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## Stress response in *Mycobacteria*: Cell shape and survival

Bacteria of the genus *Mycobacterium* are acid-fast, hardy and found to inhabit diverse environmental niches such as ground and tap water, soil, animals and humans. The *Mycobacterium* genus includes non-pathogenic environmental bacteria as well as opportunistic pathogens and highly successful human pathogens such as *M. tuberculosis* that causes TB. The diversity of ecological niches inhabited by *Mycobacterium* spp. demands widely varied life styles with different growth patterns and morphologies for different strains including planktonic growth, formation of biofilms and spores. They respond to variation in the environment such as ageing culture, oxygen deprivation, heat or cold shocks, pH changes, exposure to toxins/antibiotics or to the hostile immune system of the host cell by exhibiting altered growth and morphology. This ability to switch to alternate lifestyles implies global shifts in the transcriptome. Our knowledge about the diversity of the morphological variations undertaken by *Mycobacterium* spp. is rather limited and sporadic as is the underlying signals that induce the wide-ranging pleiomorphism among *Mycobacterium* species. To understand the diversity of morphological variations shown by *Mycobacterium* species we are studying different species and changes in their cell shape in response to different growth conditions. Microscopy data for different *Mycobacterium* spp. where we used different staining techniques showing variation in cell morphology will be presented. This will be followed by a discussion about new genomic, transcriptomic and proteomic data for different *Mycobacterium* spp. with emphasis on genes expressed under different growth conditions.

## Biography

Leif A Kirsebom is a Professor in Biology and he received his PhD degree in Molecular Biology at Uppsala University 1985. After a Postdoctoral training 1986 through 1988 in Nobel Laureate Dr S Altmans laboratory at Yale University, USA, he started his own research group at Uppsala University. His research interests are within the fields of RNA biology, the biology of mycobacteria and development of new antibiotics. He is the Director of BMC and the Vice Chancellor's advisor on international affairs at Uppsala University. Together with a colleague he started Bioimics AB, a small research company devoted to the development of new antibiotics.

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