Department of Microbiology and Immunology

SEMINAR

12:00 Noon, Monday, 15th October
Room 208, 2nd floor
Microbiology Building
720 Cumberland St

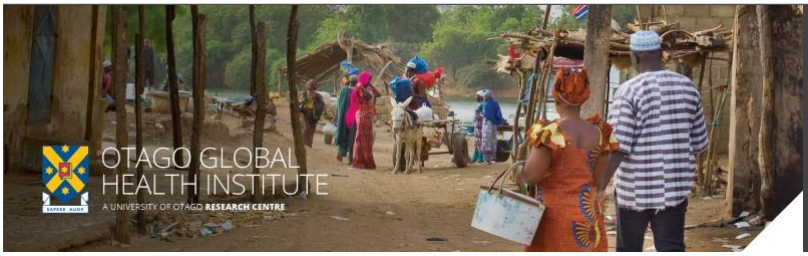
Professor Gordon Dougan

University of Cambridge, United Kingdom

'Studying emerging diseases through genomics and stem cells: antibiotic resistant typhoid as an exemplar'

Infectious diseases remain a serious threat in the modern world with the emergence of new pathogens that can evade current therapeutic approaches. Antibiotic resistant bacteria are exemplars of such threats. An explosion in new technologies, such as genome sequencing (host and pathogen) and stem cell biology, are providing blueprints for the design of systems both for tracking disease and for exploring new interventions. Further, we are now understanding how even relatively avirulent microbes can influence health and disease in the shape of the microbiota.

Using Salmonella as an example I will describe how genomics can be used to monitor the evolution and spread of diseases, such as typhoid, that are still extremely common in resource poor settings and in travellers to such regions. Now forms of antibiotic resistant typhoid have spread globally and are still acquiring resistance even to the newest antibiotics. *Salmonella* Typhi, the cause of typhoid, normally only infects humans and cannot be studied effectively in animals. I will describe how controlled human challenge and stem cell biology are providing new opportunities to study this pathogen in *in vitro* systems such as Induced Pluripotent Human Stem Cell-derived macrophages and organoids.



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