

UCL Infection, Immunology and Inflammation Symposium

Monday 24 November 2014
9.00am - 6.15pm

UCL Institute of Child Health
Kennedy Lecture Theatre
30 Guilford Street
London
WC1N 1EH

9.00-9.30am

Registration

9.30-9.35am

Professor Hans Stauss

- Welcome and introduction

9.35-10.35am

Immunology

Chair: Professor Michael Ehrenstein

Professor Claudia Mauri

- Microbiota, regulatory B cells and arthritis: insight into a new mechanism of regulation

Professor Lucy Walker

- The role of co-stimulation in regulating T cell function

Dr Paola Bonfanti

- The complexity of thymic microenvironment: implications for tissue engineering

10.35-11.00am

Networking and Poster Exhibition

11.00am-12.15pm

Early Career Presentations

Chair: Professor Arne Akbar

Dr Matthew C. Gage

- Inflammasome-processed interleukin-18 levels are negatively regulated by lipid-activated nuclear receptor LXR through multiple mechanisms

James Heather

- Idiosyncratic perturbations of the T cell receptor population structure in HIV infection

Dr Julia Kenny

- Structural cardiovascular

changes are reversible in HIV-infected children in Zambia and Uganda

Dr Lisa Longato

- Role of gamma-ketoaldehydes as novel mediators of experimental fibrogenesis and stellate cells activation

Dr Emma Nicholson

- Increased CD3 enhances tumour immunity of TCR gene engineered CD4+ T cells and reveals the autoimmune risk of the endogenous repertoire

Dr Jimstan Periselneris

- The inflammatory response to *Streptococcus pneumoniae* is exaggerated by the polysaccharide capsule

12.15-12.25pm

Professor Michael Arthur

12.25-1.30pm

Lunch and Poster Exhibition Viewing

1.30-1.40pm

Professor Sir John Tooke

1.40-2.40pm

Debate: All children should have genome sequencing at birth

Chair: Professor Adrian Thrasher

'For': Professor Mark Caulfield

'Against': Professor John Martin

2.40-2.45pm

Comfort break

2.45-3.45pm

Infection

Chair: Dr Mahdad Noursadeghi

Professor Judy Breuer

- Sex and drugs and CMV

Professor Nigel Klein

- The role of infection in preterm labour

Dr Adam Roberts

- The impact of horizontal gene transfer on the biology of *Clostridium difficile*

3.45-4.05pm

Networking and Poster Exhibition

4.05-5.05pm

Inflammation

Chair: Professor David Abraham

Professor Derek W. Gilroy

- Understanding the cellular basis of resolving inflammation in rodents and humans

Professor Kenneth Smith

- Experimental evidence regarding why, how and where lesions can form in multiple sclerosis

Professor Lucy Wedderburn

- Th17 and CD161: the Jekyll and Hyde of childhood arthritis?

5.05-5.15pm

Professor Michael Ehrenstein

- Closing remarks and prize presentation

5.15-6.15pm

Drinks Reception



On behalf of the UCL Infection, Immunology and Inflammation (III) Symposium Organising Committee, it is my great pleasure to welcome you to our annual event.

This year we have an array of eminent speakers from across UCL who will be presenting their ground-breaking work and answering your questions.

There will also be an interactive debate session and talks by Professor Michael Arthur (UCL President and Provost) and Professor Sir John Tooke (UCL Vice-Provost (Health)).

Following on from the success of last year, we have held another abstract competition for early career researchers in both the basic and clinical sciences. We received around 70 abstracts, which were reviewed and scored by the Symposium Organising Committee. The top-scoring six applicants will present their research during the second session of the Symposium today (see page xx for full details). The presentations will be judged by the Symposium Organising Committee.

Other selected applicants have created posters of their abstracts, which will be on display in the Winter Gardens during the networking breaks (see venue map on page 26). There is also a booklet available on the registration desk, which contains some of the other excellent abstracts we received.

The winners and runners up of the early career researcher presenters and the poster competition will be announced and awarded prizes at the end of the Symposium.

We extend special thanks to all of our speakers, chairs and competition delegates, and we would also like to take this opportunity to thank our sponsors for their very generous support.

Please do take some time to visit the sponsor stands in the Balcony and Winter Garden during today's breaks.

We very much hope that you will enjoy hearing about some of the outstanding work that is currently taking place at UCL and our partner organisations. We also hope that you will also take the opportunity to interact and network with other attendees throughout the day.

Professor Michael Ehrenstein
Chair, UCL III Symposium Organising Committee, UCL Personalised Medicine Domain, and Professor of Experimental Rheumatology, UCL Division of Medicine

Poster Judging Committee

Dr Clare Bennett
Senior Lecturer
UCL Cancer Institute and UCL Institute of Immunity and Transplantation

Dr Siobhan Burns
HEFCE Senior Lecturer and Consultant in Immunology
UCL Institute of Immunity and Transplantation

Dr Virginia Calder
Senior Lecturer
UCL Institute of Ophthalmology

Dr Liz Jury
Dame Carol Black Senior Lecturer
UCL Division of Medicine

Dr Emma C Morris
Reader in Immunology
UCL Institute of Immunity and Transplantation

Dr Matthew Reeves
Senior Lecturer
UCL Division of Infection & Immunity

Symposium Organising Committee



Professor David Abraham

Professor of Cell and Molecular Biology
Head of Research Department of Inflammation
Director of Centre for Rheumatology and Connective Tissue
Diseases, UCL Division of Medicine
KTE Champion, UCL Faculty of Medical Sciences



Professor Arne Akbar

Professor of Immunology
UCL Division of Infection & Immunity



Professor Judith Breuer

Professor of Virology, UCL Division of Infection & Immunity
Deputy Director MRC-UCL Centre for Medical Molecular Virology
Honorary Consultant Virologist, Great Ormond Street Hospital and
Head of UCL VZV Reference Laboratory



Professor Michael Ehrenstein

Chair, Infection, Immunity and Inflammation Symposium Organising
Committee, UCL Personalised Medicine Domain
Professor of Experimental Rheumatology
UCL Division of Medicine



Cassie Harley-Boyce

Communications and Events Officer
Research Coordination Office
Office of the Vice-Provost (Health)
UCL School of Life and Medical Sciences



Dr Mahdad Noursadeghi
Senior Lecturer
UCL Division of Infection & Immunity



Professor Hans Stauss
UCLPartners Programme Director for Infection, Immunity and Inflammation and Immunology and Transplantation
Academic Director, UCL Institute of Immunity and Transplantation
Co-director, UCL Division of Infection & Immunity
Head of UCL Research Department of Immunology
Head of Clinical Immunology, UCL Royal Free Campus



Professor Adrian Thrasher
Professor of Paediatric Immunology
Wellcome Trust Principal Research Fellow
Programme Head of Infection, Immunity, Inflammation and Physiological Medicine Academic Programme
UCL Institute of Child Health



Professor Lucy Walker
Chair in Immune Regulation
Research Department of Immunology
UCL Division of Infection & Immunity



David Wiseman
Research Coordinator - Infection, Immunology and Inflammation
Research Coordination Office
Office of the Vice-Provost (Health)
UCL School of Life and Medical Sciences

The UCL Research Domains are large, cross-disciplinary research communities that span UCL and our partner organisations, fostering interaction and collaboration. By bringing together a critical mass of expertise, we believe that we can undertake internationally leading research in our key areas of strength.

While UCL prioritises high-quality research in the entire range of subject areas, the UCL Research Domains provide strategic coordination across the University, and a platform for research communities to engage with partner organisations.

UCL Research Domains aim to:

- develop new research collaborations and partnerships, within and beyond UCL
- support academic communities in developing strategic ambitions that further develops UCL's internationally leading research profile
- underpin strategic developments and attract major funding
- provide development opportunities for early career researchers
- exemplify how research communities can become greater than the sum of their parts.

The current UCL Research Domains are listed below, and additional Research Domains will be added in the future:

- Neuroscience
- Personalised Medicine
- Populations & Lifelong Health
- Environment

Each UCL Research Domain includes a number of research Themes, which are of strategic importance to the Research Domain and UCL as a whole.

UCL Personalised Medicine Domain

The UCL Personalised Medicine Domain harnesses the breadth and depth of the personalised medicine research activity taking place across the institution and its partner hospitals, supporting the delivery

of innovative patient-targeted medicines and therapies.

Personalised medicine can be described as providing the right medicine, to the right patient, at the right dose, at the right time; in effect, it involves tailoring medical treatment based on the individual's biological data, needs and preferences throughout all the stages of care, including prevention, diagnosis and treatment.

Our vision is to build upon our existing excellence by supporting and investing in cross-disciplinary research teams, in order to become the world's leading institution in this area. We plan to exploit UCL's potential for stratified therapies, leading to the realisation of 'precision medicine' and ultimately truly personalised care.

Underpinned by our strategy to align research, education and patient care, we aim to develop and maintain an internationally leading research profile in personalised medicine. In doing so, we are exploiting our growing informatics capacity; genomics and biomics capabilities and collaborations; and health economics perspective.

Infection, Immunology and Inflammation

The UCL Infection, Immunology and Inflammation (III) Theme sits within the UCL Personalised Medicine Research Domain.

The III Theme is a major grouping of cross-disciplinary expertise that brings together around 250 group leaders and postdoctoral researchers from across UCL.

By working together, UCL III researchers are increasing our understanding of diseases, such as HIV, TB, malaria, asthma, arthritis, and cancer. This cross-disciplinary culture also provides an excellent training environment for PhD students and postdoctoral scientists.



Dr Emma C Morris

Reader in Immunology, UCL Institute of Immunity and Transplantation
Consultant Haematologist (BMT), Royal Free Hospital and University College London Hospital
UCLH/UCL NIHR BRC Programme Director (Infection, Immunity and Inflammation)

NIHR University College London Hospitals Biomedical Research Centre Infection, Immunity and Inflammation Programme

Our Biomedical Research Centre (BRC) is the result of an outstanding partnership between University College London Hospitals NHS Foundation Trust (UCLH) and UCL. The BRC provides essential clinical research infrastructure across UCLH and UCL on which world leading Programmes of research are being developed. The BRC infrastructure enables UCLH/UCL to take innovations in basic science and turn them into novel therapies and devices, diagnostic tests or validated predictive markers, which may have a direct effect on patients. The ultimate aim is to advance experimental medicine and save lives. The BRC specifically supports experimental medicine research with a focus on 'first in man' clinical trials.

The BRC consists of four Programmes of world class strength – Cancer, Neuroscience, Cardiometabolic and Infection, Immunity and Inflammation (or III). The Infection, Immunity and Inflammation (III) Programme currently has five strategic priority areas:

- fibrosis and inflammation
- gene and cell therapy for cancer, infection and immune disorders
- new therapies for inflammatory arthritis-rheumatology
- infectious disease prediction and stratification
- novel therapies for protein folding disorders.

The BRC's III Programme is leading on two national BioResource initiatives:

- The HIV Bioresource linked to the UK Collaborative HIC Cohort Study (UK CHIC) (www.ucl.ac.uk/iph/research/hivbiostatistics/CHIC)
- BioAID, a multicentre transcriptome profiling project linking UCLH/UCL, Imperial-Hammersmith, Imperial-St Marys, GSTT/KCL, Cambridge University Hospitals NHS Trust-Addenbrookes and Oxford University Hospitals NHS Trust-John Radcliffe Hospital.

To encourage patients and the public to get actively involved in our research and to support researchers in involving lay people, the III Programme has a patient panel. This panel looks at research proposals and study documentation and advises researchers.



Chair: Professor Michael Ehrenstein
Professor of Experimental Rheumatology
UCL Division of Medicine

Michael Ehrenstein is Professor of Experimental Rheumatology at UCL and Honorary Consultant Rheumatologist at University College London Hospitals (UCLH). His research group's objectives are to use biologic therapy as a molecular scalpel to understand pathogenesis of autoimmune rheumatic disease (including rheumatoid arthritis and systemic lupus erythematosus) both in terms of loss of immune tolerance and ongoing inflammation, to elucidate the basis for adverse effects to biologic therapies, to develop novel (and safer) therapies, to improve existing therapies, and to target therapies to patients most likely to respond including developing biomarkers of response.



Professor Claudia Mauri
Professor of Immunology
UCL Division of Medicine

Microbiota, regulatory B cells and arthritis: insight into a new mechanism of regulation

Claudia Mauri received her PhD (equivalent) magna cum laude degree in 1992 from the University La Sapienza in Rome. She worked as Postdoctoral Fellow at The Kennedy Institute of Rheumatology. She then moved to UCL in 2002 where she has established her group.

She is Professor of Immunology and the new Champion for Women. Her research interest is understanding the mechanisms driving autoimmunity with a particular interest in understanding B cell regulation in experimental models of rheumatic disease and in patients with Systemic Lupus Erythematosus and rheumatoid arthritis.



Professor Lucy Walker

Chair in Immune Regulation
Research Department of Immunology
UCL Division of Infection & Immunity

The role of co-stimulation in regulating T cell function

Professor Walker has a longstanding interest in T cell costimulatory pathways and autoimmune diabetes. She obtained a BSc. in Biology from the University of Nottingham, a PhD in Immunology from the University of Bath and completed postdoctoral training in Professor Abul Abbas's lab at the University of California, San Francisco. Here she generated a new mouse model to study autoimmune diabetes, focusing in particular on how disease can be controlled by regulatory T cells. She subsequently established her own lab at the University of Birmingham where she received an MRC Career Development Award and then an MRC Senior Fellowship. She relocated to the new UCL Institute for Immunity and Transplantation in 2013 to pursue her interest in translational immunology. Her group focuses on CD4 T cell differentiation and regulation in autoimmunity, particularly in the context of Type 1 diabetes.



Dr Paola Bonfanti

Lecturer, UCL/Rosetrees Excellence Fellow, UCL Institute of Child Health and UCL Institute of Immunity and Transplantation

The complexity of thymic microenvironment: implications for tissue engineering

Paola Bonfanti was awarded her MD degree from the University of Milan and subsequently moved to the Sanford-Burnham Institute in La Jolla, California where she worked on neural differentiation of human Embryonic Stem Cells. In 2008 she completed her PhD at the EPFL in Lausanne under the supervision of Professor Yann Barrandon with a thesis demonstrating the plasticity of thymic epithelial cells that can serve as multipotent stem cells of the skin. In 2010, with an EMBO fellowship, she worked on pancreas regeneration at the Diabetes Research Center (VUB) in Brussels. She was awarded a UCL Rosetrees Excellence Fellowship in 2013 to pursue her research interests in epithelial stem cell biology and regenerative medicine. At UCL she has a joint appointment at the Institute of Child Health and the Institute of Immunity and Transplantation, based at the Royal Free Hospital.



Chair: Professor Arne N. Akbar - Professor of Immunology, UCL Division of Infection & Immunity

Professor Akbar is internationally recognised for his studies on mechanisms that control the differentiation and senescence of human T lymphocytes. In 2014 two of these studies were published in *Nature Immunology* and the *Journal of Clinical Investigation* (his H factor is 51). In addition, he has made seminal observations about how different CD45R isoforms can be used to discriminate between primed and T cells and these markers are now used in routine diagnostic practice. Furthermore, his group was one of the first to identify human regulatory T cells. He was also closely involved in the development of Basiliximab (Simulect), used for the prevention of acute solid organ graft rejection (Akbar is a joint patent holder) that has been used to treat ~300,000 patients and generated £24 million in royalty income to UCL. His group have also developed cutaneous recall antigen challenge models in humans for the study of immunity *in vivo* that have been adopted by researchers worldwide and by GlaxoSmithKlein. His research group consists of basic scientists and clinicians facilitating the translational aspects of his work. The benefit of this combination is exemplified by the recent award of an MRC Experimental Medicine Grant (Akbar PI; £3.2 million) to investigate whether blocking p38MAP kinase in older humans *in vivo* enhances their responses to recall antigen challenge in the skin. His work involves studies at the interface between academia, industry and clinical practice.

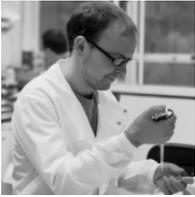


Dr Matthew C Gage - Research Associate, UCL Centre for Clinical Pharmacology, Metabolism & Experimental Therapeutics

Inflammasome-processed interleukin-18 levels are negatively regulated by lipid-activated nuclear receptor LXR through multiple mechanisms

Authors: Gage MC, Pourcet B, Leon T, Valledor AF, Pineda-Torra I

IL-18 is a member of the IL-1 family; central mediators of innate immunity and inflammation which are tightly regulated to ensure a balance between amplification of innate immunity and uncontrolled inflammation. IL-18 is primarily secreted by macrophages and dendritic cells, induces interferon gamma (IFN γ) production by Th1 cells and is thus considered a pro-inflammatory cytokine. IL-18 is involved in multiple diseases including psoriasis, emphysema, myocardial dysfunction, metabolic syndrome, atherosclerosis and several autoimmune diseases yet relatively little is known regarding its regulation. Ligand-activated nuclear receptors LXRs are crucial regulators of macrophage cholesterol homeostasis as well as macrophage inflammatory responses, phagocytosis and apoptosis. Here, we show that LXRs are negative regulators of LPS-induced mRNA and protein expression of IL-18 in bone marrow-derived macrophages. This regulation is specific since it is abolished both in the presence of a specific LXR antagonist or in macrophages from LXR-deficient mice. IL-18 is expressed as a pro-IL-18 protein, which is processed by inflammasome-activated caspase 1. In addition to IL-18 transcriptional regulation, IL-18 maturation is inhibited by LXR activation through negative regulation of caspase 1 expression and activation. Finally, the expression of IL-18BP, a potent endogenous inhibitor of IL-18, is indirectly induced by LXR ligand activation via the hematopoietic transcription factor IRF8, thus identifying IL-18BP as a novel IRF8 target gene. In conclusion, LXR activation inhibits IL-18 levels through regulation of its transcription and maturation into an active pro-inflammatory cytokine. Regulation of IL-18 levels by LXR could be important for the modulation of various metabolic and inflammatory disorders.



James Heather - PhD Researcher, Innate2Adaptive lab, UCL Division of Infection & Immunity

Idiosyncratic perturbations of the T cell receptor population structure in HIV infection

Authors: Heather JM, Best K, Oakes T, Roe J, Gray ER, Thomas N, Noursadeghi M, Chain B

Global analysis of the T cell receptor (TCR) repertoire reveals the population structure of the T cell compartment, which reflects the immunological history of the individual. In this study we analyse the TCR repertoires of a cohort of treatment naïve HIV-infected individuals before and after commencement of antiretroviral therapy, and compare them to repertoires of healthy volunteers. We develop a protocol for deep-sequencing TCR transcripts, which includes molecular barcoding and error-correction to generate robust quantitative repertoire data. The TCR repertoires of HIV+ individuals are highly perturbed, with expansion of private, low-frequency clones driving the formation of highly divergent repertoires with very low clonal diversity. The decrease in clonal diversity is correlated with CD8+, but not CD4+ cell counts. V and J TCR gene usage and complementarity determining region 3 (CDR3) profiles of patients are divergent both from healthy controls and from each other, reflecting an idiosyncratic response to HIV infection. Introduction of effective antiretroviral therapy (ART) partially reversed the clonal inequality caused by large clonal expansions, yet repertoire complexity remained low. During treatment the frequency of several HIV-associated CDR3s decreased, while CMV- and EBV-associated CDR3 frequencies increased. HIV infection was also associated with a deficiency in mucosal-associated invariant T cell alpha chains, a deficit which did not recover on treatment. Our observations support a model in which chronic HIV infection simultaneously drives depletion of the CD4+ T cell compartment and concomitant expansion of the CD8+ compartment. Both aspects of repertoire dysregulation may disturb normal immune homeostasis and contribute to AIDS pathogenesis.



Dr Julia Kenny - Senior Clinical Research Fellow, Infection, Immunity, Inflammation and Physiology, UCL Institute of Child Health

Structural cardiovascular changes are reversible in HIV-infected children in Zambia and Uganda

Authors: Kenny J, Cook A, Mirembe G, Masaku D, Wavamunno P, Odongo F, Rapala A, Deanfield J, Gibb D, Klein N

Background - Carotid intimal medial thickness (IMT) and pulse wave velocity (PWV), measures of cardiovascular structure/function, are impaired in HIV-infected children in high-income countries. Few longitudinal data are available: none come from Africa where 90% HIV-infected children live. **Methods** - ART-naïve and virologically suppressed ART-experienced HIV-infected children had IMT and PWV measured at baseline, 48 and 96 weeks. Age-matched HIV-uninfected controls had a single assessment. Baseline differences between ART-naïve/experienced children vs controls, and longitudinal changes in HIV-infected children were compared. **Results** - In 208 ART-naïve children with median age 2.9y(IQR 1.7–4.4) and 209 HIV-uninfected controls median age 3.0y(2.1–4.1), mean(sd) cIMT was 0.46(0.04) v 0.44(0.04)mm ($p=0.0001$); PWV was 5.85(0.8) vs 5.67(0.74)m/sec ($p=0.04$). Among 74 ART-experienced children on ART for mean 3.7y, median age 6.9y(5.9–8.50) and 75 uninfected controls, median age 6.7y(5.6–8.6), mean(sd) cIMT was 0.46(0.05) vs 0.45(0.04)mm ($p=0.09$); PWV was 5.63(0.61) vs 5.69(0.69)m/s ($p=0.57$). In ART naïve children IMT and PWV significantly decreased from baseline (ART

initiation) to week 96 mean(sd) cIMT $-0.02(0.04)$ mm ($p=0.0001$), PWV $-0.38(0.83)$ m/s ($p<0.0001$). There was no evidence that the changes differed by randomisation ART in either group($p=0.6$). Conclusion - ART-naïve HIV-infected children had significantly poorer IMT and PWV compared to age-matched controls but significant improvement seen after 96 weeks of ART. After a mean 3.7 years on ART, HIV-infected children had IMT and PWV comparable to uninfected age-matched controls. IMT continued to improve after a further 96 weeks on ART. ART can reverse some structural/functional changes caused by HIV, strengthening the argument for early diagnosis and treatment of HIV-infected infants and children.



Dr Lisa Longato - Postdoctoral Research Associate, UCL Institute for Liver and Digestive Health

Role of gamma-ketoaldehydes as novel mediators of experimental fibrogenesis and stellate cells activation

Authors: Longato L, Dhar D, Davies SS, Roberts JL, Luong TV, Davidson B, Fusai G, Moore K, Pinzani M, Rombouts K

Background and aims - Reactive aldehydes formed during lipid oxidation such as 4-hydroxynonenal (4-HNE), are key activators of hepatic stellate cells (HSCs) to a pro-fibrogenic phenotype. Gamma-Ketoaldehydes (g-KAs) are a large family of structurally related aldehydes formed during oxidation of arachidonic acid or as a by-product of the cyclo-oxygenase pathway. g-KAs are characterized by an extremely high reactivity to form protein adducts and cross-links, estimated 100-folds greater than the one of 4-HNE. Patients with alcoholic liver disease have increased circulating concentrations of proteins cross-linked to g-KAs. In this study we investigated whether the g-KA levuglandin E2 (LGE2) can induce activation of HSCs.

Method - Culture-activated, serum-starved primary human HSCs were exposed to various concentrations (0.5 pM-5 μ M) of levuglandin E2 (LGE2) for up to 48 hours. Endpoints measured included proliferation, cytotoxicity (lactate dehydrogenase release and MTS assay), RNA and protein expression.

Results - HSCs exposed to LGE2 exhibited profound cytotoxicity at 5 μ M concentration, as indicated by LDH leakage and reduced MTS. This was mediated by apoptosis, as indicated by an increase in PARP cleavage, occurring as early as 8 hours after LGE2 exposure. In contrast, at non-cytotoxic doses (50 pM-500 nM), LGE2 promoted HSC activation as indicated by increased expression of alpha-smooth muscle actin, activation of signalling pathways (ERK1/2 and JNK), and IL-8, CCL2, IL-1 β , and IL-6 mRNA levels.

Conclusions - g-Ketoaldehydes represent a newly identified class of activators of HSCs in vitro, which are biologically active at concentrations as low as 50 pM.



Dr Emma Nicholson - Specialist Registrar Haematology/MRC Clinical Research Fellow, UCL Division of Infection & Immunity

Increased CD3 enhances tumour immunity of TCR gene engineered CD4+ T cells and reveals the autoimmune risk of the endogenous repertoire

Authors: Nicholson E, Holler A, Ahmadi M, Thomas S, Pike R, Carpenter B, Ghorashian S, Xue SA, Chakraverty R, Stauss HJ, Morris EC

The transduction of class I restricted TCR into CD4+ T cells has been shown to produce

functional antigen specific class CD4+ T cells. However due to the absence of CD8 co-receptors, class I restricted CD4+ T cells recognize MHC-I presented ligands with reduced avidity. To increase surface expression of the introduced TCR and thus improve the functional avidity of class I restricted CD4+ T cells, additional CD3 molecules plus class I restricted F5-TCR were co-transduced into murine CD4+ T cells. Co-transduction of F5-TCR and CD3 into CD4+ T cells led to enhanced surface expression of the F5-TCR and enhanced cytokine production and proliferation responses in vitro. F5-TCR-CD3 CD4+ T cells transferred into irradiated tumour bearing syngeneic recipients demonstrated greater expansion, persistence and faster trafficking to the tumour site than F5-TCR only CD4+ T cells. F5-TCR-CD3 CD4+ T cells demonstrated superior control of tumour growth. This however did not translate into a survival benefit as mice that received adoptive transfer of F5-TCR-CD3 CD4+ T cells developed marked toxicity. This autoimmune pathology was not mediated by mispairing of the introduced TCR: transfer of CD3 alone in the absence of additional TCR was sufficient to increase the expression of the endogenous TCR repertoire and cause auto-immune toxicity of CD4+ T cells, Co-transfer of CD3 plus F5-TCR in CD8+ T cells did not lead to toxicity in vivo. Efficient tumour immunity without toxicity was achieved by TCR plus CD3 gene transfer into 'mono-clonal' transgenic CD4+ T cells.



Dr Jimstan Periselneris - Clinical Research Fellow, UCL Centre for Inflammation & Tissue Repair

The inflammatory response to *Streptococcus pneumoniae* is exaggerated by the polysaccharide capsule

Authors: Periselneris J N, Chimalapati S, Tomlinson G, Hyams C, Dyson S, Singer M, Noursadeghi M, Brown J S

The inflammatory response to bacteria requires the interaction of pattern recognition receptors with bacterial surface constituents. *Streptococcus pneumoniae* has a polysaccharide capsule that is an essential virulence factor that would be expected to inhibit host / pathogen interactions, thereby reducing inflammatory responses. We tested this hypothesis by characterising the effect of *S. pneumoniae* capsule on the inflammatory response using the *S. pneumoniae* TIGR4 strain and its unencapsulated derivative TIGR4cps. Despite being more sensitive to phagocytosis by human monocyte derived macrophages than TIGR4, RNA transcripts and supernatant levels of TNF, IL1 β , and IL6 were reduced in response to infection with TIGR4cps. Furthermore, TIGR4 generated greater neutrophilic infiltrate in a mouse model of pneumonia, and greater physiological derangement in a rat sepsis model than TIGR4cps. Whole genome transcriptome analysis demonstrated that there was a generally reduced pro-inflammatory response to the TIGR4cps strain compared to the TIGR4 strain. Notably, preventing phagocytosis preserved the difference in inflammatory response between the strains. Additional in vitro experiments excluded differences in TLR2 signalling, antibody recognition, the inflammasome, and lectin-mediated signalling as mechanisms driving differences in inflammatory responses between TIGR4 and Δ cps. However a transcription factor array suggested that TIGR4cps activated a wider range of transcription factors than TIGR4. These data demonstrate that instead of preventing inflammatory responses the *S. pneumoniae* capsule causes increased pro-inflammatory responses that are relevant during infection, perhaps through restricting macrophage cell signalling responses to the bacteria. Identifying mechanisms responsible for capsule-dependent inflammation could offer opportunities for adjuvant treatment of *S. pneumoniae* infections.



Professor Michael Arthur
UCL President and Provost

Professor Michael Arthur is President and Provost of University College London. Prior to this he was Vice-Chancellor of the University of Leeds, and formerly Professor of Medicine (1992), Head of the School of Medicine (1998-2001) and Dean of the Faculty of Medicine, Health and Life Sciences in Southampton (2003-04). He is a hepatologist with research interests in liver cell biology developed initially at the University of California, San Francisco (1986-1988) and more recently as a Fulbright Distinguished Scholar at Mount Sinai School of Medicine in New York (2002). Professor Arthur became a Fellow of the Academy of Medical Sciences in 1998.

Professor Arthur has a significant national and international profile. He was Chair of the Advisory Group for National Specialised Services (NHS) (2010-2013) and was a long standing member of the Council of the Medical Research Council until recently (2006 - Sept 2014). He has also been a US/UK Fulbright Commissioner and is a former Chair of both the Worldwide Universities Network and the Russell Group of Universities.

Professor Arthur took up his current post on 1 September 2013.



Professor Sir John Tooke
UCL Vice-Provost (Health) and
Head of the UCL School of Life and Medical
Sciences and the UCL Medical School

Professor Sir John Tooke is Vice Provost (Health) and Head of the School of Life and Medical Sciences at UCL; Academic Director of UCL's Academic Health Science Centre, UCLPartners; and Co-Chair of the Oxford-UCL Centre for the Advancement of Sustainable Medical Innovation (CASMI). Sir John is President of the Academy of Medical Sciences and a past Chair of both the Medical Schools Council and the UK Healthcare Education Advisory Committee (UKHEAC). He is a member of the National Institute for Health Research (NIHR) Advisory Board and the Council for Science and Technology. His clinical and research interests focus on diabetes and its vascular complications. In 2007 he led the Inquiry for the Secretary of State for Health into Postgraduate Medical Education and Training, culminating in the final report, *Aspiring to Excellence*. In the same year he led a high-level group for the CMO on *Barriers to Clinical Effectiveness*, the report of which led to the creation of CLAHRCs (Collaborations for Leadership in Applied Health Research and Care).

Proposition: 'All children should have genome sequencing at birth'



Chair: Professor Adrian Thrasher

Professor of Paediatric Immunology, Programme Head of the Infection, Immunity, Inflammation and Physiological Medicine Academic Programme, UCL Institute of Child Health

Adrian Thrasher is Professor of Paediatric Immunology and Wellcome Trust Principal Research Fellow at the UCL Institute of Child Health, and Honorary Consultant Paediatric Immunologist at Great Ormond Street Hospital for Children NHS Foundation Trust. He is also the Programme Head of the Infection, Immunity, Inflammation and Physiological Medicine Academic Programme at ICH and has a long standing research and clinical interest in development and application of gene therapy. He is Director of the Clinical Gene Therapy Programme, and Theme Leader of the Gene Stem and Cellular Therapies theme of the Biomedical Research Centre, at ICH / GOSH. Adrian is PI on several clinical trials for immunodeficiency and is director of the clinical gene therapy GMP facility, managing a team of trial coordinators, clinical scientists, and quality systems personnel.



Arguing 'For': Professor Mark Caulfield

Co-Director of the William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London

Director of the NIHR Biomedical Research Unit in Cardiovascular Disease at Barts
Chief Scientist for Genomics England

Mark graduated in Medicine in 1984 from the London Hospital Medical College and trained in Clinical Pharmacology at St Bartholomew's Hospital (Barts) where he developed a research programme in molecular genetics of hypertension and clinical research. In 2009 he won the Lilly Prize of the British Pharmacology Society.

In 2000 Mark successfully bid for £3.1m to create the Barts and The London Genome Centre at QMUL, underpinning over 40 programmes of research. Since 2008 he has directed the Barts National Institute of Health Research (NIHR) Cardiovascular Biomedical Research Unit. In 2012 he became Co-Chair of NIHR Comprehensive Research Network Cardiovascular Sub-Speciality Group.

Mark was appointed Director of the William Harvey Research Institute in 2002 and was elected to the Academy of Medical Sciences in 2008. Particular areas of research are Cardiovascular Genomics and Translational Cardiovascular Research and Pharmacology.

From 2009 to 2011 Mark was President of the British Hypertension Society. He also served on the NICE Guideline Group for hypertension and leads the Joint UK Societies' Working Group and Consensus on Renal Denervation.

In 2013 he became an NIHR Senior Investigator and was appointed as the Chief Scientist for Genomics England (NHS 100K Sequencing Project) 2013-2017.



**Arguing 'Against':
Professor John Martin**

Professor of Cardiovascular Medicine, Metabolism & Experimental Therapeutics, UCL Division of Medicine
Adjunct Professor of Internal Medicine (Cardiology) Yale

Professor John Martin first studied philosophy in Spain, followed by medicine at the University of Sheffield, training as a clinician scientist. He then worked at the University of Melbourne, Australia, and subsequently became British Heart Foundation Professor at King's College London. At this time he was also head of cardiovascular research at the Wellcome Foundation Research Laboratories. He is now professor of cardiovascular medicine at UCL and adjunct professor of medicine at Yale University in the United States. He also held the Queen Victoria Eugenia Chair at the Complutense University in Madrid from 2004 to 2005. In 1997 he founded Ark Therapeutics Ltd, which is a biotechnology company listed on the London Stock Exchange. His research interests include platelet physiology and pathophysiology and gene therapy, particularly adenoviral expression of VEGF in the cardiovascular system. He also leads phase III clinical trials on the use of autologous bone marrow stem cells for the treatment of acute myocardial infarction. He is a Fellow of the Academy of Medicine Sciences, a Fellow of the Royal College of Physicians, a Bachelor of Surgery and Doctor of Medicine and an Honorary Doctor of Medicine in the University of Eastern Finland. He leads the Yale UCL Collaborative (with Dr Mike Simons from Yale) and is president of the European Critical Care Foundation. He is past Vice President of the European Society of Cardiology.

How the debate session will work

Each member of the audience will be given a voting handset when they re-enter the Lecture Theatre, after the lunch break.

At the start of the debate, the audience will be asked to use their handsets to vote whether they 'agree' or 'disagree' with the proposition: '**All children should have genome sequencing at birth**'.

The results collected by the handsets will show on a graph on the screen in the Lecture Theatre. The debate will then commence, with each participant taking it in turn to set out their argument, uninterrupted.

The opponents will then challenge the opposition. There will then be a chance for questions/comments from the audience.

The Chair will summarise the points raised, and ask the audience to vote again, using their handsets. The audience and debaters will then be able to see if there has been any change of view as a result of the debate.

The audience are asked to kindly return the voting handsets to the events stewards during the next break.



Chair: Dr Mahdad Noursadeghi

Senior Lecturer
UCL Division of Infection & Immunity

Dr Noursadeghi studied Medicine at Guys Hospital and then undertook specialist training in Infectious Diseases with an MRC Research Training Fellowship and PhD in Immunology at Imperial College London, and a Wellcome Trust Intermediate Fellowship at UCL.

Dr Noursadeghi's research focuses on the role of macrophages in innate immune host-pathogen interactions and the application of genome-wide transcriptional profiling to study *in vivo* human immune responses to infection. Dr Noursadeghi is also an Honorary Consultant in Infectious Diseases and Acute Medicine at UCLH.



Professor Judith Breuer

Professor of Virology
UCL Division of Infection & Immunity
Deputy Director, MRC-UCL Centre for Medical Molecular Virology
Honorary Consultant Virologist
Great Ormond Street Hospital
Head of UCL VZV Reference Laboratory

Sex and drugs and CMV

Professor Breuer's research at the MRC-UCL Centre for Molecular Virology has resulted in the successful development of methodologies to recover low copy viral DNA from clinical samples and subsequent generation of a template suitable for whole genome sequencing, including the detection of rare variants. She is currently applying these methods to investigate the genetic association of Varicella zoster (VZV) and Herpes Simplex Virus (HSV) with different disease states. More recently Professor Breuer has developed whole genome sequencing directly from clinical material of other pathogens including *Mycobacterium tuberculosis*, chlamydia trachomatis, cytomegalovirus and norovirus. The data generated is providing insights into the evolution and spread of these pathogens. Other research interests include pathogenesis of alphaherpesvirus infections in the skin, and the development of novel molecular tools including a pathogen discovery pipelines to aid in diagnosis and management of infection. Professor Breuer also holds positions as Consultant Virologist at Great Ormond Street Hospital, and Head of the VZV Reference Laboratory.



Professor Nigel Klein

Professor of Infection and Immunity
UCL Institute of Child Health

The role of infection in preterm labour

Professor Nigel Klein is Professor and Consultant in Paediatric Infectious Diseases and Immunology at Great Ormond Street Children's Hospital, London, and the UCL Institute of Child Health.

Professor Klein trained at UCL, obtaining degrees in Anatomy and in Medicine. He established the Infectious Diseases and Microbiology Unit at the UCL Institute of Child Health and helped establish the UCL Department of Infection.

Professor Klein has been working in the field of Infectious Diseases for many years and has a particular interest in meningitis, sepsis, innate immunity, premature labour and HIV.



Dr Adam Roberts

Senior Lecturer
UCL Eastman Dental Institute

The impact of horizontal gene transfer on the biology of Clostridium difficile

Adam Roberts is a Senior Lecturer and molecular microbiologist at UCL. He has been investigating antibiotic resistance and mobile genetic elements in *Clostridium difficile* for over 15 years. He has contributed a great deal to our understanding of genome plasticity and mobile DNA in the Clostridia and many other genera.

Recently Dr Roberts was part of the team to demonstrate, for the first time, that the toxin genes of *Clostridium difficile* can be transferred to non-toxigenic strains. His group is currently funded by the EU, DEFRA, UCL and various international scholarships. He was also recently awarded the Young Investigators Award by the Centre for Biofilm Engineering (USA) for his work on horizontal gene transfer in biofilms. He runs the international transposable element registry and is the founding Editor-in-Chief of the journal *Mobile Genetic Elements*.



Chair: Professor David Abraham

Professor of Cell and Molecular Biology
Head of Research Department of Inflammation
Director of Centre for Rheumatology and Connective Tissue Diseases
UCL Division of Medicine
KTE Champion, UCL Faculty of Medical Sciences

David Abraham is a Professor of Cell and Molecular Biology and Head of the UCL Research Department of Inflammation where he is involved in defining research strategy. After gaining a PhD at King's College, he held a fellowship at the Kennedy Institute for Rheumatology in London, and a Medical Research Council Travelling Fellow at Berkeley and the Jackson Laboratory in the USA. He became a senior scientist in genetics and mammalian development at the Medical Research Council's National Institute for Medical Research and then moved to UCL Division of Medicine in 1997.

Professor Abraham's major research interests include studying tissue repair processes, the pathobiology of scleroderma and the mechanisms underlying tissue scarring and fibrosis and the development and use of genetically modified mice as pre-clinical models to study fibrosis pathogenesis and treatment of connective tissue diseases. Collaborations with industrial partners have led to the successful licensing and translation of targets into clinical trials.



Professor Derek W Gilroy

Wellcome Trust Senior Research Fellow
Head of Centre for Clinical Pharmacology
UCL Division of Medicine

Understanding the cellular basis of resolving inflammation in rodents and humans

In 1997 Derek Gilroy obtained his PhD from The William Harvey Research Institute, Queen Mary University of London (QMUL) for investigations in the role of inducible cyclooxygenase in inflammation, working with the late Professors Derek Willoughby and Sir John Vane. Thereafter, he left The William Harvey to receive postdoctoral training with Dr Kenneth Wu, jointly at the University of Houston Texas and at Academia Sinica, Taipei, Taiwan from 1998-2000. He then returned to the William Harvey Research Institute for a further four years. In 2004, Derek was appointed as New Blood lecturer funded as a Wellcome Trust Career Development Fellow at the Division of Medicine, Rayne Building, University College London. In 2009 he became a Wellcome Trust Senior Research Fellow and in 2010 was promoted to Professor of Experimental Immunology. At UCL he is now Head of the Centre for Clinical Pharmacology where he has pioneered research examining the molecular and biochemical pathways that regulates the resolution of acute immune reactions. Professor Gilroy has won the Bayer International Young Investigator Award for Aspirin Research, 2005 and the British Pharmacological Society, Novartis Award, 2007.



Professor Kenneth Smith

Professor and Head of Department of Neuroinflammation
UCL Institute of Neurology

Experimental evidence regarding why, how and where lesions can form in multiple sclerosis

Professor Smith received a BSc in Physiology from the University of London, and then did his PhD at the UCL Institute of Neurology with Ian McDonald on the conduction properties of remyelinated axons. After a postdoctoral training at the Institute, with Hugh Bostock looking at conduction along demyelinated axons, he spent five years in Chicago examining the biophysical properties of the node of Ranvier. After a further five years in regeneration research at Virginia Professor Smith returned to the UK to take up a position on the Guy's Hospital Campus, working with Richard Hughes where he developed an interest in neuroinflammation. The institution merged with King's College London, and he was appointed as Professor of Neurophysiology. In 2007 he returned to the UCL Institute of Neurology and is now the Head of the Department of Neuroinflammation, where his research continues into the pathophysiological properties of the inflamed nervous system.

Professor Lucy Wedderburn

Professor of Paediatric Rheumatology
Infection, Immunity, Inflammation and Physiological Medicine
UCL Institute of Child Health

Th17 and CD161: the Jekyll and Hyde of childhood arthritis?

Lucy Wedderburn's lab group has a major focus upon human T cell responses and immune regulation, in particular the autoimmune conditions of childhood, including Juvenile Idiopathic Arthritis (JIA) and Juvenile Dermatomyositis (JDM). They are interested in the mechanisms which allow survival and expansion of inflammatory T cells within the joint, the control of their production of cytokines and chemokines, and their contribution to disease. In tandem they study immune regulation and how this influences disease course and phenotype in JIA .

Childhood arthritis has proved an excellent model in which to study the balance between activation and regulation in the immune system. The Wedderburn lab has shown that highly proinflammatory cells, Th17 cells, are more abundant in patients with mild forms of arthritis than those with the more severe disease type, and that Treg and Th17 cells exist in a reciprocal relationship in the joint. They have generated evidence for 'plasticity' of Th17 cells at the inflamed site: when Th17 convert to Th1 cells they retain the Th17 like marker, CD161. They have now identified a novel set of T regulatory cells, defined by expression of CD161 that are also pro inflammatory.

- 1. Dr Helen Baldwin**
Research Associate, Inflammation, UCL Division of Medicine
Reduced frequency of CCR4+ CCR6+ T cells in the peripheral blood is associated with increased IL-17 production in psoriatic arthritis
Authors: Baldwin HM, Ezeonyeji A, Ehrenstein M
- 2. Dr David Bending**
Research Fellow, UCL Institute of Child Health
Regulatory T cells have a discrete origin from conventional T cells but exhibit unstable FOXP3 expression at the inflamed site in childhood arthritis
Authors: Bending D, Giannapoulou E, Lom H, Wedderburn LR
- 3. Dr Emma Chambers**
Research Associate, UCL Division of Infection & Immunity
Inflammatory response to saline in the skin of older individuals is driven by HLA-DR+ cells
Authors: Chambers ES, Patel N, Vukmanovic-Stejic M, Akbar AN
- 4. Win-Yan Chan**
PhD Student, UCL Centre for Inflammation and Tissue Repair
Development of a novel heat shock protein-enriched pneumococcal vaccine
Authors: Chan W, Cecchini P, Bignell C, Entwisle C, Brown JS
- 5. Dr Deborah Chong**
Research Associate, UCL Centre for Inflammation and Tissue Repair
The role of platelet derived TGFβ in pulmonary fibrosis
Authors: Chong D, Rebeyrol C, Khawaja A, Forty E, Kanda N, Scotton C, Porter J
- 6. Dr Sofia Da Silva Lourenco**
Post Doctoral Researcher, Lungs for Living Research Centre, UCL Division of Medicine
Mesenchymal Stem Cells antigen presenting to naïve T cells in a tumour context: potential for a novel cancer immunotherapy?
Authors: Lourenco S, Teixeira V, Janes S
- 7. Dr Ellen Forty**
Research Assistant, UCL Centre for Inflammation and Tissue Repair
2-deoxy-D-glucose inhibits collagen production in human lung fibroblasts
Authors: Forty E, Mercer P, Anastasiou D, Chambers R
- 8. Arnulf Hertweck**
Postdoctoral Research Associate, UCL Cancer Institute
T-bet recruits P-TEFb to super-enhancers to regulate T helper cell differentiation
Authors: Hertweck A, Evans C, Eskandarpour M, Lau J, Oleinika K, Jackson I, Kelley A, Cousins D, Lavender P, Calder VL, Lord GM, Jenner R

9. **Dr Ben Houghton**
Research Associate, UCL Institute of Child Health
Targeted gene addition strategies for the treatment of X-linked lymphoproliferative disease (XLP)
Authors: Houghton B, Mussolino C, Cathomen T, Gaspar HB, Booth, C
10. **Ejaj Intisar**
Medical Student, University of Southampton
Adoptive T cell immunotherapy using chimeric antigen receptor against a novel cancer target Axl
Authors: Intisar E, Walsh A, Weinberg B, Chakravarti D, Wong W
11. **Dr David Ishola**
Research Fellow, UCL Institute of Epidemiology & Health Care
Randomized trial to compare the immunogenicity and safety of a CRM or TT conjugated quadrivalent meningococcal vaccine in teenagers who received a CRM or TT conjugated serogroup C vaccine at preschool age
Authors: Ishola DA, Andrews N, Waight P, Yung C, Southern J, Bai X, Findlow H, Matheson M, England A, Hallis B, Findlow J, Borrow R, Miller E
12. **Dr Rupert Kenefeck**
Postdoctoral Research Fellow, UCL Division of Infection & Immunity
T-follicular helper cells in type 1 diabetes
Authors: Kenefeck R, Wang CJ, Kapadi T, Wardzinski L, Attridge K, Clough LE, Heuts F, Kogimtzis A, Patel S, Rosenthal M, Ono M, Sansom DM, Narendran P and Walker LSK
13. **Hannah Lom**
PhD Student, UCL Institute of Child Health
Relationships between the Th17 and innate lymphoid cell signature in enthesitis related arthritis
Authors: Lom H, Bending D, Nistala K, Ioannou Y, Bajaj-Elliott M, Wedderburn LR
14. **Dr Alex McCarthy**
Postdoctoral Research Associate, UCL School of Pharmacy
The role of the genotoxin colibactin in the virulence of neonatal meningitis-causing Escherichia coli
Authors: McCarthy AJ, Martin P, Cloup E, Oswald E, Taylor PW
15. **Julia Merckenschlager**
PhD Student, MRC National Institute for Medical Research
Clonal selection of the T cell response by B cells
Authors: Merckenschlager J, Kassiotis G

16. **Karolin Nowak**
PhD Student, UCL Institute of Child Health
Keratinocytes lacking functional IL2RG display changes in human papilloma virus control
Authors: Nowak K, Thrasher AJ, Di WL, Lambert PF, Burns SO
17. **Laura Pallett**
PhD Student, UCL Division of Infection & Immunity
Arginase-dependent metabolic regulation of hepatic immunopathology by myeloid-derived suppressor cells
Authors: Pallett LJ, Gill US, Jover-Cobos M, Schurich A, Singh K, Thomas N, Das A, Chen A, Fusai G, Bertoletti A, Kennedy PT, Davies N, Haniffa M, Maini MK
18. **Lizzy Peix**
PhD Student, UCL Centre for Inflammation and Tissue Repair
Role of clusterin in human lung fibroblast differentiation and function
Authors: Peix L, Evans IC, Pearce DR, Simpson JK, Maher TM, McAnulty RJ
19. **Branca Isabel Pereira**
PhD Student, UCL Division of Infection & Immunity
Can the immune system clear senescent cells from the body?
Authors: Pereira BI, Akbar A
20. **Franze Progatcky**
PhD Student, Imperial College London
Zebrafish as a model to study intestinal inflammation induced by dietary cholesterol
Authors: Progatcky F, Sangha NJ, Yoshida N, McBrien M, Cheung J, Shia A, Scott J, Marchesi JR, Lamb JR, Bugeon L, Dallman MJ
21. **Dr Ida Ricciardelli**
Senior Research Associate, UCL Institute of Child Health
Towards gene therapy for EBV-associated post-transplant lymphoma: genetically modified EBV-specific T cells induce regression of EBV-induced lymphoma despite immunosuppression
Authors: Ricciardelli I, Blundell M, Brewin J, Trasher A, Pule M, Amrolia PJ
22. **Dr David Richards**
Postdoctoral Researcher, Imperial College London
Mechanics of phagocytosis: two gears of engulfment
Authors: Richards DM, Endres RG
23. **Natalie Riddell**
Research Associate, UCL Division of Infection & Immunity

Multifunctional cytomegalovirus (CMV)-specific CD8+ T cells are not restricted by telomere-related senescence in young or old adults

Authors: Riddell N

24. **Dr Eridan Rocha Ferreira**

Research Associate, Neonatology, UCL Institute for Women's Health

The role of infection/inflammation, the TNF family of cytokines and myeloid cells in perinatal hypoxia-ischaemia brain injury

Authors: Rocha-Ferreira E, Francesch-Domenech E, Thei L, Rahim A, Lange S, Peebles D, Hristova M, Raivich G

25. **Sandeep Sehmi**

PhD Student, UCL Chemistry Department, UCL Department of Surgery and UCL Eastman Dental Institute

Antibacterial activity of light-activated polyurethane containing crystal violet and metal oxide nanoparticles

Authors: Sehmi S, Noimark S, Peveler W, Bear J, Bovis M, Allan E, MacRobert A, Parkin I

26. **Garima Sharma**

PhD Student, UCL Institute of Ophthalmology

Modeling the role of inflammation in tissue contraction and fibrosis: a novel in vitro 3D model

Authors: Sharma G, Khalili H, Brocchini S, Khaw PT, Bailly M

27. **Patricia Souza**

PhD Student, William Harvey Research Institute, QMUL

Expression and activation of the long-chain fatty acid receptor GPR40 in human neutrophils

Authors: Souza PR, Norling LV, Perretti M

28. **Chunjing Wang**

Research PhD Student, UCL Institute of Immunity and Transplantation

CTLA-4 regulates follicular helper T cell differentiation

Authors: Wang CJ, Heuts F, Ovcinnikovs V, Bowers C, Kogimtzis A, Kenefeck R, Sansom DM, Walker LSK

29. **Dr Luci Witcomb**

Postdoctoral Research Associate, UCL School of Pharmacy

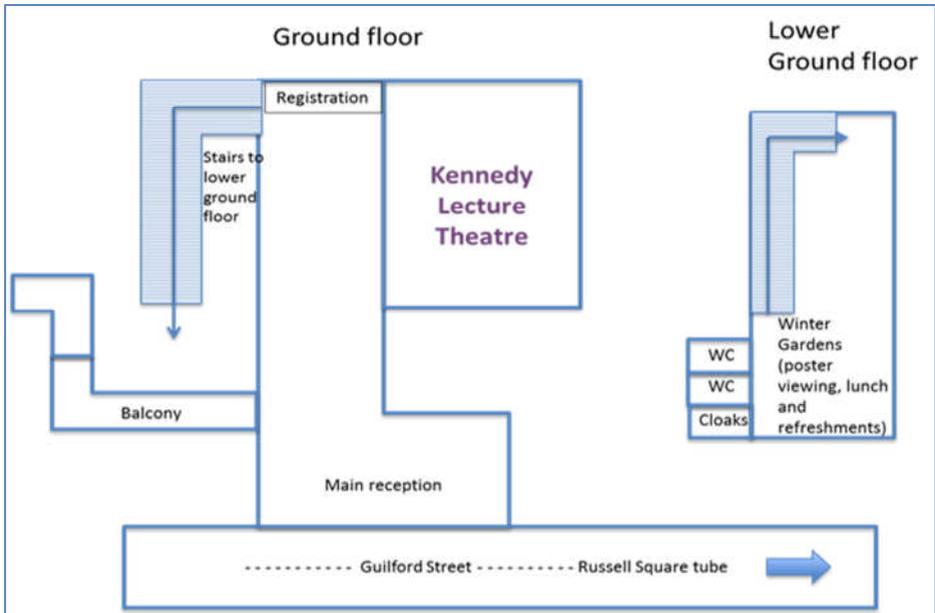
Bioluminescent imaging for investigation of the pathogenesis of Escherichia coli K1-mediated neonatal bacterial meningitis

Witcomb LA, Collins JW, Dalgakiran F, McCarthy AJ, Frankel G, Taylor PW

Symposium Sponsors



Many thanks to our sponsors for their generous support.



Presentations will take place in the ICH Kennedy Lecture Theatre

Posters will be displayed in the ICH Winter Garden

Sponsor stands will be positioned in the ICH Balcony and Winter Garden

Lunch and refreshments will be served in the ICH Balcony and Winter Garden

Drinks reception will take place in the ICH Balcony

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Front page image:
Immune cells fighting infection
courtesy of Dlumon on iStock.