



Title of PhD project	Transfer and stability of antimicrobial resistance (AMR) genes in Methicillin-Resistant Staphylococcus aureus (MRSA)	
Supervisor	Professor Jodi Lindsay	SGUL
Co-Supervisor	Dr Gwen Knight	LSHTM
Co-Supervisor	Professor Kathryn Holt	LSHTM
Brief description of project	<p>Antibiotic resistance (ABR) is a growing global problem, that requires innovative, cross-disciplinary solutions. However, the dynamics and genetic mechanisms that underpin the transfer and stability of resistance genes within bacterial population is poorly understood.</p> <p>In this project, we will use clinical strains of methicillin resistant Staphylococcus aureus (MRSA), an important clinical pathogen, to measure and then characterise the genetic components behind gene transfer of resistance. Paired with bioinformatic analysis, this project will have direct translational impact on clinical practice and will inform our understanding of the underlying evolutionary changes and how these can be optimally harnessed for ABR control.</p>	
Skills we expect a student to develop/acquire whilst pursuing this project	Antimicrobial resistance, microbiology, molecular biology, bioinformatics, mathematical modelling.	
Particular <u>prior</u> educational requirements for a student undertaking this project	Good undergraduate degree in biological sciences with laboratory experience. Post-graduate research degree in microbiology or genetics is an advantage.	
Project key words	Antimicrobial resistance Microbiology Molecular biology Bioinformatics Mathematical modelling	
Possible under 1+4 route? Master's options identified.	Yes SGUL – MRes Antimicrobial Resistance SGUL – MRes Infection & Immunity LSHTM – MSc Medical Microbiology	

MRC Core Skills developed through this project	Quantitative skills Interdisciplinary skills Whole organism physiology
MRC LID themes	Global Health Translational and Implementation Research Infectious Disease
Further reading	Staphylococcus aureus genomics and the impact of horizontal gene transfer