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Role of stringent response in *Pseudomonas putida* biofilm dispersal

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Palabras clave: biofilm; starvation; c-di-GMP; dispersal



RESUMEN

In natural environments bacteria predominantly exist as part of complex surface-associated communities known as biofilms. The study of biofilms has become an important topic in microbiology due to the deep impact they have in many important areas in society. Biofilms are structured polymeric matrix-encased communities of microorganisms associated to a surface or interphase, which provide bacteria with many different advantages in contrast to the planktonic lifestyle. Biofilm development is a cyclic process, including: attachment, proliferation, maturation and dispersal. Biofilm dispersal in the soil bacterium *Pseudomonas putida* is regulated by environmental cues, such as overall nutrient availability, specifically carbon limitation, that indirectly regulate the intracellular concentration of c-di-GMP. Although the effector mechanisms of this response are already solved, the elements involved in sensing and transducing the starvation signal to control the c-di-GMP pool are as of yet unknown. Therefore, a screening for mutants with defects in biofilm dispersal is described as well as the genetic and phenotypic characterization of a mutant obtained with this methodology. A possible regulatory mechanism of starvation-induced biofilm dispersal is proposed.

BIBLIOGRAFIA

- Gjermansen M., Nilsson M., Yang L. and Tolker-Nielsen T. (2009) Characterization of starvation-induced dispersion in *Pseudomonas putida* biofilms: genetic elements and molecular mechanisms. *Molecular Microbiology* **75**: 815-826 .
- O'Toole G., Kaplan H.B., and Kolter R. (2000) Biofilm formation as microbial development. *Annu. Rev. Microbiol.* **54**: 49-79
- Tolker-Nielsen T. and Molin S. (2004) The biofilm lifestyle of *Pseudomonads*. *Pseudomonas* **1(18)**: 547-574
- Watnik P. and Kolter R. (2000) Biofilm, city of microbes. *J Bacteriology* Vol. 182, No. **10**: 2675-2679