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## Biofilm disassembly and prevention by glycosyl hydrolase

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Biofilms are surface associated communities of microorganism embedded in extracellular matrix. Exopolysaccharide is a critical component in the extracellular matrix that maintains biofilm architecture and protects resident biofilm bacteria from antimicrobials and host immune attack. However, the self produced factors that target the matrix exopolysaccharides are poorly understood. Here we show that PslG, a protein involved in the synthesis of a key biofilm matrix exopolysaccharide Psl in *Pseudomonas aeruginosa*, prevents biofilm formation and disassembles existing biofilms within minutes at nanomolar concentrations while supplied exogenously. The crystal structure of PslG indicates the typical features of an endoglycosidase. PslG disrupts mainly the Psl matrix to disperse bacteria from biofilms. PslG treatment markedly enhances biofilm sensitivity to antibiotics and macrophage cells, resulting in improved biofilm clearance in a mouse implant infection model. Furthermore, PslG shows biofilm inhibition and disassembly activity against a wide range of *Pseudomonas* species, indicating its great potential in combating biofilm related complications.

### Biography

Luyan Z Ma was graduated from Beijing Agricultural University and obtained her PhD from the same university in 1996. She has received training as a Postdoctoral Fellow at the Institute Pasteur in Paris, France and has worked as a Visiting Scholar at University of Connecticut Health Center, USA. She has worked in the Wake Forest University and the Ohio State University of USA before she joined the State Key Laboratory of Microbial Resources at Institute of Microbiology, Chinese Academy of Sciences in 2010. She has been awarded by the Hundred Talent Program of the Chinese Academy of Sciences for 2010.

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