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Cell Morphology Characterization of *Mycobacterium monacense*, A Rapid Growing Mycobacteria

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Changes in cell shape and pleiomorphism have been shown to be an integral part of the mycobacterial life cycle long since the identification of *Mycobacterium tuberculosis* as the causal organism of TB by Robert Koch. However, there has not been any systematic investigation into their occurrences in connection to stages or conditions of growth. We have studied the morphological variations in *Mycobacterium monacense*, which is a non-tuberculous *Mycobacterium* spp. that was isolated from patients suffering from lung infections or open wound infections. We provide microscopy data showing that *M. monacense* changes shape from rods to coccoids as the cells age. We also detected the occurrence of spore-like particles upon ageing. The genome was sequenced, and the transcriptome was analysed at different time points. We detected changes in the expression profiles of genes involved in cell morphology. One gene of interest showed an almost five-fold difference in its expression between the exponential and stationary growth phases. Overexpression of this gene in *Mycobacterium marinum* resulted in morphological changes suggesting that this gene may influence cell shape.

Keywords: Pleiomorphism, *Mycobacterium monacense*, non-tuberculous mycobacteria

Biography:

Malavika Ramesh, a final year PhD student in the Department of Cell and Molecular Biology at Uppsala University under the supervision of Prof. Leif A. Kirsebom. Malavika Ramesh main topic of interest and research is "Pleiomorphism in Mycobacteria", mainly involving microbiology and molecular techniques such as growth, culturing & maintenance of various Mycobacterial species; cloning & gene overexpression studies; fluorescence & electron microscopy. Over the years, She has been extensively exposed to the different cell morphologies and growth patterns occurring in Mycobacteria of which Malavika Ramesh wish to present the change in cell shape from rods to coccoids in the rapid growing *Mycobacterium monacense*.