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Mycoplasma Detection and Elimination

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Mycoplasma contamination is a major headache for the cell culturist. Mycoplasma are small, simple bacteria which lack a cell wall and represent one of the most prevalent and serious sources of cell line contamination. Mycoplasma contamination is invisible with no discernible change in turbidity or pH even at densities as high as 108 cells/mL. Mycoplasma infections can be extremely virulent. In fact the most common source of mycoplasma infection in cell culture research is another previously infected culture brought into the laboratory. Another major source is the laboratory worker as human mycoplasma continues to be a major source of mycoplasma infection in cell culture. Mycoplasma are a problem because they can induce changes to the cell cultures which include altered growth rates, morphological changes, chromosomal aberrations, and altered cell metabolism. In fact, a mycoplasma contaminated cell line due to the alteration of its characteristics can be regarded as a different cell line.

Mycoplasma infection can be best prevented by always observing Good Cell Culture Practice including the use of antibiotic-free media unless undertaking primary culture and a strict policy of quarantining all incoming cell lines until testing has confirmed the absence of mycoplasma. Regular testing for mycoplasma contamination is recommended for all laboratories carrying out cell culture whether in-house or contracted out. There are a number of mycoplasma tests available, each with its own advantages and disadvantages. At HPA Culture Collections, a combination of three methods (culture test, DNA stain (Hoechst 33258), and PCR) are used, ensuring strains of mycoplasma which do not grow in vitro, can be detected by DNA stain and PCR. The culture test is most sensitive (it includes an amplification step), detecting nearly all species though the organism must be viable and so should be used on all master cell banks. However, it takes a month to obtain the result, the medium required is complex with a relatively short shelf-life and live positive controls must be included. Hoechst stain is a general DNA stain, not specific to mycoplasma, and it also detects cytadsorbed contaminants. Interpretation of the results can be problematical. Both of these methods are FDA and EP approved. PCR provides a quick (results within a day), relatively high through put method for detecting mycoplasma, which can be invaluable in a suspected outbreak situation. It is both relatively cost effective and requires minimal training.

Working with authenticated cell lines free from mycoplasma contamination is a prerequisite for the generation of robust, reliable, and reproducible data in the biomedical research field. We at Sigma know it is a challenge to maintain authentic, contamination free cell lines and failure to do so can be devastating. The full selection of mycoplasma detection and elimination kits available from Sigma makes the tedious ongoing process of mycoplasma control much more efficient and less worrisome. In addition, authenticated and contamination free ECACC cell lines from Sigma provide the right start for critical cell-based biomedical research.

Key Products:

Mycoplasma Detection and elimination

Cat. No.	Product Description
MP0025-1KT	Venor™ GeM Mycoplasma Detection Kit, PCR-based
MP0035-1KT	LookOut® Mycoplasma PCR Detection Kit
MP0040-1KT	LookOut® mycoplasma qPCR detection kit
MP0030-1KT	LookOut® Mycoplasma Elimination Kit

Click **here** for the complete mycoplasma detection offer