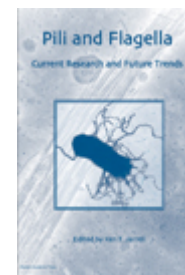


Pili and Flagella

Current Research and Future Trends



Edited by: **Ken Jarrell**

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Flagella-dependent motility is widespread throughout prokaryotes and is advantageous when nutrients are limited, as a mechanism to migrate to more favourable environments and to compete with other micro-organisms. Flagella systems can also play an important role in additional processes such as adhesion to substrates, biofilm formation and host invasion in pathogenic bacteria. A variety of different classes of pili are found in prokaryotes and these structures also possess a diverse array of functions. Pili are essential for host colonization, virulence and pathogenesis for many bacteria and, in the case of type IV pili, can also be employed for motility across solid surfaces.

This book, the first for many years on this important topic, brings together some of the top scientists in the field and describes the current knowledge and latest research on prokaryotic pili and flagella. The emphasis of the chapters is on the molecular biology, genetics, structure, assembly and function of these structures. Topics include biogenesis, structure, and function of various pili in Gram-negative and Gram-positive organisms, flagellar gene expression, structure and assembly, the flagella motor, posttranslational modifications of flagella systems, lateral flagella systems, the origin and evolution of flagella, applications of flagella as a surface display and expression system, and a chapter on the flagella and pili of Archaea.

A recommended text for all microbiology laboratories and an essential volume for anyone involved in microbial adhesion, pathogenesis, virulence, structural biology, host colonization and motility.

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Chapter 2. Type IV Pilus Biogenesis, Structure and Function: Lessons from Type IVa Pilin Systems. *Michael Koomey*

Chapter 3. The Bundle-forming Pilus and Other Type IVb Pili. *Ekaterina Milgotina and Michael S. Donnenberg*

Chapter 4. Structure, Function and Biogenesis of Pili Formed by the Chaperone/Usher Pathway. *Han Remaut and Gabriel Waksman*

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Chapter 11. Lateral Flagella Systems. *Susana Merino and Juan M. Tomás*

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