

**DELEGATE HANDBOOK**

# **FRONTIERS IN TRANSPLANTATION**

**Clinical Excellence through  
Innovation**

**28th & 29th September 2023 (Online)**

## THE COURSE OUTLINE

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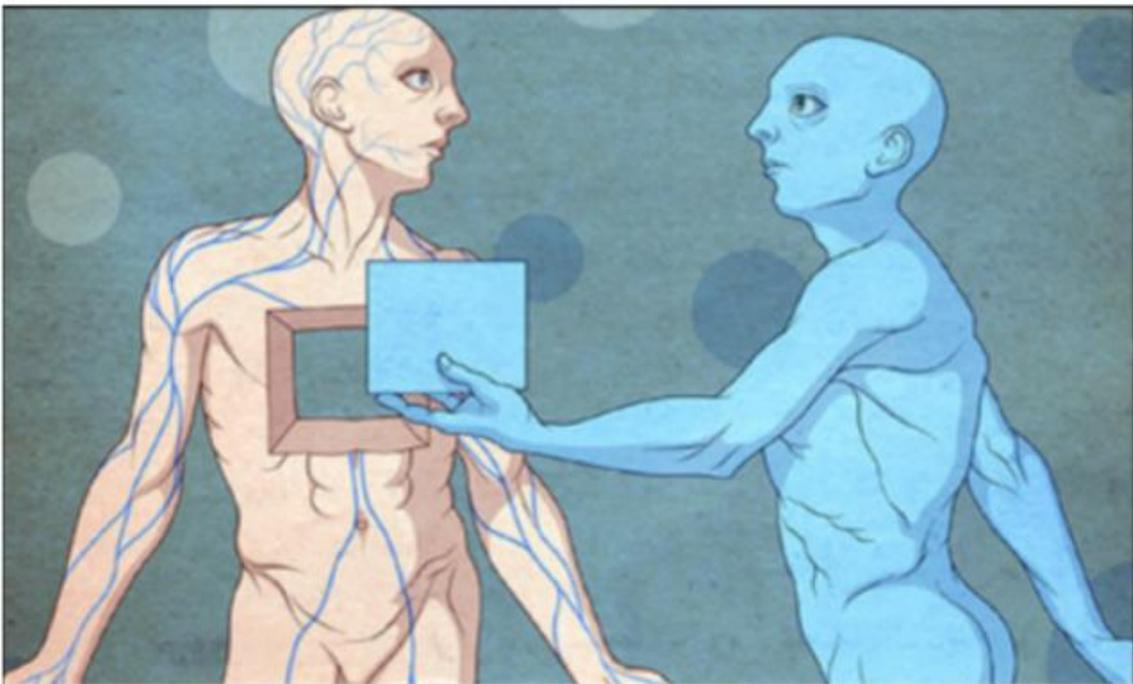
Annual symposium to showcase recent developments in basic transplantation immunology alongside the latest cutting-edge clinical research with an emphasis on the 'bench-to-bedside' strategies being pursued within the King's College London.

The CPD course will cover the following themes:

- Regenerative medicine
- Organ preservation
- Surgical Innovation
- Liver Transplantation

At the end of the two-day course, attendees will have gained insight into:

- Surgical Innovation in Transplantation
- Innovation in regenerative medicine and cell therapies
- State of the art in liver transplantation
- Machine perfusion of organs



Credit: [organpreservationalliance.com](http://organpreservationalliance.com)

Thursday 28th September 2023			
Time		Topic	Speaker
08:50	09:00	Introduction	<b>Anthony Dorling</b> , Professor of Transplant Inflammation and Repair, King's College London <b>Giovanna Lombardi</b> - Professor of Human Transplant Immunobiology, King's College London <b>Alberto Sanchez-Fueyo</b> - Professor of Hepatology, King's College Hospital
09:00	09:45	Advances in kidney machine perfusion	<b>Pankaj Chandak</b> - Transplant Surgery SpR and Research Fellow KCL School of Immunology and Microbial Sciences & UCL/ICH Centre of Developmental Biology, Stem and Regenerative Medicine.
09:45	10:30	Innovations in Robotic Surgery in Transplantation	<b>Ioannis Loukopoulos</b> - Consultant Transplant surgeon, Guy's Hospital, London
10:30	11:15	AI in Healthcare and implications for transplantation	<b>Rhana Zakri</b> - Consultant Transplant and Urological Surgeon, Guy's Hospital, London <b>Ellie Asgari</b> - Consultant Nephrologist, Guy's Hospital
11:15	11:30	<b>Coffee break</b>	
<u>Lessons for Transplantation from other disciplines</u>			
11:30	12:15	Tregs in Pregnancy and CHI	<b>Panicos Shangaris</b> - Consultant in Maternal and Fetal Medicine, King's College Hospital
12:15	13:00	Treg therapy for aplastic anaemia	<b>Shahram Kordasti</b> - Reader and Group Leader in Applied Cancer Immunopathology, King's College London
13:00	13:30	<b>Lunch break</b>	
13:30	14:15	CAR T cells in treatment of haematological disease	<b>Reuben Benjamin</b> - Consultant Haematologist and Honorary Senior Lecturer, King's College London
14:15	15:00	Regenerative Medicine – Photoreceptor Transplantation for retinal degeneration	<b>Robin Ali</b> - Professor of Human Molecular Genetics, King's College London
15:00	15:15	<b>Coffee break</b>	
15:15	16:00	Regenerative Medicine – Physiology of Mesenchymal Stromal Cells	<b>Paul Sharpe</b> - Dickinson Professor of Craniofacial Biology, King's College London
16:00	16:45	Regenerative Medicine – Stem cell-derived hepatocytes for treatment of liver failure	<b>David Hay</b> - Group Leader and Professor of Tissue Engineering, The University of Edinburgh

Delegates will be added to a Microsoft Team named 'Frontiers in Transplantation – 2023 September' prior to the event where all pre-read and study materials will be shared. The Online event link will be circulated day before the event.

Friday 29th September 2023			
Time		Topic	Speaker
09:00	09:05	Introduction	<b>Niloufar Safinia</b> - Consultant Transplant Hepatologist, King's College Hospital NHS Foundation Trust <b>Alberto Sanchez-Fueyo</b> - Professor of Hepatology, King's College Hospital
09:05	09:30	DCD liver transplantation: the King's experience	<b>Wayel Jassem</b> - Consultant Liver Transplant Surgeon, King's College Hospital
09:30	10:00	Liver machine perfusion: critical appraisal	<b>Miriam Cortes</b> - Consultant in Adult and Paediatric Liver Transplantation, King's College Hospital NHS Foundation Trust
10:00	10:30	Acute on Chronic Liver Failure & Transplantation	<b>Mark McPhail</b> - Reader in Experimental Medicine King's College London
10:30	11:00	<b>Coffee break</b>	
11:00	11:30	Antibody mediated rejection in liver transplantation: the jury is still out	<b>Yoh Zen</b> - Consultant Histopathologist, King's College Hospital
11:30	12:00	Tolerance Induction in Liver Transplantation	<b>Alberto Sanchez-Fueyo</b> - Professor of Hepatology, King's College Hospital
12:00	12:30	Regulatory T cell therapies in liver diseases and liver transplantation	<b>Niloufar Safinia</b> - Consultant Transplant Hepatologist, King's College Hospital NHS Foundation Trust
12:30	13:15	<b>Lunch break</b>	
13:15	13:45	Auxiliary liver transplantation: when and for whom?	<b>Sergio Assia-Zamora</b> - Paediatric Transplant Surgeon Senior Clinical Fellow in Paediatric Liver Transplantation at King's College Hospital
13:45	14:15	Insights into liver regeneration through miRNA profiling	<b>Varuna Aluvihare</b> - Transplant Hepatology and Governance Lead, King's College London
14:15	14:45	Liver cell replacement	<b>Foad Rouhani</b> - Group Leader, The Francis Crick Institute and Honorary Consultant Transplant Surgeon, Kings College Hospital
14:45	15:00	<b>Coffee break</b>	
15:00	15:30	Pushing the limits of transplant oncology	<b>Krishna Menon</b> - Consultant Liver Transplant and HPB Surgeon, King's College Hospital NHS Foundation Trust
15:30	16:00	Pregnancy in Liver Transplantation	<b>Michael Heneghan</b> - Professor of Hepatology & Consultant Hepatologist, Corporate Medical Dir. Strategy, King's College Hospital NHS Foundation Trust
16:00	16:45	Keynote speaker: M Ex vivo preservation of liver grafts: where are the limits?	<b>Pierre Clavien</b> - Professor of Gastroenterology, Transplant Hepatology and Chairman of the Department of Surgery in University Hospital Zurich in Switzerland

Delegates will be added to a Microsoft Team named 'Frontiers in Transplantation – 2023 September' prior to the event, where all pre-read and study materials will be shared. The Online event link will be circulated day before the event.

### **Advances in kidney machine perfusion by Pankaj Chandak**

Machine perfusion has gained considerable interest of recent times for pre-transplant organ conditioning, resuscitation, and viability testing prior to implantation. This talk will cover advances in normothermic machine perfusion of human organs, using the kidney as a template model to detail both the clinical and experimental approaches relevant in trying to overcome the key challenges of transplantation namely organ shortage, rejection and promotion of regeneration and repair.

### **Innovations in Robotic Surgery in Transplantation by Ioannis Loukopoulos**

Kidney transplantation has seen major advancements over the years in the field of immunosuppression and rejection management. The surgical technique, however, has remained almost unchanged since it was first introduced, in 1954. Laparoscopic surgery was successfully implemented and became the standard of care in live kidney donors. However, its application in kidney implantation didn't gain wide acceptance due to its technical challenges.

The breakthrough in the evolution of the operative technique, came with the introduction of Da Vinci robotic system in surgery. The first robotic kidney transplantation was performed in the University of Illinois Chicago in 2001. Due to a combination of reduced robot availability and complexity of the procedure, it took more than 15 years until the technique started to expand around the world. Following many publications that proved the safety of the technique and its potential advantages for specific patient groups, robotic surgery for kidney donors and recipients is fast expanding in our days. In UK, two centres have used the robot on kidney donors and recipients with Guy's hospital having one of the biggest series of robotic live donor nephrectomies in Europe.

### **AI in Healthcare and implications for transplantation by Rhana Zakri & Ellie Asgari**

Discussion about the implications of artificial intelligence across all aspects of life is extremely topical. AI is being applied across all aspects of healthcare, from diagnostics to drug design. This lecture will discuss the profound potential impact of AI on healthcare, with focus on transplantation.

### **Tregs in Pregnancy and CHI by Panicos Shangaris**

Tregs in pregnancy adverse outcomes; Tregs, or regulatory T cells, are a type of immune cell that play a crucial role during pregnancy. These cells help regulate the immune responses in the maternal-fetal interface to protect the developing fetus from rejection by the mother's immune system.

During pregnancy, the immune system undergoes significant changes to create an environment favourable for the fetus's development and growth. Tregs are one of the main components of this immune adaptation, and they are primarily responsible for maintaining the immune tolerance towards fetal antigens. Low levels of Tregs have been associated with pregnancy complications such as pre-eclampsia, recurrent pregnancy loss, and preterm birth. Studies have shown that boosting the number of Tregs during pregnancy can improve pregnancy outcomes and reduce the risk of complications.

### **Treg therapy for aplastic anaemia by Shahram Kordasti**

Lack of sufficient number of functioning Tregs is a known mechanism in the pathophysiology of many autoimmune diseases. Therefore, adaptive transfer of ex-vivo expanded Tregs is becoming an important therapy for both autoimmune diseases as well as transplant related autoimmune conditions such as graft versus host disease (GVHD) post bone marrow transplant or solid organ rejection. Nevertheless, the heterogeneity of human Tregs, their plasticity and expandability of different subsets of human Tregs are important challenges in this field. Definition of Treg subsets are also mainly based on manual gating and largely subjective and biased which makes it more difficult to perform multicentre studies or use them for immune monitoring or clinical trials. Thanks to novel approaches such as multidimensional cytometry and unbiased computational data processing, it is now possible to have a more robust, reproducible and standardised definition for different immune cells including Tregs.

Idiopathic aplastic anemia (AA) is an immune-mediated and serious form of bone marrow failure. Akin to other autoimmune diseases, we have previously shown that in AA Tregs are reduced in number and function. Using mass cytometry (CyTOF) and an unbiased multidimensional analytical approach, we have identified two specific human Treg subpopulations (Treg A and Treg B) with distinct phenotypes, gene-expression, expandability and function. Treg subpopulation B, predominates in immunosuppressive responder patients, has a memory/activated phenotype (with higher expression of CD95, CCR4 and CD45RO within FOXP3hi, CD127lo Tregs), expresses the IL-2/STAT5 pathway and cell-cycle commitment genes. Furthermore, in-vitro expanded Tregs become functional and with the characteristics of Treg subpopulation B. We also show that Tregs from AA patients are IL-2 sensitive and expandable in-vitro, suggesting novel therapeutic approaches such as low dose IL-2 therapy and/or expanded autologous Tregs and meriting further exploration.

The advantages of computational approach to define Treg subsets and in-house developed pipeline for the data analysis will be discussed in more details.

### **CAR T cells in treatment of haematological disease by Reuben Benjamin**

T cells expressing chimeric antigen receptors to target specificity are revolutionising the treatment of tumours. Dr Benjamin will discuss the field in general and then focus on his experience with CAR targeting CD19 expressed by B cells. He has recently completed a Phase I clinical trial using 'off the shelf' allogeneic CAR T cells in refractory B cell acute leukaemia.

### **Regenerative Medicine – Photoreceptor Transplantation for retinal degeneration by Robin Ali**

This lecture will cover the latest advances in the treatment of retinal dystrophies, including macular degeneration. Photoreceptor replacement aims to restore vision by the transplantation of healthy cells, ideally derived from a renewable source. Professor Ali will discuss the latest advances in this field.

### **Regenerative Medicine – Physiology of Mesenchymal Stromal Cells by Paul Sharpe**

Stem cells can be identified in the stroma (connective tissue) of most tissues and organs. These cells provide a source of cells that become activated upon tissue damage to generate differentiated cell types that promote tissue repair. Specifically targeting these resident stem cells has become a major goal for regenerative therapies. Using the mammalian tooth as an easily accessible model organ, we have developed a novel drug treatment (ReDent) that activates stem cells in the pulp to differentiate into the specialised cell type (odontoblasts) that produce reparative dentine. ReDent thus promotes self-repair of teeth following caries removal. Progress in understanding more of resident stromal stem cell function is hampered by lack of spatial and temporal organisation in most tissues. The continuously growing mouse incisor is providing an increasingly important model system to study stromal stems since cell transitions are ordered in a clear proximo-distal spatio-temporal sequence. We are identifying different cell populations in the stem cell microenvironment at the single cell level using single cell RNA transcriptomics and genetic lineage tracing. The discovery of a new type of cell (reservoir cell) that has a specific function in producing new stem cells and regulating organ growth rate will be described. Reservoir cells may provide a novel target cell population in regenerative therapeutics.

### **Regenerative Medicine – Stem cell-derived hepatocytes for treatment of liver failure by David Hay**

Professor Hay will discuss the state of the art in using hepatocytes, derived from human pluripotent stem cells to restore hepatic function.

### **DCD liver transplantation: the King's experience by Wael Jassem**

Organ shortage is one of the big three problems in transplantation, so alternatives to the traditional supply of organs are always being explored. One such alternative is the use of organs from donors suffering cardiac death. In this lecture, the outcomes of livers transplanted from DCD donors will be discussed.

### **Liver machine perfusion: critical appraisal by Miriam Cortes**

Organ perfusion prior to transplantation has the potential to revolutionise organ allocation and organ preconditioning. The field is most advanced in liver transplantation. In this lecture, the potential and pitfalls of liver perfusion will be critically appraised.

### **Acute on Chronic Liver Failure & Transplantation by Mark McPhail**

This presentation will outline the definitions, causes and manifestations of the syndrome of acute liver failure (ALF) with an overview of the forms of critical care organ support that are applied in setting. The focus of the presentation will be on the methods applied to determine expected prognosis and select patients for emergency liver transplantation, and the difficulties presented to this process by increasing success of non-transplant care. The clinical challenges of transplantation in the critically ill will be discussed, along with the evolution of novel interventions that will soon be in clinical use.

## **Antibody mediated rejection in liver transplantation: the jury is still out by Yoh Zen**

Antibody-mediated rejection (AMR) is a well recognised complication of renal and heart transplantation, but is much rarer in liver transplantation due to the 'immune privileged' nature of the liver. In 2016, the Banff Working Group published updated guidance with the aim of standardising diagnostic criteria for AMR. The diagnosis of acute AMR requires microscopic changes of microvascular injuries, positive serum donor-specific antibodies (DSA), diffuse microvascular C4d deposition on tissue and the reasonable exclusion of other insults that may cause a similar pattern of injury. We recently reviewed adult patients with proved DSA (mean fluorescent index >2000) and matched liver biopsy available. Among 55 patients identified, 5 patients (9%) met the criteria of definite (n=2) or suspicious for acute AMR (n=3). Cases of acute AMR more commonly had class I DSA (100% vs. 46%; p=0.027) or both class I and II DSA (80% vs. 28%; p=0.018) than cases of non-acute AMR. One case of pure acute AMR with veno-occlusion was successfully treated with plasma exchange. The remaining 4 cases had features of combined acute AMR/T cell-mediated rejection (TCMR), and two progressed to ductopenic rejection within 3 weeks. In conclusion, only 9% of DSA-positive patients met the Banff criteria for acute AMR, necessitating careful morphological and immunohistochemical assessments of the allograft biopsies according to the proposed standards. Combined acute AMR/TCMR was more common than isolated acute AMR, and additional AMR in TCMR cases may be associated with rapid progression to ductopenic rejection. Data recently reported from other centres will also be discussed.

## **Tolerance Induction in Liver Transplantation by Alberto Sanchez-Fueyo**

Liver allografts have unique immunological properties, with reduced susceptibility to immune mediated damage. Furthermore, in selected patients, a process of gradual acceptance, known as spontaneous operational tolerance, takes place with time, thereby patients can discontinue their immunosuppression without undergoing rejection. We will discuss novel data as to the immunoregulatory properties of liver allografts and new immunotherapeutic strategies to increase the proportion of recipients who develop operational tolerance.

## **Regulatory T cell therapies in liver diseases and liver transplantation by Niloufar Safinia**

Transplantation is currently the only effective treatment for end-stage organ failure. However, its promise as a successful treatment modality is severely hindered by the requirement for the long-term use of immunosuppressants, associated with significant morbidity and toxic side effects. The panacea that is 'tolerance induction' will enable the minimization or complete withdrawal of these immunosuppressive drugs thus negating any long-term toxic sequelae. Many different strategies aimed at inducing tolerance have been proposed to date with regulatory T cell (Treg) therapy at the heart of the debate.

In the last 5 years, results of the first clinical trials in the setting of bone marrow transplantation and diabetes are encouraging and support the rationale that Treg adoptive transfer is likely to be a safe and successful strategy for inducing transplantation tolerance, whilst reducing the requirement for immunosuppression. Indeed, we are taking ex vivo expanded Tregs forward to clinical trials of our own:

1. To prevent renal transplant rejection as part of an EU FP7 consortium: 'The ONE Study'
2. To prevent liver transplant rejection, 'ThRIL', a dose escalation study whereby the safety and tolerability of polyclonally expanded Tregs in combination with depletion of alloreactive T cells and short term immunosuppression will be assessed.

The success of such trials is reliant on the implementation of Good Manufacturing Practice (GMP)-compliant protocols that ensure the successful isolation and expansion of a functional and stable human Treg population from transplant recipients.

This talk is mainly focused on the ThRIL trial, highlighting our data on the manufacture of clinical grade Tregs from liver transplant recipients in the laboratory in accordance with GMP protocols and its large-scale manufacture in the Clinical Research Facility at Guy's Hospital. In addition, an update will be provided on the present state of the ThRIL trial.

### **Auxiliary liver transplantation: when and for whom? By Sergio Assia-Zamora**

Introduction: Auxiliary partial orthotopic liver transplantation (APOLT) is a surgical intervention involving the transplantation of a graft while retaining a portion of the recipient's native liver for specific purposes.

Discussion: This procedure finds its primary application in cases of acute liver failure (ALF) and non-cirrhotic metabolic diseases. In instances of ALF, APOLT aims to gradually withdraw immunosuppression as the native liver regains function post-insult. In the context of metabolic diseases, APOLT aims to preserve both a functional native liver segment and a transplanted graft, ensuring the synthesis of essential metabolites. Notably, APOLT presents unique indications, such as mitochondrial cytopathies and select oncological scenarios.

Conclusion: APOLT should be considered the standard of care for ALF cases, allowing immunosuppression tapering as the native liver recovers. Moreover, it should be routinely assessed for specific non-cirrhotic metabolic disorders and oncological needs. Tailored evaluation at transplantation is crucial to determine each patient's candidacy for APOLT, marking a significant advancement in liver transplantation practices.

### **Insights into liver regeneration through miRNA profiling by Varuna Aluvihare**

The liver is an organ with a tremendous capacity to regenerate after acute injury. Understanding the signals which regulate this process would have significant potential to revolutionise treatment of liver disease. The current state of the art will be covered by this lecture.

### **Liver cell replacement by Foad Rouhani**

In this lecture, advances in developing hepatocytes from other sources, including iPSC and the areas of current and future research will be covered.

### **Pushing the limits of transplant oncology**

Professor Menon will discuss the indications and outcomes of transplantation for patients with isolated hepatic metastases.

### **Pregnancy in Liver Transplantation by Michael Heneghan**

Pregnancy after liver transplantation (LT) is increasingly common and is a frequent scenario that transplant physicians, obstetricians and midwives encounter. This lecture will summarise the key issues surrounding pre-conception, pregnancy-related outcomes, immunosuppression, contraception and breastfeeding in female LT recipients. Pre-pregnancy counselling in these patients should include recommendations to delay conception for at least one year after LT, and discussions about effective methods of contraception should not be avoided. Female LT recipients are generally recommended to continue immunosuppression during pregnancy to prevent allograft rejection, however, individual regimens may need to be altered and pre-planned. Although pregnancy outcomes are overall favourable, there is an increased risk of maternal and fetal complications. Pregnancy in this cohort remains 'high risk' and should be managed vigilantly in a multi-disciplinary setting. We aim to review the available evidence from national registries, population-based studies including a large registry from Kings College Hospital and provide recommendations for attending clinicians.

### **M Ex vivo preservation of liver grafts: where are the limits? By Pierre Clavien**

Professor Clavien will discuss the future therapeutic potential of liver perfusion - pushing the boundaries of therapeutic manipulation and length of organ preservation.



**Keynote Speaker - Pierre Clavien**

Professor of Gastroenterology, Transplant Hepatology and Chairman of the Department of Surgery in University Hospital Zurich in Switzerland

Pierre A. Clavien is a worldwide renowned surgeon-scientist, currently professor and chairman of the Department of Surgery in Zurich, Switzerland. After a Swiss board of surgery, he moved to Toronto, Canada, to complete a PhD program in organ preservation, followed by a clinical fellowship in HPB surgery and liver transplantation. He then moved to Duke University Medical Center, Durham, NC, where he initially led the liver transplantation and HPB programs, and subsequently the division of Transplantation, and obtained the rank of full Professor within 4 years. The main interest of Dr. Clavien has been in several aspects of transplantation and liver surgery. Since 1994 he has run an active basic science laboratory funded through NIH and Swiss National Grants and other private and non-private sources. His areas of research include organ preservation, liver ischemia-reperfusion injury and liver regeneration, and pathogenesis of cancer, as well as outcome research with publication in *Science*, *PNAS*, *Gastroenterology*, *Lancet*, and *NEJM*. His laboratory made the discovery of serotonin as a key mediator of liver regeneration and pathogenesis of cancer (*Science* 2008). Dr. Clavien has also developed a simple and widely used system to evaluate complications after surgery, which holds his name. The impact of his research might be highlighted with an H factor of 97. He has been president of the European Surgical Association (ESA), European Hepatobiliary Association (E-AHPBA) and the Swiss Transplantation Society.

He is currently on the Editorial Board or Associate Editor of several high ranked international journals, such as *Gastroenterology*, *Hepatology*, *Surgery*, *Am J of Transpl*, *Journal of Hepatology*. He was appointed Associate Editor of *Ann of Surgery* to cover the liver topics, and Editor for the ESA articles. He received many competitive grants and awards, including one of the most prestigious prizes for scientific research in Switzerland, the Otto Naegeli Award, and the UEGW (European Union of Gastroenterology) award 2012 for his research in partial liver graft. He has also written several books, with the very popular book of “Medical Care of the Liver Transplant Patient” and an atlas of upper GI and HPB surgery. In 2014 he received the honorary fellowship at American College of Surgeons (ACS) and was appointed as “Professeur Associé” at Hôpital Paul Brousse Université Paris Sud, France. In 2016 he received the honorary fellowship at the American Surgical Association (ASA).



### **Anthony Dorling (Organiser)**

Professor of Transplant Inflammation and Repair in the, Dept of Inflammation Biology, School of Immunology & Microbial Sciences, MRC Centre in Transplantation, at King's College London (KCL), UK.

Professor Anthony Dorling qualified in Medicine from the University of London in 1987 and did a PhD in Transplantation Immunology 1992-1995. He was appointed Senior Lecturer in Immunology at Imperial College and honorary Consultant Nephrologist at the Hammersmith Hospital in 2001, becoming Reader in 2005, before transferring into his current post at KCL in October 2009. His early research interests were in xenotransplantation, out of which grew an interest in vascular inflammation. In the last few years, his focus has been on the humoral, cellular and molecular mechanisms involved in vascular rejection. Clinically, he has been working in two main areas. The first has been in antibody-incompatible transplants, attempting to understand 'accommodation'. The second has been in chronic rejection. His pure laboratory work is focussed mainly on the role that coagulation proteases play in inflammatory vascular disease. His work also includes models of intimal hyperplasia, including transplant arteriosclerosis, and he has demonstrated the importance of protease activated receptor signalling on mobilized fibrocytes in these types of chronic vascular inflammation.

### **Giovanna Lombardi (Organiser)**

Professor of Human Transplant Immunology in the Peter Gorer Dept of Immunobiology, School of Immunology & Microbial Sciences, at King's College.



Giovanna Lombardi obtained her PhD from the University of Rome, in 1981. In 1987 she joined the Department of Immunology at the Royal Postgraduate Medical School/Imperial College in London. In 2005 she took over the position of a Non-clinical Reader in the MRC Centre for Transplantation at King's College London. In 2008 she obtained a personal chair and she is now Professor of Human Transplant Immunology.

Her research has focused on the mechanisms of transplant rejection (in particular providing data to help understanding the pathways of allorecognition) and tolerance as well as on the phenotype and function of naturally occurring regulatory CD4+CD25+ T cells (Tregs) in health and disease, both in the murine system and in man. Recently her laboratory has examined manipulating this population of cells in vitro to use for immunotherapy in transplanted patients. A protocol to expand polyclonal Tregs for clinical use was established in the laboratory and then moved to the GMP facility at Guy's. Two clinical trials with polyclonal Tregs in renal transplant patients as part of a large EU cell therapy consortium (the One Study) and in liver transplant patients supported by the MRC (ThRIL) started in 2014 and were completed in August 2017. Altogether 21 patients have been treated with Tregs demonstrating the safety of this treatment. In parallel, her group has demonstrated in preclinical animal models that adoptive cell therapy with donor-specific Tregs (including Tregs transduced with Chimeric Antigen Receptor-CAR) can offer an advantage compared to polyclonal Tregs for preventing transplant rejection. Three years ago, she contributed, as one of six founders, to the formation of a start-up company (Quell Therapeutics) that has the aim of applying CAR-Tregs in the prevention of transplant rejection and the cure of autoimmune diseases. A GMP facility with a cell sorter to generate highly pure Tregs has been established at Guy's, opening the possibility of using CAR-Tregs in future clinical trials.

In recent years, her group has been addressing a series of additional questions to inform the future of Treg therapy. One of such questions is where Tregs traffic to and localise and this has been addressed using imaging modality such as SPECT/CT in preclinical models. Another question was whether combining Tregs with other strategies such as low dose IL-2 or by inhibiting innate immune responses, could further increase the likelihood of achieving transplantation tolerance by improving Treg survival, function and stability. Finally, a series of projects are in progress to further enhance the potency of CAR-Tregs to be then translated to the clinic in the future clinical trials.

**Alberto Sanchez-Fueyo (Organiser)**

Academic Head, Institute of Liver Studies, Section of Liver Studies, DTIMB, King's College London

Professor Sanchez-Fueyo received his MD from the University of Barcelona in 1993 and trained in Gastroenterology & Hepatology at Hospital Clinic Barcelona. He conducted post-doctoral research in Transplant Immunology at Beth Israel Deaconess Medical Centre (Harvard Medical School, Boston, USA), and was a faculty member at the Liver Transplant Unit at the Hospital Clinic Barcelona/IDIBAPS (University of Barcelona), where he directed the Liver Transplant Immunology Lab from 2004 to 2012. Prof. A. Sánchez-Fueyo joined King's College London as Head of the Liver Sciences Department in 2012. His research is focused on understanding the mechanisms responsible for immunological tolerance in transplantation and developing novel immunotherapies in liver diseases.

**Pankaj Chandak (Organiser)**

Transplant Surgery SpR London Deanery and Research Fellow, KCL School of Immunology and Microbial Sciences & UCL/ICH Centre of Developmental Biology, Stem and Regenerative Medicine.



Pankaj is a transplant surgical trainee in London Deanery and research fellow at King's College London and Institute of Child Health, UCL, having completed his PhD in overcoming immunological and surgical barriers in complex transplantation under Professor Anthony Dorling and Professor Nizam Mamode. His scientific interests are in machine perfusion of human organs for therapeutic manipulation, regeneration and repair and complex paediatric transplantation. He is also active in public engagement in science. His research led to the use of 3D printing for complex paediatric transplantation and the development of a translational human transplant model of antibody mediated rejection using normothermic machine perfusion. He has been invited speaker to several societies including The Royal Society and The Royal Institution and has received several awards including The British Science Association Charles Darwin Award Lecture, The Royal College of Surgeons of England Lister Medal and Prize and The Royal College of Surgeons Arnott Lecture and Medal. He has made appearances for BBC and film and BBC World Service Radio and set up the UK's first Children's Transplant Choir with BBC Children in Need. He is also medical director and advisor to the Netflix Series The Crown and has acted in several episodes. In 2023, he was awarded The Hunterian Professorship by The Royal College of Surgeons of England as well as the King's Health Partner's Bulkley Barry Cooper Professorship Lecture. He was elected a Fellow of The Linnean Society and a Fellow of the Royal Photographic Society in 2023, having been awarded the RPS Combined Royal Colleges Medal for advances in imaging sciences. Pankaj is also current Co-Chair of the International Paediatric Transplant Association Membership and Communications Committee.



**Niloufar Safinia (Organiser)**

Honorary Consultant Transplant Hepatologist - King's College Hospital NHS Foundation Trust

Dr Niloufar Safinia currently holds a Wellcome Trust Clinical Research Career Development Fellowship to investigate regulatory T cell dysfunction in chronic liver disease. She identified a regulatory T cell dysfunction whilst reading for her PhD on immunoregulation and investigated adoptive regulatory T cell therapy in the context of liver cirrhosis and transplantation at the MRC Center for Transplantation and Institute of Liver Studies, King's College London. This work was instrumental to the start of ThRIL; A 'first-in-human' study, evaluating the safety, tolerability with an investigation into the efficacy of Tregs in liver transplant recipients. Post her PhD and having spent 5 years at Imperial College London Liver Unit, looking after patients with chronic liver disease, she started a programme of work, including her current fellowship investigating regulatory T cell metabolism in chronic liver disease in order to develop novel therapeutic targets to halt/ prevent liver disease progression. She has also been the recipient of several personal awards namely the Medical Research Council Clinical Research Training Fellowship, BRC STEM Early Career Award, BRC/NIHR research fellowship and more recently the KHP R&D Challenge Fund Award. She is a member of the European Association for the Study of the Liver (EASL) and the International Liver Transplant Society (ILTS).

**Ioannis Loukopoulos**

Consultant Transplant Surgeon - Guy's Hospital London



Mr Loukopoulos graduated from the Medical School of Athens University in 1997 and completed his training in general surgery in 2005. He worked 6 years as consultant in general surgery and kidney transplantation in Evaggelismos Hospitals in Athens, before moving to UK and Guy's Hospital in 2012, as senior clinical fellow. In 2013 he was appointed consultant in kidney and pancreas transplantation in Guy's Hospital.

He performs adult and paediatric kidney transplantation, pancreas transplantation, vascular access surgery and minimally invasive live donor nephrectomy. His special interests are paediatric kidney transplantation and robotic surgery for kidney donors and recipients. He leads the robotic donor nephrectomy program at Guy's Hospital with more than 50 procedures performed and he has developed a training model for robotic kidney transplantation.



**Rhana Zakri**

Consultant Transplant and Urological Surgeon - Guy's Hospital London

Rhana is a consultant transplant and urological surgeon at Guy's Hospital, London. She trained at Guy's Hospital in transplantation and urology, and in the southeast in general urological surgery. She has further specialist interests in the prevention and management of urinary tract infections in renal transplant recipients and leads a specialist transplant UTI clinic. Rhana also has expertise in robot-assisted surgery. Her talk will focus on the assessment of potential deceased donors with urological conditions.



**Ellie Asgari**

Consultant Nephrologist - Guy's Hospital

Dr. Asgari has trained as a nephrologist and general physician in South London. She obtained her PhD from Guy's Hospital, where she studied the role of the innate immune system in ischemia/reperfusion injury during kidney transplantation. She has been working as a consultant since 2013, initially at St George's Hospital, and since 2015 as a nephrologist at Guy's Hospital, where her clinical interests include transplantation, polycystic kidney disease, and chronic kidney disease.

Moreover, she is responsible for audit and governance in the renal department at Guy's Hospital. On a national level, she is the chair of the British Transplant Society Standards and Guidelines Committee and is responsible for the development of new guidelines for transplantation and updating the existing ones. She has a keen interest in artificial intelligence and its applications in healthcare.

**Panicos Shangaris**

Consultant in Maternal and Fetal Medicine - King's College Hospital

Dr Shangaris qualified from the Royal College of Surgeons in Ireland in 2005. He completed his foundation training in East Lancashire before relocating to London for higher specialist training at the prestigious University College London, the Royal Free London, Barnet and North Middlesex Hospitals. Dr Shangaris obtained his Master's degree in fetal medicine and prenatal genetics at University College London (UCL) with distinction. In 2011, he was awarded the renowned Wellcome Trust SPARKS research training fellowship, which enabled him to commence his PhD research work at UCL. His research focuses on treating genetic blood disorders through the transplantation of stem cells or gene therapy for the fetus. During this period, Dr Shangaris worked under the guidance of Professor Anna David and Professor Paolo De Coppi. Dr Shangaris has received further funding from the Academy of Medical Sciences, the National Institute for Health and Care Research, and the Fetal Medicine Foundation to enhance his clinical research expertise. During this time, he also subspecialised in Maternal and Fetal Medicine at St Thomas' and King's College Hospitals. He worked for four years under Professor Catherine Nelson Piercy, Professor Kypros Nicolaides, Dr Sri Sankaran, Dr Surabhi Nanda, and Dr Anita Banerjee. During his subspecialty training, he worked in specialised clinics such as complex fetal medicine clinics, fetal urology, gestational diabetes, hypertension in pregnancy, multiple pregnancy, fetal cardiology, genetics and perinatal pathology.



Dr Shangaris is a Maternal and Fetal medicine consultant at King's College Hospital NHS Foundation Trust and a Senior Clinical Lecturer at King's College London. Furthermore, Dr Shangaris also serves as a research project supervisor (laboratory and library) for BSc, MSc and PhD students. Committed to collaborative research, Dr Shangaris is at the forefront of obstetrics and maternal and fetal medicine clinical research, regularly producing research outputs. He has authored over 30 publications in peer-reviewed journals. He is also part of the editorial team at the Reproductive Science Journal and president of the Royal Society of Medicine, Maternity and Newborn Forum.

**Shahram Kordasti**

Reader and Group Leader in Applied Cancer Immunopathology - King's College London

Following graduation from medical school and clinical training in Internal Medicine/Haematology, Dr Kordasti received his MSc in Medical Immunology and PhD in Cancer Immunology from King's College London. He established the role of Tregs in Myelodysplastic Syndrome (MDS) and their effects on disease progression and response to treatment. He continued his work at King's College London and developed an interest in the immunobiology of aplastic anaemia (AA) during this time. He has been senior physician at Guy's Hospital since May 2018, a reader at King's College London since August 2022 and continues to study the immunobiology of Myeloid Malignancies and Neoplasms. His main research interest is the plasticity of CD4+ T cells, their interaction with inflammatory microenvironment and their role in the immunobiology of myeloid malignancies. Computational biology, multidimensional cytometry as well as multiomics data integration for patient stratification is another focus of his research group. His clinical interests are AA, MDS and MPN.

**Robin Ali**

Professor of Human Molecular Genetics - King's College London

Robin Ali is also the Director of The KCL Centre for Cell and Gene Therapy, Deputy Director, NIHR Guy's and St Thomas' Biomedical Research Centre and Director of the KCL/BRC Advanced Therapies Accelerator. He is also Visiting Professor at Kellogg Eye Center, University of Michigan and Founder of MeiraGTx PLC, a Nasdaq-listed gene therapy company with offices in London and New York.

The main focus of Robin Ali's research is the development of gene and cell therapy for the treatment of retinal disorders. He spent most of his career at University College London, based at UCL Institute of Ophthalmology and was also Director of the Wolfson Gene Therapy Unit, a UCL GMP facility for manufacturing clinical grade gene therapy vectors. Since 1996, he has published over 200 peer-reviewed papers with landmark papers and preclinical therapeutic proof-of-concept (POC) studies for many different ocular disorders. As chief investigator, he established the world's first clinical trial of gene therapy for retinopathy. The results from this trial reporting an improvement in vision (NEJM, 2008; NEJM 2015) along with results from two other trials, established POC for gene therapy for inherited retinal degeneration. His group has also provided the first POC for effective transplantation of photoreceptors (Nature 2006; Nature, 2012) that has provided the basis for ES cell-derived photoreceptor transplantation, now a major programme in his laboratory (Nature Biotech 2013). Robin Ali and members of his team have received numerous prizes for their work on developing new treatments for retinal degeneration, including the €1M Champalimaud Vision Award (2018), Pfizer/ARVO Translational Award for Ophthalmology (2010), the Alcon Research Institute Award (2009) and in 2014, Human Gene Therapy journal's Pioneer Award (to honour the top 12 pioneers in gene therapy). In 2007 he was elected to the Academy of Medical Sciences and in 2009 elected NIHR Senior Investigator. He is a recent past President of the European Society of Gene and Cell Therapy and is Associate Editor of Human Gene Therapy. He has also served on the advisory boards of a number of funding bodies including the UK Medical Research Council (Neurosciences and Mental Health Board and the Regenerative Medicine Research Committee), Research to Prevent Blindness USA and Fighting Blindness Ireland, Telethon, Italy, as well as advisory boards of several pharmaceutical and biotech companies, including Alcon/Novartis



**Reuben Benjamin**

Consultant Haematologist and Honorary Senior Lecturer - King's College London

Haematologist and Honorary Clinical Senior Lecturer with an interest in chimeric antigen receptor T cells (CAR T) for the treatment of haematological malignancies. I lead a Cellular Immunotherapy Group that has been focussed on developing and optimising allogeneic 'off the shelf' CAR T cells and also in deciphering the mechanisms of resistance of blood cancers to CAR T cell therapy. My clinical disease interest is multiple myeloma and we are currently investigating the pathogenesis of extramedullary myeloma as well as developing next generation flow cytometry methods for monitoring multiple myeloma.

**Paul Sharpe**

Dickinson Professor of Craniofacial Biology - King's College London



Professor Sharpe graduated with a degree in biology from York University and a PhD in biochemistry from Sheffield University. Following postdocs in Sheffield, Wisconsin and Cambridge he became lecturer in molecular embryology at the University of Manchester in 1987 where he established a research group working on the molecular control of tooth development.

In 1991 he was recruited to his present Chair at the Dental Institute of Guy's Hospital (later to merge with King's College London), where he established a new basic research department, the Department of Craniofacial Development and Stem Cell Biology. The department, of which he remains head, now consists of 15 academic research groups with over 80 research staff and in 2017 was awarded Centre of Excellence status: Centre for Craniofacial and Regenerative Biology. From 2002-2008 he was Director of Research for the Dental Institute.

His main research interests are the molecular control of tooth development, dental stem cell biology and tooth bioengineering. He has published over 300 research papers including articles in Nature, Science, PNAS and Cell press. He has supervised over 50 PhD students and currently receives funding from the MRC, NIHR and NIH. He is a member of the MRC Centre for Transplantation and Biomedical Research Centre and currently serves on the MRC Regenerative Medicine Research Committee grants panel.

In 2004 he was awarded the Craniofacial Biology Research Award by the International Association for Dental Research in recognition of his contribution to the understanding of how teeth develop. In 2006 and 2018 he received the William J Gies award for best publication in Biomaterials and Bioengineering from the same organisation.

His current research focuses on understanding dental pulp stem cell function and the development of stem cell-based approaches for new therapies in clinical dentistry.

**David Hay**

Group Leader and Professor of Tissue Engineering - The University of Edinburgh

Group leader of the Pluripotent Stem Cell Hepatocyte Development team. Expert in cell differentiation and tissue engineering with over 15 years' experience in pluripotent stem cell biology. David is also experienced forming of start-up company and securing seed funding. David has worked in the field of pluripotent stem cell biology and hepatic endoderm derivation over the last decade. He was the first to highlight the important role that cell physiology plays in this process, allowing the generation of efficient and scalable models of hepatic endoderm that display appropriate human function. The impact of this work has led to a number of publications, grant applications and regular appearances at high profile conferences in Europe and the USA.



The generation of high-purity stem cell derived liver cultures has enabled scientists to model human drug toxicity and disease. The provision of efficient models has also permitted scalable stem cell derivative manufacturing. This has the potential to provide cells for use in predictive toxicology and bio-artificial liver construction. In addition to research experience, David has served as an editor and reviewer of peer-reviewed journals in stem cell and cellular differentiation biology.

**Wayel Jassem**

Consultant Liver Transplant Surgeon - King's College Hospital



Mr Wayel Jassem is a Consultant Surgeon with a specialist interest in liver surgery including living donor liver transplantation and complex hepatic resections.

Dr Jassem qualified as a doctor in 1989 and trained in general surgery at the University of Ancona, Italy. He completed his MD degree in 1996 working on liver damage during cold preservation. He did three years fellowship at the University of Oxford before joining King's College Hospital in 1999 to be trained in liver surgery and liver transplantation. In 2008 he completed a PhD at the University of London and was appointed as a Consultant Surgeon in 2009. Dr Jassem's research interests include ischaemia / reperfusion injury and optimisation of livers prior to transplantation by ischaemic preconditioning or by using machine perfusion prior to transplantation.

**Miriam Cortes Cerisuelo**

Consultant in Adult and Paediatric Liver Transplantation - King's College Hospital  
NHS Foundation Trust

Dr. Miriam Cortes Cerisuelo is a consultant surgeon in adult and paediatric liver transplantation in King's College Hospital since April 2016. In 2002, she graduated from Barcelona University, and completed a general surgery residency in my Centre, which as you all know, is the largest liver transplant programme in Spain. After she was awarded with a post-residency research grant in 2009, she completed her doctorate in metabolomics, a useful tool to predict liver functionality after liver transplant in the University of Valencia. In 2012, she was appointed as a clinical liver transplant fellow in King's College Hospital which is the largest liver transplant service in Europe (260 liver transplants last year, of which 50 were paediatrics) and performs all types of procedures such as split liver transplantation, donation after circulatory dead, living donation, auxiliary liver transplant, ex-vivo normothermic and hypothermic perfusion. In 2015 she was awarded by the Medical Research Council in England, an MRC Centre for Transplantation/Emory Bridging Fellowship which funded her with one-year post-doctoral fellowship in one of the leading Immunology Transplant Centres in the United States where she worked under the direction of Dr Mandy Ford, scientific director in "Emory Transplant Centre". Her research focused in finding biomarkers to predict belatacept resistant rejection in patients undergoing kidney transplantation. In 2019, she was appointed as lead for organ retrieval and machine perfusion at King's College Hospital, since then, she has incorporated the ex-situ hypothermic machine perfusion initially as part of her contribution to HOPE and DHOPE trials and more recently as part of the clinical practice. As a consultant she has been involved in numerous committees and working groups mainly in UK such as the NRP steering group to develop a national standard operating procedure, national working group to update the DCD liver transplant guidelines, working group for liver machine perfusion; an internationally in the DCD consensus conference lead by the ILTS. Her main clinical interests are focused on paediatric liver transplantation and patterns of portal hypertension in young adults requiring a liver transplant, as well as machine perfusion and DCD liver transplantation. Other research interests are the impact of machine perfusion on alloimmune responses and developing more accurate scoring systems of early allograft function after transplantation.

**Mark McPhail**

Reader in Experimental Medicine King's College London

Mark McPhail is a Reader in Experimental Medicine and Honorary Consultant in Liver Intensive Care and Hepatology. He graduated with a PhD in Physics from Strathclyde University and then Medicine and Surgery from Glasgow University. He is interested in immunometabolism in liver failure syndromes and how lipid derangement affects innate immunity. He also has a keen interest in statistical methods and outcome research and is the Chief Scientific Investigator of the BOPPP (Betablockers or Placebo in Portal Hypertension) study. His group is based in the Institute of Liver Studies at Denmark Hill and he collaborates with Imperial College and the United States Acute Liver Failure Study Group





**Yoh Zen**

Consultant Histopathologist - King's College Hospital

Professor Yoh Zen is a Consultant Histopathologist at Institute of Liver Studies, King's College Hospital, London, contributing to the diagnostic work of complex liver and pancreatobiliary diseases at this tertiary referral centre. He is also an international expert in IgG4-related disease. Alongside busy clinical work, he has engaged in scientific research and published 350 peer-reviewed manuscripts and 33 book chapters including review articles in the New England Journal of Medicine and the Lancet. His citation index is over 15,000 with an h-index of 70.

**Sergio Assia-Zamora**

Senior Clinical Fellow in Paediatric Liver Transplantation at King's College Hospital

Background of general paediatrics and paediatric surgery, with multiple publications in journals and books with international impact. Imparted multiple conferences worldwide on paediatric transplantation. Special interest in transplantation since medical school reflected in research projects and future developments in this area.



**Varuna Aluvihare**

Transplant Hepatology and Governance Lead - King's College London

Transplant Hepatology Lead and Governance Lead at the Institute of Liver Studies, King's College Hospital, London and worked at King's for more than 13 years. I have been elected Chair of the British Liver Transplant Group. I studied medicine at the Royal Free Hospital and completed my professional medical training in hepatology and transplantation at Addenbrooke's Hospital, Cambridge. My clinical interests encompass all aspects of chronic liver disease and liver transplantation, with specific interests in immunosuppression, chronic immune mediated graft failure and auxiliary transplantation. I undertook MRC funded PhD and Clinician Scientist fellowships in Immunology/Molecular Biology at the world renowned MRC Laboratory of Molecular Biology, University of Cambridge. After starting at King's College Hospital, I have been the recipient of a 5 year HEFCE Senior Lecturer Fellowship and a ROTRF grant in transplantation research. I am Chair of the British Liver Transplant Group, a member of the UK Liver Transplant Advisory Group, the Transplant Hepatology representative on the national Multivisceral Transplantation review group, the Transplant Hepatology representative on the British Transplant Society Council, and a member of the Editorial Board for Liver Transplantation.



**Foad Rouhani**

Group Leader, The Francis Crick Institute and Honorary Consultant Transplant Surgeon, Kings College Hospital

Foad Rouhani is a surgeon scientist, leading the Tissue Regeneration and Clonal Evolution (TRCE) laboratory at the Francis Crick Institute. He is a Reader at King's College London and an honorary consultant transplant surgeon at King's College Hospital.

Foad obtained an MA in developmental biology and completed his medical training at Cambridge. He decided on a career in surgery and at an early stage became fascinated by organ transplantation and the translational potential of regenerative medicine. He worked with Allan Bradley at the Wellcome Sanger Institute and gained a PhD in stem cell biology in 2012. He was appointed NIHR Academic Clinical Lecturer in transplantation in 2016 and elected to the Fellowship of the Royal College of Surgeons of England in 2018. Foad's work has made major contributions to our understanding of somatic mutations in human cells and pioneered the use of induced pluripotent stem cells to model and explore their functional consequences.

In 2023, Foad was awarded an MRC Clinician Scientist Fellowship and appointed as a Group Leader at the Francis Crick Institute. The TRCE laboratory's research program focuses on the biological effects of somatic mutations on human tissues during homeostasis and in pathological states.

**Krishna Menon**  
Consultant Liver Transplant and HPB Surgeon - King's College Hospital NHS Foundation Trust



Mr Krishna Menon is a Consultant Liver Transplant and Hepato-pancreatobiliary (HPB) Surgeon at the King's College Hospital NHS Foundation Trust, London and Lead for Liver Transplant Surgery at King's College Hospital. Mr Menon is also the President of the Great Britain Chapter of the International HPB Association (GBIHPBA), and is currently the Vice-President and President-Elect of the British Transplantation Society. Mr Menon's major clinical interest is in laparoscopic (key hole) cholecystectomy, hepatectomy (liver resections) and pancreatic resections both Whipple's and distal pancreatectomies. Mr Menon's research interests are in pancreatic cancer, clinical trials and development of novel technology in cancer and laparoscopic surgery. He has published over 120 peer reviewed publications and over 300 presentations at National, European and International meetings.



**Michael Heneghan**

Professor of Hepatology & Consultant Hepatologist, Corporate Medical Dir. Strategy - King's College Hospital NHS Foundation Trust

Prof Heneghan has over 20 years' experience in managing patients with the full range of liver disease. Trained in Ireland at University College Hospital Galway, the United Kingdom at King's College Hospital London, and in the United States at Duke University Medical Centre in North Carolina where he was Medical Director of liver transplantation.

He has been a Consultant Hepatologist at King's College Hospital since 2003 with an interest in Autoimmune Liver Disease and Liver Transplantation. He has a broad interest in liver medicine having published extensively in alcohol related liver disease, autoimmune liver diseases, portal hypertension, hepatocellular carcinoma and liver transplantation. He helped establish and developed transition services at King's College Hospital for patients with childhood liver disease in 2004 and the service has evolved to be one of the largest in the world. He has also held several administrative positions at King's College Hospital including Clinical Directorship of Liver Services at The Institute of liver studies, from September 2012 to January 2019.

He has published more than 200 papers and book chapters on the full range of liver disorders. He contributes to UpToDate on Autoimmune Hepatitis and is an acknowledged expert in the field of Autoimmune Liver Disease and Liver Disease in Pregnancy. He has been awarded a European Association for the Study of the Liver Registry Grant and supervises a range of MD and PhD students. He has contributed to both British and European guidelines for the management of autoimmune liver disease, participates in a range of Clinical Trials. He is active in several societies including the PBC foundation, the British Association 22 for the study of the liver, the American Association for the study of the liver and he speaks widely at a range of International and national meetings. He is a member of the British Society of Gastroenterology Liver Committee and Secretary elect of the British Society for the Study of the Liver (2020-2023).

## ACCREDITATIONS

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Frontiers in Transplantation: Clinical Excellence through Innovation short course is subjected to receive 13 CPD Credits from the Federation of the Royal Colleges of Physicians of the United Kingdom – Application is currently being assessed.



RCP ([rcplondon.ac.uk](http://rcplondon.ac.uk))

## ENDORSEMENTS

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Frontiers in Transplantation: Clinical Excellence through Innovation short course has been endorsed and advertised by the following societies.



[Upcoming UK Events - British Transplantation Society \(bts.org.uk\)](http://bts.org.uk)



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### Course materials

Delegates will be registered to Microsoft Team named 'Frontiers in Transplantation 2023 September'. Guidelines to join and access materials will be emailed by the course coordinator in due course.



### MS TEAMS Login

The the course will be live streamed on Microsoft Teams. login details will be emailed closer to the date. All sessions will be recorded and made available to access after the event.



### Certificates of attendance

This course will be accredited for 13 external credits from the Royal College of Physicians. Upon completion of the course, the CPD certificate will be emailed. You may require submitting an online Feedback form, which will be shared after the course.



### Contact

Please contact Course Coordinator - Pavithra Sammani at [cnuteducation@kcl.ac.uk](mailto:cnuteducation@kcl.ac.uk) if you need any help or you have any queries.

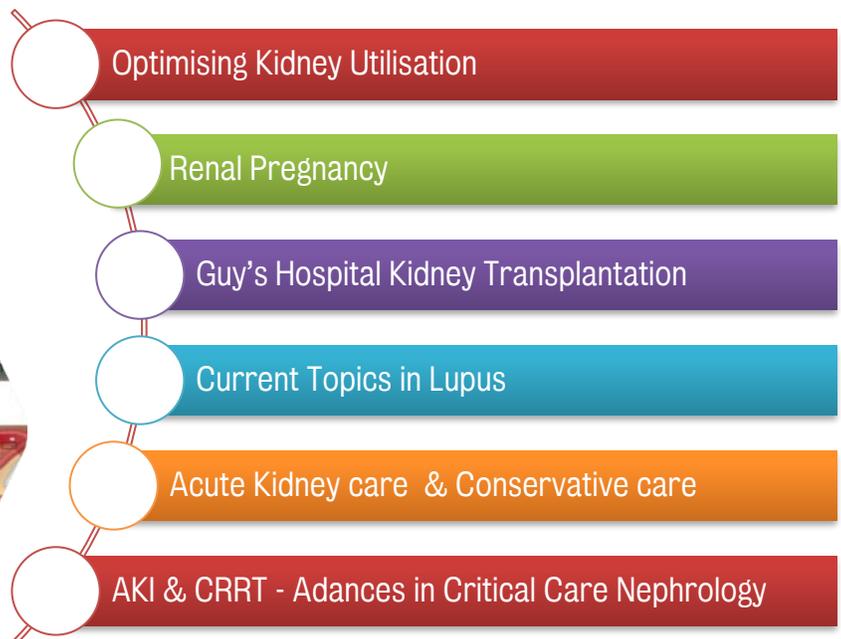
The Centre for Nephrology, Urology and Transplantation within the School of Immunology & Microbial Sciences is the home for academic scholarship in basic and translational research, teaching, education and clinical innovation in diseases of the kidneys and urinary tract and the psychosocial support of patients with these diseases. It brings together research leaders, academics, clinicians and students from several disciplines who have established a productive track record and a collaborative environment with which to advance knowledge and understanding within the field.

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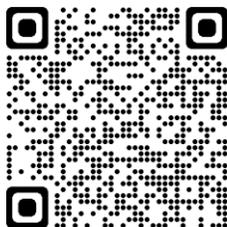
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