September 2013

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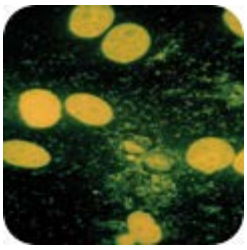
microscoop



Evaluation of an experimental panel for the comparison of *Mycoplasma* detection methods

Mycoplasma contamination is a challenging and costly problem that affects almost a third of continuous cells cultures1. The deleterious effects of this type of contamination include the inhibition of cell metabolism and growth rate, chromosomal abnormalities, and the disruption of nucleic acid synthesis1-3. These effects are particularly problematic for cell cultures used in the development and manufacture of cell-derived biological and pharmaceutical products, as it can affect product quality and safety. Thus, to minimize the risk of product contamination and ensure the safety of cell-derived biological products, it is imperative that Mycoplasma contamination is quickly detected and eradicated.

Currently, the conventional methods for Mycoplasma detection involve culture-based techniques and the use of an indicator cell culture method. Though the combined use of these traditional approaches has proven effective, the procedure is very laborious, costly, and time-consuming4-7. In recent years, the development of nucleic acid-based testing (NAT) has provided an alternative detection method that could help expedite the identification of Mycoplasma contamination, thus allowing for the advancement of material processing. Before this method can be implemented in routine testing, NAT must demonstrate either equivalent or superior limits of detection as compared to the currently used conventional detection methods. However, as each method measures a different biological feature of Mycoplasma, the comparability of these detection methods faces a number of technical challenges. In order to properly compare conventional and alternative detection methodologies, reference cultures demonstrating a high percentage of viable cells and a low degree of aggregation are required.

In a recent multi-laboratory study by Dabrazhynetskaya et al., an experimental Mycoplasma reference culture panel prepared by ATCC was evaluated for its use in comparability studies8. This panel, which comprises 10 different Mycoplasma species, represents common contaminants of cell cultures and associated bioproducts. Using both culture- and molecular-based detection methods, each strain within the panel was tested for titer, the number of genomic copies (GC), and the ratio of these parameters (GC/CFU). Overall, the results of the study demonstrated that the average titer and GC/CFU ratio for most species within the ATCC panel were within an acceptable range, thus demonstrating the feasibility of preparing and employing highly viable and dispersed reference materials for the comparison of Mycoplasma detection methods.

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Mycoplasma Detection – Protect your Continuous Cell Cultures

Thursday, October 10

1:00 PM (EST)

Cara Wilder, Ph.D.

Are you sure your continuous cell cultures and media are free from contamination? Mycoplasma contamination affects roughly 15-35% of continuous cell cultures, resulting in deleterious effects including the induction of chromosomal abnormalities, the disruption of DNA and RNA synthesis, and the inhibition of both cell metabolism and growth rate. In this presentation, learn how to protect your cultures using the ATCC® Mycoplasma Detection Kit.

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Test your microbial expertise with the ATCC crossword puzzle!

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I am a common contaminant of cell cultures that was originally isolated from sewage. Can you guess what I am?

Click here for more clues

Titered Mycoplasma Reference Strains Panel (ATCC® MP-7™)

A panel composed of 10 species of Mollicutes isolated from both clinical and environmental sources. Each titered sample provides a suspension that has been:

- Evaluated for genome copy number
- Quantified by colony forming units
- Rigorously characterized and authenticated by ATCC ISO 9001:2008 certified laboratories
- Optimized to yield high-viability upon thaw

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