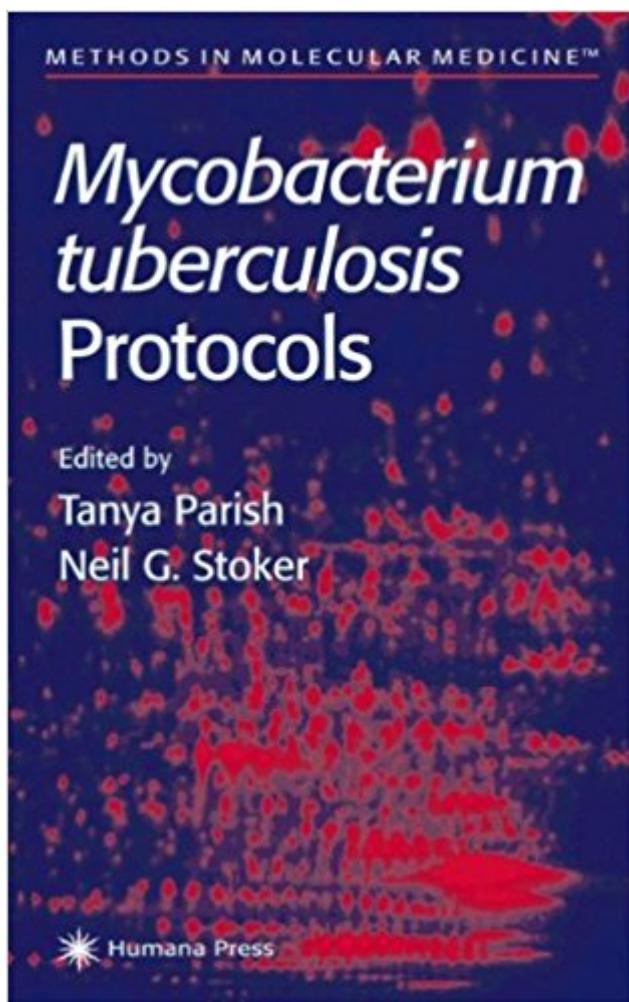


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# Mycobacterium Tuberculosis Protocols (Methods In Molecular Medicine)



## Synopsis

The aim of this book is to provide detailed protocols for studying the molecular biology of the pathogen *Mycobacterium tuberculosis*, and its interactions with host cells. As established mycobacterial laboratories move towards exploiting the genome, and laboratories with expertise in other fields apply them to mycobacteria, both traditional and novel methodologies need to be reviewed. Thus the chapters in *Mycobacterium tuberculosis* Protocols range from perspectives on storage of strains and safety issues to the application of the latest functional genomics technologies. The last few years have been remarkable ones for research into *M. tuberculosis*. The most important landmark by far has been the completion of the genome sequence of the widely studied H37Rv strain (1). We can now predict every protein and RNA molecule made by the pathogen. This information is or will soon be enriched by the addition of genome sequences of other strains from the *M. tuberculosis* complex: a second strain of *M. tuberculosis*, *Mycobacterium bovis*, and the vaccine strain, *M. bovis* BCG. Valuable comparative data will also be provided by the genome sequences of *Mycobacterium leprae*, *Mycobacterium avium*, and *Streptomyces coelicolor*. Another recent milestone for *M. tuberculosis* has been the development of efficient mutagenesis methodologies, the lack of which has been a major handicap in functional studies.

## Book Information

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## Customer Reviews

...a very useful book for the mycobacteria research community. It is a specialist's cookbook, perfect

if you want to establish a new method that is outside your scope of expertise. Individual chapters are clearly divided into introduction, materials, methods and an extensive list of notes. --

International Journal of Medical Microbiology "For those engaged in mycobacterial research (and possibly other unrelated genera) which involves genetics, biochemistry and immunology, this textbook is essential and, moreover, I would recommend it as reading material for students undertaking molecular biology experimentation." -Today's Life Science

With one-third of the world's population infected with *Mycobacterium tuberculosis*, over two million people a year dying from tuberculosis, and the appearance of multidrug-resistant strains, the need to understand the biology of *M. tuberculosis*, and so to develop new interventions, has become acute. In *Mycobacterium tuberculosis* Protocols, leading investigators with extensive practical knowledge and experience describe their best methods for studying this dangerous pathogen. Packed with step-by-step instructions to ensure successful results, these methods range from basic handling techniques to the application of functional genomics. These molecular techniques are suitable for research in genetics, biochemistry, microbiology, cell biology, epidemiology, and diagnostics, and are at the forefront of biological research as a whole, as well as in focused *M. tuberculosis* research. Highlights include methods for the basic safety and culture of *M. tuberculosis*, fractionation of the bacterium (nucleic acids, lipids, culture filtrate, and capsule), the analysis of gene expression (start-site mapping, real-time PCR, microarrays, and proteomics), the growth of the bacterium in macrophages and low oxygen, cytological analysis of the bacteria, and diagnostics. Highly practical and accessible, *Mycobacterium tuberculosis* Protocols utilizes advanced functional genomics and mutagenesis methodologies to provide both experimental and clinical investigators all the powerful techniques needed to illuminate the molecular biology of tuberculosis and its interactions with host cells, and so drive work on the wide variety of emerging therapeutic opportunities.

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