Nanobacteria Removal Agent (100X)

Catalog: CC1053
Storage instruction: Store at -20°C. Avoid freeze-thaw.

Description:

Nanobacteria contamination is a prevalent and challenging issue in the field of cell culture. Nanobacteria can rapidly deplete arginine from the culture medium, competing with cells for essential nutrients, thereby slowing or halting cell growth. Additionally, nanobacteria can alter the enzyme profile and membrane components of cells, causing chromosomal abnormalities and cytopathological changes, which can significantly compromise the reliability of experimental results.

To address this issue, we have developed the Nanobacteria Removal Agent. This is a composite formulation specifically designed to eradicate nanobacteria contamination in cell cultures. The product contains two active components that act on nanobacteria ribosomes and DNA helicase, respectively:

Inhibition of Protein Synthesis:

Acts on nanobacteria ribosomes, blocking protein synthesis and disrupting cell membrane integrity.

Inhibition of DNA Replication:

Acts on nanobacteria DNA helicase, inhibiting DNA synthesis and replication.

The Nanobacteria Removal Agent. has the ability to penetrate mammalian cell membranes, allowing it to eliminate both extracellular and intracellular nanobacteria. This ensures that cells treated with the product will not be re-infected by nanobacteria released from within the cells. Within 1-2 weeks of use, the product can eradicate over 90% of nanobacteria, with minimal cytotoxic effects.

Product Information:

Name	Catalog	Size	Storage
Anti-Nanobacteria Treatment Reagent (100X)	CC1053	5mL	Store at -20°C. Avoid freeze-thaw.

Usage Instructions

Thawing Instructions:

After thawing, if any crystallization occurs, place the vial in a 37°C water bath for 10-15 minutes until completely dissolved. This will not affect the product's efficacy.

Preparation of Working Medium:

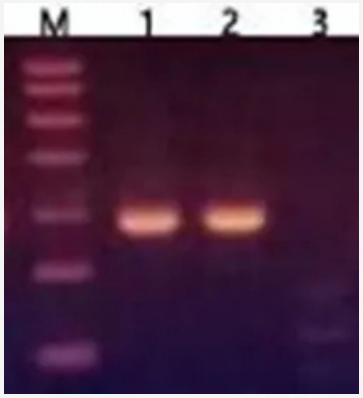
Add the product to the complete culture medium at a 1:100 ratio to prepare a 1X working medium.

Cell Passage Instructions:

During cell passaging, centrifuge to remove the culture supernatant, then resuspend the cells in the 1X working medium for normal culture and passaging for 1-2 weeks. Washing cells with PBS 1-2 times during passaging can enhance the efficiency of mycoplasma elimination.

Example of Elimination Effect

Note: M represents Marker ; 1 is the positive control; 2 is the untreated mycoplasma-infected cells; 3 is the cells after one week of treatment.



Recommendations

After treating the cells with this product until the routine PCR test results are negative, it is advised to continue treatment for an additional week due to the possibility of trace mycoplasma residues. Continue testing. If the results remain negative, attempt to culture the cells normally for 2 weeks without the reagent, while maintaining the frequency of testing to ensure there is no rebound in results. If all results are negative after 2 weeks of normal culture, the cells are considered fully cured and the frequency of testing can be reduced. This constitutes a complete treatment process. Should a rebound occur, the cells will need to start a new complete course of treatment.

Where laboratory conditions permit, use two separate incubators for infected and "clean" cells. Place the cells undergoing decontamination treatment temporarily with the infected cells in one incubator, and once the test results are negative, move them to another incubator for observation. Similarly, if conditions allow, handle infected and "clean" cells in separate laminar flow hoods, and use separate consumables and reagents. If separate conditions are not feasible, make every effort to stratify the placement of infected, decontamination-in-process, and "clean" cells. Handle different cells separately, prioritizing "clean" cells, followed by those undergoing decontamination, and then infected cells. Use reagents separately, allocate consumables first to "clean" cells, and use opened but unused consumables only for infected cells, to minimize the risk of cross-contamination as much as possible.

Operators should possess a certain level of technical proficiency. To establish a mycoplasma-free cell culture room, one must be prepared for a long-term commitment. Not only does the removal of mycoplasma contamination take time, but regular testing is also required to ensure that the cells are free from mycoplasma contamination. Even if contamination is present, early detection and prompt treatment are possible. Adhering to standardized procedures without taking chances is the only way to build a mycoplasma-free cell culture platform.

Common Questions

Q: Why don't the black spots in the culture medium decrease after decontamination treatment?

A: The academic community has not reached a consensus on what the black spots are. Some believe they are cell debris, while others consider them to be inorganic matter, fungi, bacteria, or even black mold mites, among other possibilities. There is no literature reporting a correlation between the appearance of black spots and nanobacteria infection. Therefore, the number of black spots does not reflect the quantity of nanobacteria.

Q: Why do cells get reinfected repeatedly?

A: Nanobacteria can be transmitted through aerosols, and using the same reagents and consumables with infected cells can easily lead to cross-contamination, which may result in cells that have just been cleared of nanobacteria being reinfected after returning to normal culture. Nanobacteria also exists on human skin and in the oral cavity, and non-standard operations (such as handling cells without gloves, not wearing masks during operations, and talking freely) can easily reinfect cells that have just been cleared of mycoplasma. Therefore, establishing and adhering to strict operational protocols is the effective way to prevent repeated cell infections.