

Seminar

Tuesday 13 September 2011

11.00 am - Room 531

Dr Jennifer R. Potts

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Combined BIC/Chemistry Seminar

Surface proteins of Gram-positive bacteria: protein tales of the unexpected

Staphylococcal biofilm formation on prosthetic and in-dwelling devices is a substantial clinical problem. Biofilms are communities of bacteria that are resistant to antibiotics and to the host immune response: frequently device removal is the only way to resolve the infection. Biofilms can form through both polysaccharide and protein-mediated mechanisms. The first structural data for highly repetitive staphylococcal proteins that promote biofilm formation will be presented. The structures are novel and provide an unexpected explanation for the protein fibrils observed on the bacterial surface.

Work to characterise the interactions of a surface protein from *Staphylococcus aureus* with human fibronectin will also be presented. This host-pathogen interaction is implicated in life-threatening infections such as infective endocarditis and the interaction is mediated through an unusual mechanism of protein-protein recognition.

These studies were performed using a variety of biophysical techniques including NMR spectroscopy, X-ray crystallography and isothermal titration calorimetry.