

“AVIAN HOST RANGE RESTRICTION AND INNATE ANTIVIRAL RESPONSES”

by

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Time: 3:15pm to 4:30pm

Venue: G4302, 4/F (green zone), Academic 1 Building, City University of Hong Kong

About the Speaker:

Dr Mike Skinner studied Microbiology at the University of Leeds, followed by bacterial genetics and biochemistry for his PhD at the University of Leicester. He moved into the molecular biology of viruses, with postdoctoral positions on coronaviruses (Würzburg, Germany), poliovirus (Leicester and Reading) and HIV (MRC-LMB, Cambridge) before joining the Institute for Animal Health as a group leader to work on avian poxviruses. Since then he has also worked on avian leukosis virus and a birnavirus. At the Institute for Animal Health (IAH), Mike was a long-serving member of the local GMSC, having also served as chair and Biological Safety Officer. His current BBSRC-funded research interests are virus-host interactions, specifically innate antiviral responses, and vaccines. He joined Imperial College London after IAH as a Senior lecturer in 2005 and was promoted to Reader in 2014. Mike is appointed Chair of the UK Health & Safety Executive's "Scientific Advisory Committee for Genetic Modification (Contained Use)" [SACGM(CU)], having been an appointed member since its formation in 2004. Mike is an elected member of Council and governing trustee of the Microbiology Society (formerly the Society for General Microbiology) and sits on the editorial board of one of its journals (the Journal of General Virology).

Abstract:

Viruses that infect chickens pose major threats – to the global supply of the major, universally-acceptable meat and as zoonotic agents (e.g. avian influenza viruses H5N1 and H7N9). Controlling these viruses in birds as well as understanding their emergence into, and potential for transmission amongst humans will require all our ingenuity and an understanding of how different host species defend themselves against infection. The response coordinated by induction of type I interferon is the major component of host antiviral innate defences. Although interferon was discovered in chicken cells, details of the response it induces, in particular the identity of hundreds of stimulated genes, are far better described in mammals, due to the much later cloning of chicken interferon and derivation of the chicken genome sequence. Studies on avian responses to virus infection are increasing but many of the genes induced (such as those involved in metabolic pathways and cell structure) are those required for virus replication in general, rather than those that constitute the anti-viral response. With our collaborators we have been using transcriptomics and follow-on studies both to define determinants of host range restriction and characterise host innate responses in model in vitro systems, highlighting often surprising key differences between avian and human systems.