

Preface

Rhodococci are metabolically versatile actinobacteria frequently found in the environment with potential applications in bioremediation, biotransformations, and biocatalysis among other biotechnological processes. These microorganisms are currently the subject of research in many countries of the world. The number of publications and patents on rhodococci has increased significantly during the last several years. In this context, the knowledge acquired during the last decade on basic aspects of *Rhodococcus* biology is significant and reveals promising future prospects. Several public and private genomic projects involving *Rhodococcus* members are now in progress due to the increasing interest in their biotechnological applications. The large *Rhodococcus* genomes, which contain a multiplicity of catabolic genes, a high genetic redundancy of biosynthetic pathways and a sophisticated regulatory network, reflect the complexity of *Rhodococcus* biology. The combination of functional genomic studies with biochemical and physiological knowledge is providing new insights that will make it possible to put rhodococci to biotechnological use.

This Microbiology Monographs volume provides a thorough review of many aspects of the biochemistry, physiology, and genetics of *Rhodococcus* in the context of new genomic information. Expert international scientists have contributed reviews on the extraordinary capabilities of the *Rhodococcus* genus with regard to the biodegradation of diverse compounds, biosynthesis of lipids and biosurfactants, and adaptation and tolerance to solvents. Chapters dealing with its taxonomy, the structural aspects of rhodococcal cellular envelope, genomes and plasmids, and central metabolism are also included in this volume. Moreover, the book examines the basic aspects of the unique pathogenic *Rhodococcus* member (*R. equi*) and the phytopathogenic *R. fascians*.

I would like to express my thanks to all of the authors, who contributed high-quality reviews of each topic, to the series editor, Alexander Steinbüchel, and to the staff at Springer, especially Jutta Lindenborn, for supporting this book.

I hope that this volume will serve as a guidebook for researchers and students and will open new avenues for future research.

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