Mycotrack

Introduction:
Mycoplasmas are bacteria which lack cell wall. They are considered to be the smallest organisms that are able to replicate. Mycoplasmas cause several acute diseases such as pneumonia, bronchitis and other. In research laboratories, mycoplasmas are often the source of contamination of cell cultures leading to many effects on cellular metabolism. It is supposed that mycoplasmas can e.g. change level of RNA, DNA and protein synthesis, induce chromosomal aberration, change cellular morphology, and inhibit cell growth. Presently, several methods are available to detect mycoplasmas. They are based on e.g. the growth of colonies of mycoplasmas on agar, histochemical labeling, electron microscopy, labeling using DNA dyes such as Hoechst 33258 or DAPI, ELISA tests, labeling using antibodies, hybridization, detection using PCR, enzymatic tests or protein analysis. Each of the mentioned methods possesses advantages and disadvantages such as need of subjective evaluation, or they are materially- or instrumentally- or time-consuming. Therefore, for the reliable evaluation of the possible contamination of cell cultures at least two independent approaches are needed.

Technology description:
MycoTrack is a technology enabling microscopic detection of mycoplasmatic infections. The technology is based on the synthesis of short DNA chains inside the fixed and permeabilised mycoplasmas via enzymatic incorporation of marker nucleotides. The incorporated nucleotides are subsequently detected and samples are evaluated by fluorescence microscopy.

Key features:
- The developed approach does not label common bacterial cells with the cell wall.
- Method is independent on the type of mycoplasma strain.
- Technology can be used for the detection of mycoplasmatic infections in cell cultures or in studies of mycoplasmas attached to the pads.

Development status:
Prototype. More information is available upon signing a CDA/NDA

IP protection:
CZ 307304

Ownership:
Institute of Molecular and Translational Medicine, Faculty of Medicine and Dentistry, Palacky University, Olomouc

Contact:
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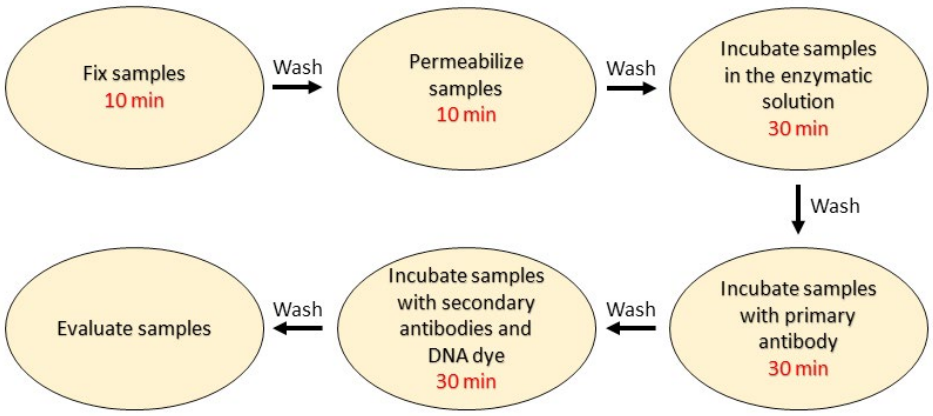
Scheme of the procedure



Mycoplasma positive sample **Mycoplasma negative sample**