



EEID 2018 GLASGOW

29 MAY-1 JUNE 2018

Conference Program

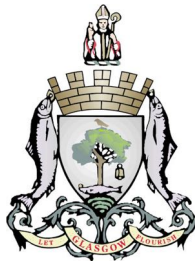


CVR
Medical Research Council
University of Glasgow
Centre for Virus Research



University
of Glasgow

THE
ROYAL
SOCIETY
PUBLISHING



Program

29 May

University of Glasgow, Graham Kerr Building, Lecture Theatre 1

14:00 – Pre-conference seminar – Helen Eaton (Royal Society Publishing) – *Selecting and submitting to a scientific journal*

Glasgow Botanic Gardens (Kibble Palace), 730 Great Western Road ([Google Maps](#))

18:30 – Welcoming Reception

20:30 – Pub: Curlers Rest, 260 Byres Rd. ([Google Maps](#))

30 May

Sir Charles Wilson Building ([Google Maps](#))

8:00 – Registration

9:00 – Welcoming remarks

Session 1: Interventions and real world applications of disease ecology and evolution

Chair: Sarah Cleaveland

Q&A: Jordan Bone & Luca Neilli

9:15 – Chris Dye - *What will it take to end TB*

9:45 – Petra Klepac - *Contagion! BBC4 Pandemic – The power of citizen science*

10:00 – Luke McNally - *Focussing on resistance to front-line drugs is the most effective way to combat the antimicrobial resistance crisis*

10:15 – Katie Hampson - *How understanding transmission dynamics can inform the elimination of dog-mediated rabies*

10:30 – Coffee break - Glasgow University Union ([Google Maps](#))

11:15 - Rosie Woodroffe - *Badgering: the science, policy, and politics of managing cattle TB*

11:45 - Mafalda Viana - *Transmission dynamics of two canine viruses at the wildlife-domestic interface*

12:00 - Andrew Wargo - *Vaccine impacts on pathogen co-infection dynamics*

12:15 - Issa [Lyimo](#) - *Impact of host species and interventions on the host choice, fitness and species composition of African malaria vectors and prospects of their control*

12:30 – Lunch

Session 2: Host shifts and disease emergence

Chair: Roman Biek

Q&A: Alice Broos & Maude Jacquot

14:00 – Lena Wilfert - *A new vector rocks the hive: knock-on community-level effects of host*

switching

14:30 – Eloise Stephenson - *Interpreting human notification rates of Australia's most common arbovirus, Ross River virus, through an ecological lens*

14:45 – Lauren Shoemaker - *Viral manipulation of vector dispersal behavior in a multi-host framework: combining experiments and models*

15:00 – Ben Longdon - *Virus host shifts*

15:15 – Coffee break – Glasgow University Union

16:00 – Jamie Lloyd Smith - *Most pandemics are zoonoses, but most zoonoses do not cause pandemics*

16:30 - Pablo Murcia - *Evolution hampers influenza emergence in horses despite frequent interspecies transmission from wild birds*

16:45 – Sandra Telfer - *Plague in Madagascar: the role of different hosts in heterogeneous and changing landscapes*

17:00 – Sebastien Calvignac-Spencer - *Evolutionary timescales and host switches of dsDNA viruses infecting hominines*

17:15 – Poster teaser session 1

17:45 – Poster session 1 – Glasgow University Union

18:30 – Teaching EEID Special Session (Glasgow University Union)

Pub suggestions: Brel (43 Ashton Lane); Innis and Gunn Beer Kitchen (44 Ashton Lane); Ubiquitous Chip (12 Ashton Lane), The Gardener (24 Ashton Lane) ([Google Maps](#))

31 May

Sir Charles Wilson Building

Session 3: Genomics and big data in disease ecology and evolution

Chair: Daniel Streicker

Q&A: Jordan Bone & Luca Neilli

9:15 – Christophe Fraser - *From transmission to evolution: HIV modelling and genomes*

9:45 – Simon Babayan - *Machine learning and biological inference: where we stand and where we are heading*

10:00 – Patrick Dolan - *High-resolution insertion-deletion mapping reveals new dimensions of RNA virus adaptation*

10:15 – Hannah Trewby - *Using pathogen genome data to uncover habitat-specific contributions to landscape-level persistence of infection*

10:30 – Coffee break – Glasgow University Union

11:15 – Kat Holt - *Genomic insights into the evolution and spread of antimicrobial resistance*

11:45 - Philip Schwabl - *Parallel sexual and parasexual population genomic structure in *Trypanosoma cruzi**

12:00 - Ana Bento - *Integrating parallel data streams to identify drivers of *B. pertussis* resurgence*

12:15 - Nuno Faria - *Genomic and epidemiological monitoring of yellow fever virus transmission potential*

12:30 – Lunch

Session 4: Within host pathogen dynamics: co-infection to wild immunity

Chair: Simon Babayan

Q&A: Alice Broos & Maude Jacquot

14:00 – Marco Vignuzzi – *Monitoring, predicting and altering the evolution of RNA virus populations*

14:30 – Cara Brook – *Quantifying within-host signatures of resistance and tolerance in bat reservoirs for emerging viral zoonoses*

14:45 – Tsukushi Kamiya – *Bridging immunology and within-host ecology: a network approach predicts host immune responses to malaria infection*

15:00 – Erin Gorsich – *Interactions between chronic infections: opposite outcomes of co-infection at individual and population scales*

15:15 – Coffee break – Glasgow University Union

16:00 – Ann Tate – *The dynamics of immunological plasticity under the threat of multiple infections*

16:30 – Dana Hawley – *Incomplete host immunity favors the evolution of virulence in an emergent songbird pathogen*

16:45 – Mark Viney – *The Immune State of Wild Mice, *Mus musculus domesticus* (part 1)*

17:00 – Eleanor Riley – *The Immune State of Wild Mice, *Mus musculus domesticus* (part 2)*

17:15 – Poster teaser session 2

17:45 – Poster session 2 – Glasgow University Union

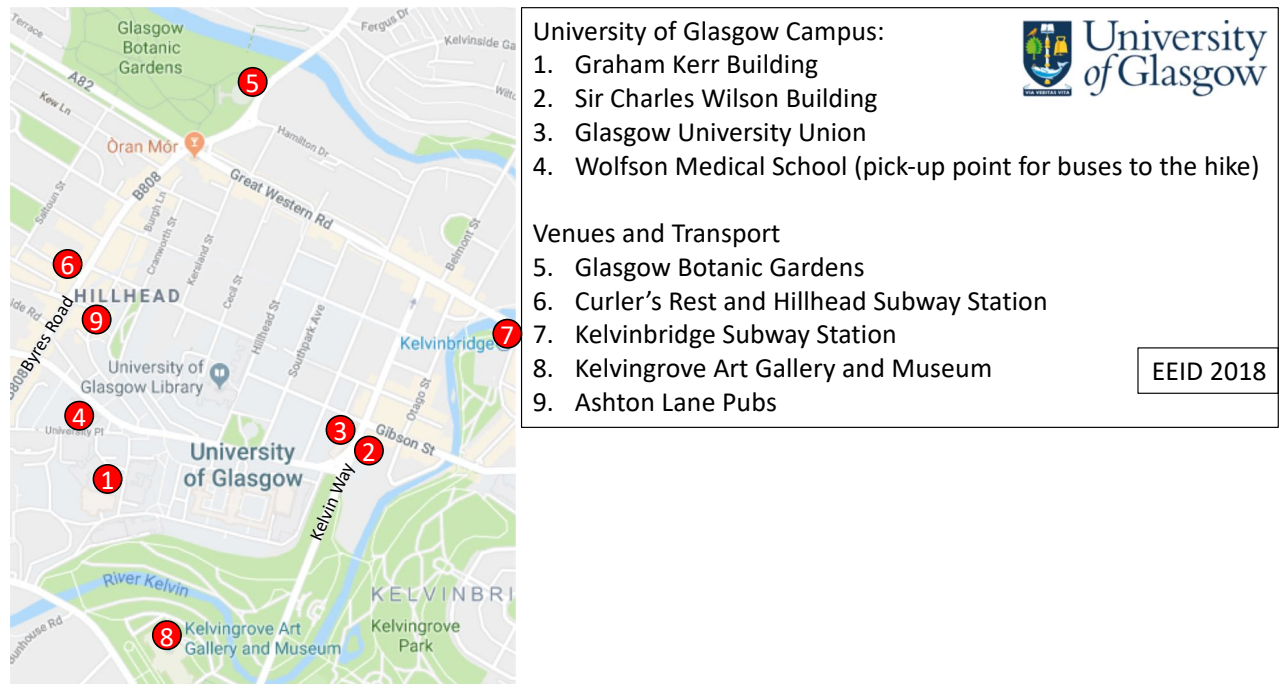
19:30 - Closing Dinner and Ceilidh at Kelvingrove Art Gallery and Museum
[\(Google Maps\)](#)

1 June

Hike – Buses departing every 30 mins from 9.00am – 11:30 from Wolfson Medical School Building.
[\(Google Maps\)](#)

For more details see: <http://eeidconference.org/2018/hike/>

Map



For more information about Glasgow and the surrounding area see the EEID website: <http://eidconference.org/2018/glasgow/>

Plenaries

Session 1: Interventions and real world applications of disease ecology and evolution

Plenaries: Chris Dye & Rosie Woodroffe

Chris Dye began professional life as an ecologist, having graduated from the Universities of York (BA 1978) and Oxford (DPhil 1982). After developing an interest in infectious diseases as a postdoc at Imperial College London, he moved to the London School of Hygiene and Tropical Medicine to bring his research closer to public health. From a base at LSHTM he spent 12 years doing research on leishmaniasis, malaria, rabies and other infectious diseases in Africa, Asia, Europe and South America. In 1996, he joined the World Health Organization where he has developed methods for understanding the dynamics and devising control methods for a wide range of pathogens, including tuberculosis and Ebola and Zika viruses. As Director of Strategy 2014-18, he served as science advisor to the Director General, oversaw the production and dissemination of health information via WHO press and libraries, and coordinated WHO's global sustainable development network. From 2006-09, he was also 35th Gresham Professor of Physic (and other biological sciences), in a lineage of professors that have been giving public lectures in the City of London since 1597. He is a Fellow of the UK Royal Society and of the Academy of Medical Sciences. Having recently "retired" from WHO, he has returned to Oxford as a Visiting Professor of Zoology and will also be a Visiting Fellow at All Souls College during 2018-19.

Rosie Woodroffe is a Senior Research Fellow at the Zoological Society of London and a Visiting Professor at Imperial College London. She was formerly Professor of Conservation Biology at the University of California, Davis, after a doctorate at Oxford and a Research Fellowship at Cambridge. Her research mainly concerns the coexistence of people and wildlife, especially carnivores. A behavioural ecologist by training, she became interested in disease ecology through her work on rabies as a threat to African wild dogs and bovine TB as a management problem in badgers. She advised the UK government on TB control for 10 years.

Session 2: Host shifts and emergence

Plenaries: Lena Wilfert & James Lloyd Smith

For her PhD, **Lena Wilfert** worked with Paul Schmid-Hempel at the ETH Zurich on bumblebee disease genetics. As a post-doc, she studied the genetics of co-evolution in the Sigmavirus/Drosophila system with Frank Jiggins at the Universities of Edinburgh and Cambridge. She then used a Royal Society Dorothy Hodgkin Fellowship (University of Edinburgh/University of Exeter) and a Velux Visiting Fellowship at ETH Zurich's Genomic Diversity Centre to focus on the ecology and evolution of host switching in multi-host pollinator pathogens. Currently, she is a Senior Lecturer at the University of Exeter.

James Lloyd-Smith is Professor in the UCLA Departments of Ecology & Evolutionary Biology and Biomathematics. His research programme explores the ecological and evolutionary dynamics of infectious disease in animal and human populations, with emphasis on emergence of zoonotic pathogens – and the close parallels in emergence of drug resistant strains. His group combines mathematical models, statistical analysis, and laboratory, clinical and field studies to learn about diseases such as influenza, leptospirosis, and monkeypox. He is also working to develop evolutionary theory to link viral dynamics at cellular, within-host and population scales, and relate them to newly available data streams. The long-term goal is a holistic theory of pathogen emergence that can integrate evidence across disciplines and make useful contributions to assessing risk from potential emergence threats. Dr. Lloyd-Smith chaired the Pathogen Emergence Working Group and the Pathogen Invasion Dynamics Working Group for the NIH/DHS RAPIDD program from 2009-2015, and since 2015 he has advised the World Health Organization on prioritization of potentially pandemic pathogens. He held the De Logi Chair in Biological Sciences at UCLA from 2009-2014. He received his Ph.D. from the University of California, Berkeley for his study of disease transmission dynamics in heterogeneous populations, and carried out postdoctoral studies at Pennsylvania State University.

Session 3: Genomics and big data in disease ecology and evolution

Plenaries: Christophe Fraser & Kat Holt

Christophe Fraser is Professor of Pathogen Dynamics at the Big Data Institute at the University of Oxford. He trained in theoretical physics and converted to mathematical biology in 1998. From 2000, he was research fellow and then professor in the Department of Infectious Disease Epidemiology at Imperial College. He moved to Oxford in 2016.

His group works to understand how pathogens spread, evolve, and how best to control them. Expertise in the group includes mathematical models, computer simulations, pathogen genetic sequencing, and bioinformatics. Christophe leads two consortia focussed on using HIV genomics to better understand the epidemic (*BEEHIVE* and *PANGEA*).

Kat Holt is a computational biologist specialising in infectious disease genomics at the University of Melbourne and the London School of Hygiene and Tropical Medicine. She has a PhD in Molecular Biology from the University of Cambridge and Wellcome Trust Sanger Institute, and is currently a HHMI-Gates International Research Scholar and Viertel Foundation Senior Medical Research Fellow. Kat and her group use genome sequencing, phylogenetics, spatiotemporal analysis and epidemiology to study the evolution and transmission of bacterial pathogens, including tropical diseases such as typhoid and dysentery, tuberculosis, and hospital associated pathogens. She is particularly focused on the global health crisis of antimicrobial resistance, using genomic epidemiology tools to understand the evolutionary history and global dissemination of multidrug resistant pathogens, and developing new tools for prospective surveillance and tracking of emerging problems in the public health and clinical infectious disease space. Recognising that the rise of antimicrobial resistance is due in large part to horizontal transfer of genes between bacterial species, Kat is also interested in the interplay between infectious disease-causing bacteria and microbial communities in human, animal and environmental microbiomes.

Session 4: Within host pathogen dynamics: co-infection to wild immunity

Plenaries: Marco Vignuzzi & Ann Tate

Marco Vignuzzi heads the Viral Populations and Pathogenesis Unit at Institut Pasteur since 2008, and is co-head of the Artificial Virus Evolution International Unit between IP Paris and Icahn School of Medicine at Mount Sinai in NYC. His lab performs wet and dry bench research, bringing together experimental evolution and applied mathematics to address the short-term evolution of RNA viruses in the infected host.

Ann Tate is an Assistant Professor of Biological Sciences at Vanderbilt University, Tennessee, USA, having completed her PhD with Andrea Graham at Princeton University and postdoctoral work as a USDA NIFA fellow at the University of Houston. Research in the Tate lab focuses on coupling theoretical approaches with experiments on tractable beetle systems to explore the causes and consequences of natural variation in both infection and immunity across levels of biological organization.