

## Molecular mechanisms of Staphylococcal persistence

A PhD studentship based in the Section of Microbiology, Imperial College London.

The Section of Microbiology on the South Kensington Campus of Imperial College London is seeking applications for a PhD studentship for October 2012 entry under the supervision of Dr Andrew Edwards.

The Section of Microbiology is internationally recognized as a centre of excellence in research in the broad areas of microbial pathogenesis and microbial adaptation to the host. The Section is part of the Centre for Molecular Microbiology and Infection (CMMI) located within the Flowers Building on the South Kensington campus, which also houses groups from the Faculty of Natural Sciences working in related areas. In addition to the scientific training on offer, Imperial offers a variety of different courses for PhD students in a range of transferable skills. This, along with the wealth of scientific excellence elsewhere on campus, provides an almost unparalleled learning environment for PhD studies.

### Project Overview

*Staphylococcus aureus* is responsible for a wide range of different infections, ranging in severity from mild to life-threatening. Many of these infections can become persistent or recurring despite antimicrobial therapy and a robust immune response. During the course of infection *S. aureus* is able to enter and survive within a number of different cell types including epithelial, endothelial and immune. It is hypothesised that internalised bacteria are shielded from both immune surveillance and antimicrobial therapy. Whilst the mechanisms of cellular invasion have been well characterised, the survival of *S. aureus* within host cells is poorly understood. Work undertaken during this PhD studentship will identify the genes that underpin *S. aureus* intracellular persistence and characterise their functions. The eventual aim is to exploit this information for use in novel therapeutic approaches and as biomarkers for the development of persistent infection.

**Aim:** To identify *S. aureus* genes which promote persistence within host cells and determine their functions.

### Specific Objectives:

- i) To generate a *S. aureus* transposon mutant library.
- ii) To screen the library for mutants with an altered intracellular persistence phenotype.
- iii) To confirm the roles of identified genes by targeted mutation and complementation.
- iv) To characterise the functions of identified genes in modulating intracellular persistence.

This 3-year studentship is open to EU/EEA citizens. It is fully funded and includes a stipend of around £17,500 per annum and home/EU tuition fees. Only applicants selected for interview will be contacted.

Applicants must have, or expect to obtain, at least an upper second-class degree in an appropriate subject e.g. biology, biochemistry, genetics, immunology, microbiology or molecular biology.

Applicants are requested to send a full CV (including the names and email addresses of at least two academic referees), and personal statement outlining how this programme of research and training will benefit from their past experience, and impact their career aspirations, to Dr Andrew Edwards ([a.edwards@imperial.ac.uk](mailto:a.edwards@imperial.ac.uk)) by 29 February 2012.