Title of PhD project	**Viral evasion of innate immunity: have we misunderstood one of the world's most widespread viruses?**	
Supervisor	Dr Blair Strang	SGUL
Co-Supervisor	Professor Steve Goodbourn	SGUL
Brief description of project	The innate immune response is the first line of defence in viral infection, where production of cellular anti-viral proteins by interferon attempt to control infection. Human cytomegalovirus (HCMV) is a widespread global pathogen affecting some of societies most vulnerable people. Evasion of innate immunity by HCMV laboratory strains has previously been studied. However, evasion of innate immunity by HCMV strains that resemble wild type HCMV has not yet been fully explored. We have identified viruses that can (wild type strain) and cannot (lab strain) evade the innate immune response. By comparing infection of these viruses we will examine how HCMV influences interferon production and the function of anti-viral proteins regulated by interferon. We will then identify what viral genes are responsible for influencing the aforementioned processes. This project will help us understand how we may have misunderstood interaction of a global pathogen with the innate immune system. This project has important academic impact elsewhere as it may help identify viral proteins in viruses related to HCMV that are important for control of innate immunity. As interferon production may be important for HCMV vaccine design, this work may also have important translational impacts.	
Skills we expect a student to develop/acquire whilst pursuing this project	The student will acquire and develop expertise in the study of a global human pathogen, virus-host interactions and genomics. This will include development of laboratory skills in biochemistry, molecular and cellular biology, viral immunobiology and genetic analysis. All of these skill sets will allow the student to pursue career paths in infection and immunity research and beyond. Moreover, this project has elements of transferable skills (for example project management across different disciplines) that can applied to numerous career paths outside of laboratory research.	
Particular prior educational requirements for a student undertaking this project	None is essential as the supervisors' expertise encompasses all aspects of the proposed project. However, previous	

	training in molecular virology, viral immunology or genomics is preferable.
Project key words	Anti-viral immunity Human cytomegalovirus Interferon
Possible under 1+4 route? Master's options identified.	Yes SGUL – MRes Biomedical Science - Infection & Immunity
MRC Core Skills developed through this project	Interdisciplinary skills
MRC LID themes	Infectious Disease
Further reading	Human cytomegalovirus protein RL1 degrades the antiviral factor SLFN11 via recruitment of the CRL4 E3 ubiquitin ligase complex High-Throughput Small Interfering RNA Screening Identifies Phosphatidylinositol 3-Kinase Class II Alpha as Important for Production of Human Cytomegalovirus Virions Inhibition of IKKα by BAY61-3606 Reveals IKKα-Dependent Histone H3 Phosphorylation in Human Cytomegalovirus Infected Cells. The switch between acute and persistent paramyxovirus infection caused by single amino acid substitutions in the RNA polymerase P subunit Species specific differences in use of ANP32 proteins by influenza A virus Innate Intracellular Antiviral Responses Restrict the Amplification of Defective Virus Genomes of Parainfluenza Virus 5 Rotavirus NSP1 Inhibits Type I and Type III Interferon Induction