

Plasmocin™

For treatment and prevention of mycoplasma contamination of cell culture

Product information

Content

Plasmocin™

Plasmocin™ is supplied as 1 ml tubes containing a sterile, yellow solution, cell culture tested.

VZA-1012*: 2 x 1 ml at 25 mg/ml (50 mg)

For elimination of mycoplasma contaminants.

VZA-1011*: 5 x 2 ml at 2.5 mg/ml (25 mg)

For prevention of mycoplasma contamination.

* For research use only.

Shipping and storage

Plasmocin™ is shipped at room temperature and should be stored at 4°C for immediate use and at -20°C for long term storage.

Plasmocin™ is stable for several weeks at room temperature or for at least one year when stored at -20°C.

Note: Presence of crystals does not alter properties of the product. Vortex the tube until the crystals disappear.

Quality control

Activity of **Plasmocin™** is rigorously controlled by physicochemical and microbiological assays.

General product use

Plasmocin™ is used to cure mammalian cells infected by mycoplasma and related cell wall-less bacteria. **Plasmocin™** can also be used as a routine addition in cell culture media to prevent mycoplasma infections and more generally bacterial contamination.

Background

Up to 63% of all cell cultures are contaminated with mycoplasma. Mycoplasma cannot be detected by visual inspection. However, mycoplasma infection has been shown to alter DNA, RNA and protein synthesis, introduce chromosomal aberrations and cause alterations or modifications of host cell plasma membrane antigens.

Plasmocin™ is a new generation of bactericidal antibiotic preparation strongly active on mycoplasma infected cells. Additionally, it is active at low concentrations on a broad range of gram positive and gram negative bacteria otherwise resistant to the mixture of streptomycin and penicillin antibiotics commonly used in cell cultures.

Description/ properties

Plasmocin™ contains two newly developed bactericidal components:

One acts on the protein synthesis machinery by interfering with ribosome translation, and the other acts on DNA replication by interfering with the replication fork. These two specific and separate targets are found only in mycoplasma and many other bacteria, and are completely absent in eukaryotic cells.

In contrast to most anti-mycoplasma compounds that act solely *in vitro*, **Plasmocin™** is active on mycoplasma present in cell culture medium, and on intracellular mycoplasma found in some specialized mammalian cells. The two antibiotics comprising **Plasmocin™** are actively transported into mammalian cells providing a synergistic killing effect on intracellular mycoplasma without adverse effects on cellular metabolism.

This benefit ensures that after being treated with **Plasmocin™**, a cell culture is not reinfected by mycoplasma released from the intracellular compartments of infected cells following antibiotic removal. At high concentrations of **Plasmocin™**, slowdown of cell growth rate may be observed.

This slowing down is mainly due to the inhibition of mitochondria respiration by **Plasmocin™**. However when **Plasmocin™** is removed from culture medium, cells return rapidly to their normal growth rate. The anti-mycoplasma

activity of **Plasmocin™** is unaltered in cell culture medium containing up to 20% serum.

Resistance to Plasmocin™

In repeated experiments aimed to determine the mutation rate of *Mycoplasma hominis*, *Mycoplasma bovis* and *Acholeplasma vituli* to **Plasmocin™**, no resistance in liquid cultures has ever been identified, indicating a possible mutation rate lower than 10^{-9} . Therefore, development of resistant mycoplasma strains is highly unlikely.

Method

Treatment of mycoplasma infected cell cultures:

Plasmocin™ treatment requires little hands-on manipulation and is completed in only two weeks. Typically, **Plasmocin™** is used at 25 µg/ml which represents a 1:1000 dilution of the 25 mg/ml stock solution.

Working concentration of **Plasmocin™** ranges from 12.5 to 37.5 µg/ml.

1. Split an actively dividing culture of cells into cell culture medium containing 12-25 µg/ml of **Plasmocin™**.
2. Remove and replace with fresh **Plasmocin™** containing medium every 3-4 days for 2 weeks.
3. For maintenance of a mycoplasma free culture, continue the use of Plasmocin™ at a concentration of 5 µg/ml.

Note: If mycoplasma elimination is not completed after a two week treatment, you may continue the treatment for an additional week and/or increase the concentration to 37.5 µg/ml.

Maintenance or prophylactic use against Mycoplasma infections:

To prevent mycoplasma and related cell wall-less bacteria contaminations of cell cultures that have been previously tested to be contamination-free, use **Plasmocin™** prevention at a concentration of 5 µg/ml that represents a 1:500 dilution of the 2.5 mg/ml stock solution.