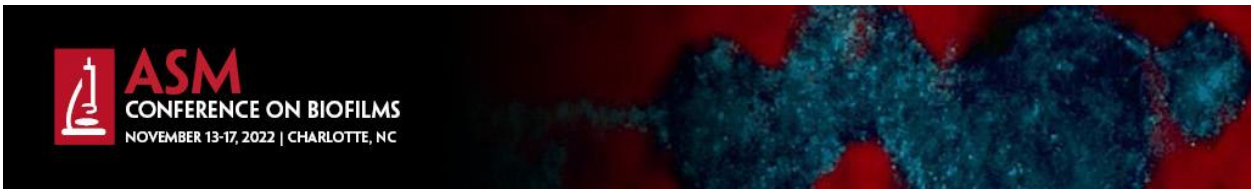

Deconstructing the Biofilm Bunker - Regulation of Dispersion and Matrix Degradation by *Pseudomonas Aeruginosa* Biofilms

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The biofilm mode of growth provides protection from various stress conditions such as antimicrobial exposure or immune cells attack. This protective effect is mostly due to the polymeric matrix that encases the biofilm community, providing structural support as well as a protective, bunker-like shield for the biofilm residents. During dispersion, the final step of the biofilm life cycle, single cells leave the protective biofilm environment to resume the planktonic mode of growth, a lifestyle that is more vulnerable to antimicrobial agents and immune responses. Therefore, the dispersion response coincides with a reversion from the sessile to the planktonic lifestyle, as well as with the degradation of the shell-like biofilm matrix to enable the liberation of single cells from the biofilms, apparent by dispersed cells leaving behind eroded biofilms and biofilms having central voids. In *Pseudomonas aeruginosa,* biofilm dispersion has been characterized with respect to dispersion cue perception, matrix degradation, and the consequences of dispersion. Moreover, the intracellular signaling molecule c-di-GMP has been linked to many of the phenotypic changes ascribed to dispersion, including modulation of motility and matrix production. However, little is known about the regulatory mechanisms leading to matrix degradation and biofilm cells adopting the distinct phenotype of dispersed cells. The focus of this presentation will be on the regulatory mechanism(s) by which bacteria liberate themselves from the matrix-enmeshed biofilm structure, with emphasis on untethering of polysaccharides from the cells, the degradation of matrix components, and factors contributing to biofilm cells reverting to the planktonic model of growth.