

Microbial Biofilms

Current Research and Practical Implications

MICROBIAL
BIOFILMSCurrent Research
and Practical ImplicationsEdited by
Arindam Mitra

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Biofilms are classic examples of microbial communities that persist collectively in a self-synthesized matrix and challenge the concept of prokaryotes as isolated organisms. Microbial biofilms are extremely robust in terms of resistance to various chemicals and antimicrobials and are relevant in more than half of infectious diseases globally. In addition microbial biofilms have numerous industrial applications such as their use in bioremediation, electricity generation and wastewater treatment. The importance of biofilms cannot be understated and work in this field will continue to grow in the future.

This concise volume is written by highly qualified scientists working on various aspects of biofilms. Under the expert guidance of the editor, respected leaders in their fields present detailed reviews of various aspects of biofilms with a focus on mechanisms of biofilm formation, techniques to study microbial biofilms and applications of biofilms. The book is topical and up-to-date in terms of content and developments in the field. Topics of note include: formation and development of biofilms, novel techniques to study biofilms, biofilm formation in clinical situations, host immune response, application of biofilms in electricity generation, wastewater treatment and bioremediation.

Aimed at research scientists, advanced students and other professionals, this informative and up-to-date book is an invaluable and timely review on current research in biofilms and is an essential acquisition for anyone involved in this area of biology.

Chapter 1. Molecular Mechanisms of Biofilm Development and Biofilm Dispersal in Gram-Positive Bacteria (*Öykü Irigül-Sönmez, Öznur Pehlivan and Ayten Yazgan-Karatas*)

Chapter 2. Mechanism of Biofilm Formation in Gram-Negative Bacteria (*Ulrich Vasconcelos, Palashpriya Das, Diogo Simas Bernardes Dias, Tarcísio Tarcísio Correa Bonifácio, Ray Ravilly Alves Arruda, Bianca Teixeira Morais de Oliveira and Thiago Gonçalves Cavalcanti*)

Chapter 3. Existing and Novel Techniques to Study Biofilms (*Paramita Basu*)

Chapter 4. Mechanisms of Biofilm Formation in Clinically Used Biomaterials (*John-Jairo Aguilera-Correa, Jaime Esteban and David Romera-García*)

Chapter 5. Bacterial Biofilms and Host Immune Response (*Pradeep Kumar Singh, Vivek Kumar Yadav, Deepmala Sharma, Vishnu Agarwal and Vandan Nagar*)

Chapter 6. Application of Biofilms in Electricity Generation, Wastewater Treatment and Bioremediation (*Akash Mitra and Arindam Mitra*)

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