

Streptomyces

Molecular Biology and Biotechnology

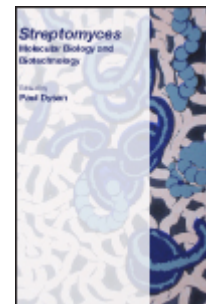
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Streptomycetes are Gram-positive, high GC-content, sporulating bacteria found predominantly in soil. Streptomycetes are characterised by a complex secondary metabolism producing antibiotic compounds and other metabolites with medicinal properties. In recent years genomic studies, genomic mining and biotechnological approaches have been employed in the search for new antibiotics and other drugs.

With contributions from some of the leading scientists in the field, this volume documents recent research and development in streptomycetes genomics, physiology and metabolism. With a focus on biotechnology and genomics, the book provides an excellent source of up-to-date information. Topics include: genome architecture, conjugative genetic elements, differentiation, protein secretion, central carbon metabolic pathways, regulation of nitrogen assimilation, phosphate control of metabolism, gamma-butyrolactones and their role in antibiotic regulation, clavulanic acid and clavams, genome-guided exploration, gene clusters for bioactive natural products, genomics of cytochromes p450.

Essential reading for research scientists, biotechnologists, graduate students and other professionals involved in streptomycetes research, antibiotic and antimicrobial development, drug discovery, soil microbiology and related fields. A recommended text for all microbiology laboratories.

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Chapter 2. *Streptomyces* Conjugative Genetic Elements. *Jutta Vogelmann, Wolfgang Wohlleben and Günther Muth*

Chapter 3. Differentiation in *Streptomyces*: The Properties and Programming of Diverse Cell-types. *Keith F. Chater*

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Chapter 6. Regulation of Nitrogen Assimilation in Streptomycetes and Other Actinobacteria. *Wolfgang Wohlleben, Yvonne Mast and Jens Reuther*

Chapter 7. Network Mechanisms of Phosphate Control of Primary and Secondary Metabolism. *Juan F. Martín, Alberto Sola-Landa, Fernando Santos-Beneit and Antonio Rodríguez-García*

Chapter 8. Gamma-Butyrolactones and their Role in Antibiotic Regulation. *Marco Gottelt, Stefan Kol and Eriko Takano*

Chapter 9. Clavulanic Acid and Clavams Biosynthesis and Regulation. *Paloma Liras, Irene Santamarta and Rosario Pérez-Redondo*

Chapter 10. Genome-guided Exploration of *Streptomyces ambofaciens* Secondary Metabolism. *Bertrand Aigle, R. Bunet, C. Corre, A. Gareaux, S. Huang, L. Laureti, S. Lautru, M.V. Mendes, S. Nezbedová, H.C. Nguyen, L. Song, J. Weiser, G.L. Challis, P. Leblond and J.-L. Pernodet*

Chapter 11. Gene Clusters for Bioactive Natural Products in Actinomycetes and their Use in Combinatorial Biosynthesis. *Carlos Olano, Carmen Méndez and José A. Salas*

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