attaches to the 30S subunit of the membrane-associated ribosomes, thereby inhibiting protein synthesis.

Kanamycin is used effectively against a variety of gram-negative and some gram-positive bacteria and can preventively be used against bacterial contamination of cell cultures.

As selection antibiotics, it is commonly used in molecular biology.

## Penicillin-Streptomycin

Penicillin-Streptomycin prevents the growth of gram positive and gram negative bacteria by their combined effect. Penicillin was originally derived from the fungus *Penicillium* and acts directly, by interfering with the rebuilding of the bacterial cell wall, and indirectly, by triggering the release of enzymes that additionally damage the cell wall.

Streptomycin was originally isolated from *Streptomyces griseus*.

It works by attaching itself to the 30S subunit of the bacterial ribosome, which leads to an inhibition of the protein synthesis and subsequently to the death of susceptible bacteria.

**Attention: The „Pen / Strep“ used in cell culture is only stable for 3 days, so it must be periodically renewed or replaced by other stable antibiotics.**