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Targeting microbial biofilms: current and prospective therapeutic strategies.

Koo H¹, Allan RN^{2,3}, Howlin RP^{4,5}, Stoodley P^{6,7,8}, Hall-Stoodley L^{5,6}.

Author information

- 1 Biofilm Research Laboratories, Levy Center for Oral Health, Department of Orthodontics and Divisions of Pediatric Dentistry & Community Oral Health, School of Dental Medicine, University of Pennsylvania, Pennsylvania 19104-6030, USA.
- 2 Clinical and Experimental Sciences, Faculty of Medicine and Institute for Life Sciences, University of Southampton, Southampton SO17 1BJ, UK.
- 3 Southampton NIHR Wellcome Trust Clinical Research Facility, University Hospital Southampton NHS Foundation Trust, Southampton SO16 6YD, UK.
- 4 Centre for Biological Sciences, University of Southampton, Southampton SO17 1BJ, UK.
- 5 Southampton NIHR Respiratory Biomedical Research Unit, University Hospital Southampton NHS Foundation Trust, Southampton SO16 6YD, UK.
- 6 Department of Microbial Infection and Immunity, Centre for Microbial Interface Biology, The Ohio State University, Columbus, Ohio 43210, USA.
- 7 Departments of Orthopaedics and Microbiology, The Ohio State University, Columbus, Ohio 43210, USA.
- 8 National Centre for Advanced Tribology at Southampton (nCATS), Faculty of Engineering and the Environment, University of Southampton SO17 1BJ, UK.

Abstract

Biofilm formation is a key virulence factor for a wide range of microorganisms that cause chronic infections. The multifactorial nature of biofilm development and drug tolerance imposes great challenges for the use of conventional antimicrobials and indicates the need for multi-targeted or combinatorial therapies. In this Review, we focus on current therapeutic strategies and those under development that target vital structural and functional traits of microbial biofilms and drug tolerance mechanisms, including the extracellular matrix and dormant cells. We emphasize strategies that are supported by in vivo or ex vivo studies, highlight emerging biofilm-targeting technologies and provide a rationale for multi-targeted therapies aimed at disrupting the complex biofilm microenvironment.

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