

## **Microbial Biofilms – An Introduction to the Symposium**

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“Several recent symposia and workshops sponsored by the American Society for Microbiology and the NIH have emphasized the unique features of bacteria and fungi growing as a biofilm rather than in free-floating, planktonic forms. In particular the microorganisms tend to be far more resistant to antimicrobial agents and to be particularly difficult for the host immune system to render an appropriate response.” (Program Announcement - PA-98-070, National Institutes of Health, Bethesda, MD, USA May 14, 1998)

As exemplified by this quotation, microbiologists, industries and government granting agencies are beginning to realize that considerable levels of microbial activity in nature occur within surface-adherent biofilm communities. This seemingly radical concept developed as a consequence of microbial ecologists observing microorganisms directly in many different natural environments. We now realize that microorganisms within biofilms behave differently from their planktonic counterparts. What is not known however are the detailed mechanisms that organisms employ for biofilm formation and growth within biofilms. Several talks on biofilm biology were presented during the biofilm symposium at the 8<sup>th</sup> International Symposium on Microbial Ecology, Halifax, Canada (ISME8). The subjects addressed by the participants included aspects of bacterial growth in biofilms (RJC McLean), biofilm structure (P Stoodley), gene transfer within biofilms (BB Christensen), and quorum sensing and its role in biofilm formation (S Kjelleberg). The four papers that follow arose from these talks deal with the fundamental aspects of biofilm biology presented during this symposium.

The final talk by JW Costerton addressed the future of biofilm research. A number of organisms are able to control biofilm formation by producing chemicals that interfere with unique aspects of biofilm physiology (e.g. quorum-sensing gene activity). By understanding these mechanisms, we may be able to custom build biofilm communities onto some surfaces and prevent their formation on other surfaces.

### ***Microbial Biosystems: New Frontiers***

*Proceedings of the 8<sup>th</sup> International Symposium on Microbial Ecology*

*Bell CR, Brylinsky M, Johnson-Green P (ed)*

*Atlantic Canada Society for Microbial Ecology, Halifax, Canada, 1999.*