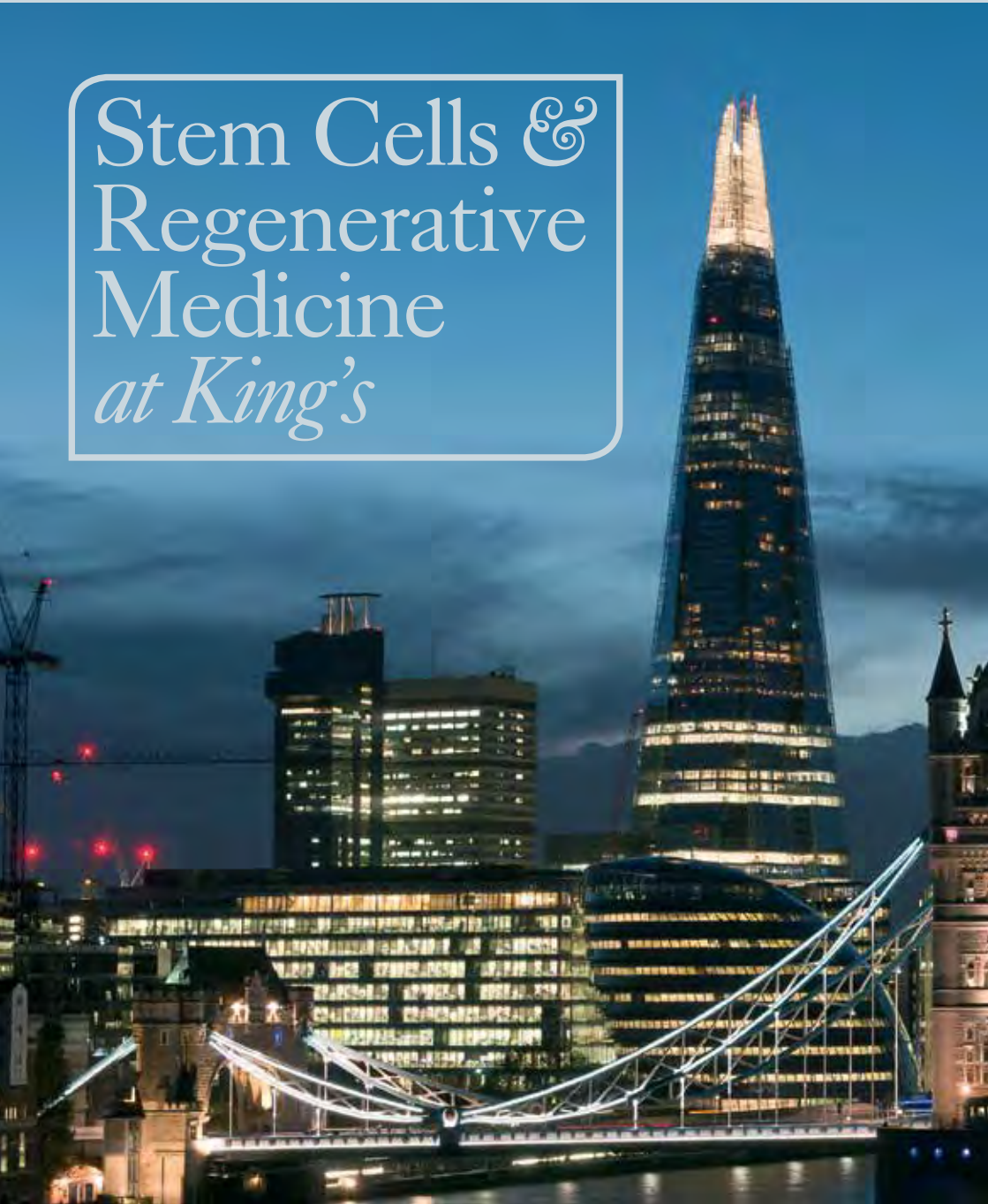
Centre for Stem Cells & Regenerative Medicine

KING'S College LONDON

Stem Cells & Regenerative Medicine *at King's*



COVER Night-time view of Guy's Tower and The Shard from the River Thames

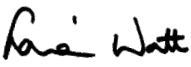
WELCOME

THE CENTRE FOR STEM CELLS & REGENERATIVE MEDICINE (CSCRM) AT KING'S COLLEGE LONDON is located on the Guy's Hospital Campus in central London. It acts as a nucleus for a vibrant research community that encompasses the NHS Foundation Trusts of King's Health Partners (KHP) Academic Health Sciences Centre. CSCRM researchers are particularly interested in how stem cells interact with their local environment, or niche. To facilitate collaborations within King's and with external partners, we have opened a 'Stem Cell Hotel' where researchers can access specialist equipment and technical support to study stem cell behaviour at single cell resolution. We also host an international seminar series and run the 'Stem Cells @ Lunch' seminar series to share ideas and unpublished data. Our researchers are committed to public engagement and take part in diverse outreach events.

This booklet lists many of the investigators within King's and KHP whose interests include stem cells and regenerative medicine. As you can see, our research portfolio is rich and diverse, ranging from health economics and research ethics, through studies of pluripotent and somatic stem cells, to clinical trials of autologous and allogeneic cell therapies. We benefit from interactions with scientists across London, including the Francis Crick Institute and Innovate UK's Cell Therapy Catapult, housed at Guy's Hospital.

I hope you will enjoy reading about what we have to offer at King's, and that you will be inspired to join us, whether by working here, initiating collaborations or simply attending our events.

With best wishes,



Fiona M. Watt
Centre Director

INFRASTRUCTURE & CORE FACILITIES AT KING'S

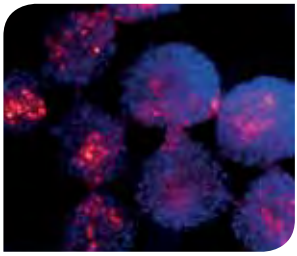
RESEARCHERS AT KING'S BENEFIT FROM SUPERB CORE facilities that underpin a diverse range of laboratory-based and clinical research activities. Our imaging facilities support the full spectrum of analysis, from super-resolution light microscopy of single cells to PET/CT scanners for clinical imaging. We host a Nikon Imaging Centre, one of only nine Centres worldwide, which is a core facility for light microscopy developed as a partnership between King's and Nikon Instruments UK. The Nikon Centre complements the Centre for Ultrastructural Imaging, which provides access to a full range of electron microscopy equipment.

Our research environment is enriched by expertise in generating human and mouse ES cells and iPS cells. We have equipment for single cell gene expression profiling, high content imaging, and protein analysis and production facilities. Work on model organisms, including mouse, Drosophila and zebrafish, is supported by well-equipped core facilities run by expert staff.

King's Health Partners houses two of the UK's 11 NIHR Biomedical Research Centres (BRC) and one of the four national Dementia Biomedical Research Units (BRU). Biomedical Research Centres and Units drive progress in translational research in biomedicine into NHS practice. BRC core facilities include flow cytometry, genomics and bioinformatics.

The university has state-of-the art GMP facilities for gene and cell therapy, and is one of the few centres in the UK engaged in cell-based clinical trials. This work is enhanced considerably by the NIHR/ Wellcome Trust Clinical Research Facility at King's College Hospital and by the Clinical Research Facility at Guy's Hospital. The latter benefits from Wellcome Trust, NIHR and Guy's and St Thomas' Charity support. A facility for phase-one drug research trials, including first-in-man studies, is run by Quintiles – the world's only fully integrated biopharmaceutical services company.

IMAGES (CLOCKWISE)
Human liver cells; bench work; CSCRM labs; discussing data



INTERNATIONAL SEMINAR SERIES

AT KING'S WE HOST A SERIES OF INTERNATIONAL SEMINARS by leading researchers in the stem cell community. Our inaugural speaker was *Kevin Eggan* (Harvard). Subsequent speakers have included *Irving Weissman* (Stanford), *Debbie Sweet* (Cell Stem Cell), *Rusty Gage* (Salk), *Konrad Hochedlinger* (Harvard), *Lee Rubin* (Harvard), *Marianne Bronner* (Caltech), *Jason Burdick* (UPenn), *Gregg Sando* (Cell Medica) and *Amy Wagers* (Harvard).

STEM CELLS @ LUNCH

THIS SERIES OF INFORMAL SEMINARS WAS SET UP BY Sam Woodhouse and Christine Weber. There are two seminars each month, each consisting of two 20 minute talks, with discussion. The emphasis is on sharing unpublished research and fostering collaborations.

Presentations by King's scientists are interspersed with outside speakers. We also discuss topics of general interest, such as science publishing, preparing applications for career development fellowships and communicating science to the public.

If you would like to suggest a speaker or topic, please email: **ea-fionawatt@kcl.ac.uk**

JOURNAL CLUB

THIS IS RUN BY DAVIDE DANOVI AND GENEROUS SPONSORSHIP ensures that there is always plenty of pizza. We meet every week to chat about exciting developments and recent publications in the field of stem cell research and beyond. We also screen recent conference presentations that are available for download.

PUBLIC ENGAGEMENT

OUR RESEARCHERS, WHETHER SENIOR INVESTIGATORS, POSTDOCS, PhD students or research assistants, enjoy, and are good at, explaining their research to the public. Opportunities for public engagement include local science festivals, writing blogs, presentations to patient groups, school children and other members of the public, and working with the staff of the Science Gallery at King's.

VIEW FROM GUY'S TOWER

THE COLONNADE, GUY'S CAMPUS

DAVID TETT


Stem Cell Hotel

QUALIFICATIONS
BSc (Hons) (University of Karachi, 1985); MSc (University of Karachi, 1986); PhD (University of Dundee, 1991)

JOB TITLE
Head of Stem Cell and Prostate Cancer Group

AWARDS, PRIZES & OTHER RECOGNITION
UK Committee of Vice Chancellors and Principals Overseas Research Scholar Award and University of Dundee Post-Graduate Scholarship (1987–90); ESPENAjinomoto Research Fellowship (1990–91); Wellcome Trust Research Fellowship (2000–4); PCRC Senior Research Fellowship (2005–present)

Dr Aamir Ahmed

Research interests

I am interested in discovering how cells respond to their environment, particularly to various signals (proteins and other molecules) that regulate cell division, fate and how 'controlled' cell proliferation becomes 'uncontrolled' and malignant. I am interested, particularly, in the Wnt signalling network, a critical signalling pathway during development and in disease. The focus of research in my laboratory is the role Wnt signalling plays in prostate stem cells and prostate cancer. We are investigating how the cell electrical activity may regulate this pathway and how this property could be harnessed to develop anti-cancer therapies. A wide range of molecular biological, biochemical, histochemical, live cell imaging and high throughput (genomic, proteomic, electrophysiological and tissue imaging) techniques are used to address fundamental questions regarding Wnt signalling and to translate this knowledge into better therapies and quantitative biomarkers of cancer.

Publications

- Arya M, Thrasivoulou C, Henrique R, Millar M, Hamblin R, Davda R, Aare K, Masters JR, Thomson C, Muneer A, Patel HR and **Ahmed A**. Targets of Wnt/ß-catenin transcription in penile carcinoma. PLoS One. 2015;10:e0124395.
- Thrasivoulou C, Millar M, **Ahmed A**. Activation of intracellular calcium by multiple Wnt ligands and translocation of ß-catenin into the nucleus: a convergent model of Wnt/Ca2+ and Wnt/ß-catenin pathways. J Biol Chem. 2013;288:35651-35659.
- Symes AJ, Eilertsen M, Millar M, Nariculam J, Freeman A, Notara M, Feneley MR, Patel HR, Masters JR and **Ahmed A.** Quantitative analysis of BTF3, HINT1, NDRG1 and ODC1 protein over-expression in human prostate cancer tissue. PLoS One. 2013;8:e84295.

QUALIFICATIONS
MD; PhD
JOB TITLE
RD Lawrence Professor of Diabetic Medicine
Head of Diabetes & Nutritional Sciences Division
AWARDS, PRIZES & OTHER RECOGNITION
RD Lawrence Lecture (1994); Arnold Bloom Lecture (2008); UN/UNESCO Helmutt Mehnert Lecture, International Diabetes Federation (2009); Banting Memorial Lecture (2013)

Professor Stephanie Amiel

Research interests

My research interests include hypoglycemia in diabetes, metabolic neuroimaging, brain insulin sensitivity/resistance, and central responses to eating. My work on the aetiopathogenesis of hypoglycaemia unawareness in Type 1 diabetes is currently focused on pharmacological manipulation of cognitive function; investigation of new technologies in hypoglycaemia avoidance during insulin therapy; and the use of neuroimaging to investigate abnormalities in cortical function and counterregulation to hypoglycaemia. The techniques developed to investigate regional brain activation and metabolism in hypoglycaemia are now being applied to the wider issues of brain metabolism and function (including glucose sensing) in other disease states. Working with colleagues in Liver Transplantation and Drs Huang and Zhao, I provide a human islet isolation facility to support an active clinical islet transplant programme for patients with Type 1 diabetes and intractable hypoglycaemia. The programme is also active in research aimed at developing islet surrogates from stem cells and islet cells from exocrine pancreas.

Publications

- Zhao M, **Amiel SA**, Christie MR, Rela M, Heaton N, Huang GC. Insulin-producing cells derived from human pancreatic non-endocrine cell cultures reverse streptozotocin-induced hyperglycaemia in mice. Diabetologia. 2005;48(10):2051-61.
- Crosby-Nwaobi RR, Sivaprasad S, **Amiel S**, Forbes A. The relationship between diabetic retinopathy and cognitive impairment. Diabetes Care. 2013;36(10):3177-86.
- Choudhary, P, Huang, GC, **Amiel, S** & 20 others. Attainment of metabolic goals in the integrated UK islet transplant program with locally isolated and transported preparations. Am J Transpl. 2013;13(12)3236-43.

QUALIFICATIONS
BSc (Hons) (Queen Mary University of London, 2001); PhD (National Institute for Medical Research/University College London, 2007)

JOB TITLE
Lecturer in Stem Cell Biology

AWARDS, PRIZES & OTHER RECOGNITION
European Society for Paediatric Endocrinology Henning Andersen Prize (shared) (2010); UCL Bogue Research Fellowship (2011); The Endocrine Society Mara E. Lieberman Memorial Award (2013); Society for Endocrinology Young Endocrinologists' Basic Science Prize (2014)

Dr Cynthia Lilian Andoniadou

Research interests

My research aims to understand the basic biology controlling the regulation of the pituitary stem cell compartment. The pituitary is a central regulator of physiological processes. We have shown that stem cells of this organ are capable of generating new hormone-producing cells throughout life and when deregulated can lead to disease such as hypopituitarism and tumours. The mechanisms that control the stem cell pool and organ homeostasis are poorly understood. We are studying the signals regulating these processes in mouse with the ultimate goal of safer and better approaches for the treatment of human conditions.

Publications

- **Andoniadou CL**, Matsushima D, Mousavy Gharavy SN, Signore M, Mackintosh AI, Schaeffer M, Gaston-Massuet C, Mollard P, Jacques TS, Le Tissier P, Dattani MT, Pevny LH and Martinez-Barbera JP. Sox2+ stem/progenitor cells in the adult mouse pituitary support organ homeostasis and have tumor-inducing potential. Cell Stem Cell. 2013 Oct;13(4):433-45.
- **Andoniadou CL**, Gaston-Massuet C, Reddy R, Schneider R, Blasco M, LeTissier P, Jacques TS, Dattani MT, Pevny L and Martinez-Barbera JP. Identification of novel developmental networks in adamantinomatous craniopharyngioma through gene profiling studies. Acta Neuropathol. 2012;124(2):259-71.
- Gaston-Massuet C*, **Andoniadou CL***, Signore M, Jayakody S, Charolidi N, Kyeyune R, Jacques TS, Taketo M, LeTissier P, Dattani M and Martinez-Barbera JP. *Equal contribution. Increased Wnt signalling in pituitary progenitor/stem cells gives rise to pituitary tumors in mice and humans. P Natl Acad Sci USA. 2011;108(28):11482-7.

QUALIFICATIONS
PhD
JOB TITLE
Reader in Molecular Genetics

Dr Michael Antoniou

Research interests

My interests are characterisation of tissue-specific locus control regions (LCRs) and ubiquitous chromatin opening elements (UCOEs) that can bring about long-range remodelling of chromatin and their use in gene therapy especially lentiviral vectors, generation of animal models of human disease and other biotechnology applications. Principle focus is on exploiting UCOEs, which have provided unprecedented stability and cell-to-cell reproducibility of expression within adult, embryonic and induced pluripotent stem cells and their differentiated progeny.

Publications

- Dighe N, Khoury M, Mattar C, Chong M, Choolani M, Chen J, **Antoniou MN** and Chan JK. Long-Term Reproducible Expression in Human Fetal Liver Hematopoietic Stem Cells with a UCOE-Based Lentiviral Vector. PLoS ONE. 2014;9(8):e104805.
- **Antoniou MN**, Skipper KA and Anakok O. Optimizing retroviral gene expression for effective therapies. Hum Gene Ther. 2013;24:363-374.
- Pfaff N, Lachmann N, Ackermann M, Kohlscheen S, Brendel C, Maetzig T, Niemann H, **Antoniou MN**, Grez M, Schambach A, Cantz T, Moritz T. A ubiquitous chromatin opening element (UCOE) prevents transgene silencing in pluripotent stem cells and their differentiated progeny. Stem Cells. 2013; 31:488-99.

QUALIFICATIONS
PhD
JOB TITLE
Senior Lecturer
AWARDS, PRIZES & OTHER RECOGNITION
Associate Editor Immunology, Microbiology & Virology: Experimental Biology & Medicine; Invited discussant 'Forum Stem Cell Therapy: Hype or Hope?' Workshop Lugano 2014

Dr Linda Barber

Research interests

My research interests are the study of immune dysfunction in leukaemia and recovery of the immune system after allogeneic haematopoietic stem cell transplantation. Immune signatures indicative of beneficial and detrimental clinical courses are identified by comprehensive phenotypic and functional studies of immunity in patients. The goal is improved monitoring to facilitate rapid and tailored treatment regimens and to develop novel specific immunotherapeutic strategies.

Publications

- Krishnamurthy P, VT Potter, **LD Barber**, AG Kulasekararaj, ZY Lim, RM Pearce, H de Lavallade, M Kenyon, RM Ireland, JCW Marsh, S Devereux, A Pagliuca, GJ Mufti. Outcome of donor lymphocyte infusions post-T-cell depleted allogeneic haematopoietic stem cell transplantation for acute myeloid leukaemia and myelodysplastic syndromes. Biol Blood Marrow Transplant. 2013;19:562-8.
- Matthews K, Z Lim, L Pearce, A Pagliuca, JA Madrigal, GJ Mufti, and **LD Barber**. Rapid recovery of lymphocyte subsets is not associated with protection from relapse of myelodysplastic syndromes and acute myeloid leukaemia after haematopoietic stem cell transplantation using a reduced intensity conditioning regimen and alemtuzumab. British J Haematology. 2010;149:879-89.
- Matthews K, Z Lim, B Afzali, L Pearce, A Abdallah, S Kordasti, A Pagliuca, G Lombardi, JA Madrigal, GJ Mufti, and **LD Barber**. Imbalance of effector and regulatory CD4 T cells is associated with graft-versus-host disease after hematopoietic stem cell transplantation using a reduced intensity conditioning regimen and alemtuzumab. Haematologica. 2009;94:956-966.

QUALIFICATIONS
BSc (Hons) (1990); MSc (1992); PhD (1996)
JOB TITLE
Reader in Developmental and Stem Cell Biology
AWARDS, PRIZES & OTHER RECOGNITION
Cambridge Overseas Trust Award (1992); Wellcome Trust International Prize Travelling Fellowship (2000)

Dr M Albert Basson

Research interests

My group is interested in the mechanisms that maintain cell signalling and gene expression at physiological levels during embryonic and postnatal development and within adult stem cells. We have uncovered key mechanisms that regulate FGF signalling during development and recent work in collaboration with the Brack laboratory at MGH (Boston) have implicated deregulated FGF2 expression in the adult muscle stem cell niche in muscle stem cell decline during ageing. Current work is focused on elucidating the role(s) and mechanism of action of chromatin remodelling factors of the CHD family in neural development, stem cell function and autism. In addition, we are interested in understanding the interaction between genes implicated in autism and non-genetic (environmental and epigenetic) factors. *In vivo* mouse models, in vitro embryonic stem cell systems and genomic and biochemical approaches are employed. In the future, iPS cells generated from patients with autism will be particularly useful in exploring gene-environment interactions in the aetiology of autism.

Publications

- Jones, K.M., Saric, N., Russell, J.P., Andoniadou, C.L., Scambler, P.J. & **Basson, M.A**. CHD7 maintains neural stem cell quiescence and prevents premature stem cell depletion in the adult hippocampus. Stem Cells. 2015;33:196-210.
- Yu, T., Meiners, L.C., Danielsen, K., Wong, T.Y., Bowler, T., Reinberg, D., Scambler, P.J., van Ravenswaaij, C.M.A. & **Basson, M.A**. Deregulated FGF and homeotic gene expression underlies cerebellar vermis hypoplasia in CHARGE syndrome. eLife. 2013;2:e01305.
- Chakkalakal, J., Jones, K., **Basson, M.A.** & Brack, A.S. The aged niche disrupts muscle stem cell quiescence. Nature. 2012;490:355-360.

QUALIFICATIONS
BA; MSc; PhD
JOB TITLE
Professor of Regenerative Medicine & Neuroplasticity and MRC Senior Non-Clinical Fellow
AWARDS, PRIZES & OTHER RECOGNITION
MRC Career Development Award (2003); Schellenberg Prize for Research in Paraplegia (2008); International Spinal Research Trust Robson Award (2008); MRC Senior Non-Clinical Fellowship (2011)

Professor Elizabeth Bradbury

Research interests

My major research interests are in understanding processes of injury and repair and developing therapies to restore function following central nervous system trauma, with a particular interest in glial scarring, extracellular matrix modification and neuroplasticity after spinal cord injury. Current projects include a gene therapy approach to target molecules in injury scar tissue that block nerve repair and regeneration; neurorehabilitative techniques to restore upper limb and hand function following spinal cord injury; proteomics and systems wide approaches to identify novel targets and biomarkers for spinal injury; real-time imaging of synaptogenesis and connectivity; and transgenic methods to understand spontaneous repair and remyelination. We have a wide network of collaborators ranging from viral vector, genetic engineering and organic chemistry labs to clinicians conducting clinical trials in spinal injured patients, making our research at the forefront of translational regenerative medicine.

Publications

- Ramer LM, Ramer MS, **Bradbury EJ**. Restoring function after spinal cord injury: towards clinical translation of experimental strategies. Lancet Neurol. 2014;13:1241-56.
- Bartus K, James ND, Didangelos A, Bosch KD, Verhaagen J, Yanez-Munoz RJ, Rogers JH, Schneider BL, Muir EM, **Bradbury EJ**. Largescale chondroitin sulfate proteoglycan digestion with chondroitinase gene therapy leads to reduced pathology and modulates macrophage phenotype following spinal cord contusion injury. J Neurosci. 2014;34:4822-36.
- **Bradbury EJ**, Moon LD, Popat RJ, King VR, Bennett GS, Patel PN, Fawcett JW, McMahon SB. Chondroitinase ABC promotes functional recovery after spinal cord injury. Nature. 2002;416:636-40.

DAVID TETT

QUALIFICATIONS
PhD
JOB TITLE
Professor of Development Neurophysiology
AWARDS, PRIZES & OTHER RECOGNITION
Medical Research Council scholarship (1995); Smart award in biological sciences, Gonville and Caius College, Cambridge (1995)

Professor Juan Burrone

Research interests

My research interests are in understanding how neurons wire up to form a functional network in the brain. My lab focuses on three aspects of neuronal and circuit function: synaptic transmission and integration; synapse formation and maturation; and homeostatic plasticity of synapses.

Publications

- Andreae, L.C. & **Burrone J**. Spontaneous neurotransmitter release shapes dendritic arbors via long-range activation of NMDA receptors. Cell Rep. 2015;pii:S2211-1247.
- Andreae, L., Ben Fredj, N. & **Burrone, J**. Independent Vesicle Pools Underlie Different Modes of Release during Neuronal Development. Journal of Neuroscience. 2012;32:1867–74
- Kay, L., Humphreys, L., Eickholt, B. J. & **Burrone, J**. Neuronal activity drives matching of pre- and postsynaptic function during synapse maturation. Nature Neuroscience. 2011;14:688-90

QUALIFICATIONS
BSc (University of Sheffield, 1986); PhD (University of Bristol, 1990)
JOB TITLE
Professor of Experimental Neurobiology
AWARDS, PRIZES & OTHER RECOGNITION
Secretary, European Study Group Lysosomal Disorders (2009–present); Organiser of 13th International Congress on Neuronal Ceroid Lipofuscinoses, London (2012); Member of the Scientific Organising Committee of the International Congress on Neuronal Ceroid Lipofuscinosis in Cordoba (Argentina) (2014)

Professor Jonathan D Cooper

Research interests

My lab leads the Pediatric Storage Disorders Laboratory (PSDL) at King's College London. The PSDL is the leading international centre for studying the pathology of the Neuronal Ceroid Lipofuscinoses (NCLs, or Batten disease). The lab is investigating the underlying disease mechanisms and testing experimental therapies for these fatal inherited neurodegenerative disorders of childhood. Approaches include enzyme replacement therapy, neural stem cell transplants, gene therapy and small molecule treatments. Work from the lab has lead to several Phase I clinical trials, including the first ever use of human neural stem cells in a human neurodegenerative condition. The PSDL was also the first to describe the key pathological features of the NCLs.

Publications

- **Cooper JD**, Tarczyluk MA, Nelvagal HR. Towards a new understanding of NCL pathogenesis. Biochim Biophys Acta. 2015;pii:S0925-4439.
- Macauley SL, Roberts MS, Wong AM, McSloy F, Reddy AS, **Cooper JD**, Sands MS. Synergistic effects of central nervous system-directed gene therapy and bone marrow transplantation in the murine model of infantile neuronal ceroid lipofuscinosis. Ann Neurol. 2012;71(6):797-804.
- Tamaki SJ, Jacobs Y, Dohse M, Capela A, **Cooper JD**, Reitsma M, He D, Tushinski R, Belichenko PV, Salehi A, Mobley W, Gage FH, Huhn S, Tsukamoto AS, Weissman IL, Uchida N. Neuroprotection of host cells by human central nervous system stem cells in a mouse model of infantile neuronal ceroid lipofuscinosis. Cell Stem Cell. 2009;5(3):310-9.

QUALIFICATIONS
MD (Universita' degli studi di Milano, 2000); PhD (European Institute of Oncology, Milan/Open University, 2004)
JOB TITLE
Director, HipSci Cell Phenotyping Programme
AWARDS, PRIZES & OTHER RECOGNITION
FIRC fellowship recipient (2002); EMBO Long term fellowship recipient (2005); Business Fellow for the London Technology Network (2009)

Dr Davide Danovi

Research interests

I am passionate about the biology of stem cells and their use as screening beds for high content imaging tools to model diseases and discover therapies. I had the privilege to experience research in this domain in both academia and biotech. I believe the synergy between the academic and commercial world can effectively bring answers to important questions and solutions to unmet medical needs. Our group works within the framework of the Human Induced Pluripotent Stem Cells Initiative (HipSci) project, funded by the Wellcome Trust and MRC. We study how intrinsic and extrinsic signals impact on human cells from healthy individuals and patients and provide a dedicated laboratory space for collaborative cell phenotyping.

Publications

- Viswanathan P, Gaskell T, Moens N, Culley OJ, Hansen D, Gervasio MK, Yeap YJ, **Danovi D**. Human pluripotent stem cells on artificial microenvironments: a high content perspective. Front Pharmacol. 2014;5:150.
- **Danovi D**, Folarin A, Gogolok S, Ender C, Elbatsh AM, Engström PG, Stricker SH, Gagrica S, Georgian A, Yu D, U KP, Harvey KJ, Ferretti P, Paddison PJ, Preston JE, Abbott NJ, Bertone P, Smith A, Pollard SM. A high-content small molecule screen identifies sensitivity of glioblastoma stem cells to inhibition of polo-like kinase 1. PLoS One. 2013;8(10):e77053.
- **Danovi D**, Folarin AA, Baranowski B, Pollard SM. High content screening of defined chemical libraries using normal and glioma-derived neural stem cell lines. Methods Enzymol. 2012;506:311-29.

QUALIFICATIONS
MD (Padua University Medical School); PhD (Padua University Medical School)

JOB TITLE
Professor of Regenerative and Haematological Medicine, KHP Lead for Cellular Therapies

Professor Francesco Dazzi

Research interests

My main interest has been the biology and clinical applications of cellular therapies in stem cell transplantation. I pioneered a large immunotherapy programme for leukaemia patients and used animal models to investigate outstanding clinical problems. I have described and characterised the immunosuppressive effects of mesenchymal stromal cells (MSC) thereby identifying a new mechanism of immune tolerance with distinctive tissue repair activity (the original paper received 1,200 citations). My current research programme is aimed at understanding the molecular basis of MSC anti-inflammatory properties and their interaction with myeloid cells. In parallel, after successfully testing MSC in pre-clinical models, we are now conducting UK wide clinical studies for their use in in graft-versus-host disease and autoimmune disorders. The GMP-grade MSC preparations manufactured under my supervision at Imperial College and King's College have been made available and more than 100 patients have been treated so far with exciting results.

Publications

- Raffaghello L, **Dazzi F**. Classification and biology of tumour associated stromal cells. Immuno Lett. 2015 [Epub ahead of print].
- Fibbe WE, **Dazzi F**, LeBlanc K. MSCs: science and trials. Nat Med. 2013;19(7):812-3.
- Lymperi S, Ersek A, Ferraro F, **Dazzi F**, Horwood NJ. Inhibition of osteoclast function reduces hematopoietic stem cell numbers in vivo. Blood. 2011;117(5):1540-9.

QUALIFICATIONS
MBBS (1986), MD (1990)
JOB TITLE
Director King's Cell Therapy Unit, NIHR/ Wellcome Clinical Research Facility, Cell Therapy Unit; Head, Hepatocyte Biology and Transplantation, Institute of Liver Studies, King's College Hospital; Director Paediatric Liver GI and Nutrition Centre
AWARDS, PRIZES & OTHER RECOGNITION
President Cell Transplant Society (2013 – present); Clinical Director Child Health; Joint CAG lead Child Health King's Health Partners; Academic Excellence Award (2013), British Association of Physicians of Indian Origin

Professor Anil Dhawan

Research interests

I established the first human hepatocyte transplantation programme in the UK. My laboratory has been active in translating human hepatocyte research like use of cryopreserved cells for clinical transplantation. Our latest success has been in-house development of hepatocyte embedded in alginate beads and use for the treatment of children with acute liver failure. Our current research is on the use of co culture of MSC and human hepatocytes for clinical transplantation. Mechanistic aspects of human hepatocytes biology as related to clinical transplantation and use of MSC and non-parenchymal cells has been our recent interest. Several children with metabolic liver disease and acute liver failure has been the beneficiary of our research in the last 10 years.

Publications

- Filippi C, **Dhawan A**. Current status of human hepatocyte transplantation and its potential for Wilson Disease. Ann N Y Acad.Sci. 2014;1315(1): 50-5.
- Hughs RD, Mitry RR, **Dhawan A**. Current status of hepatocyte transplantation. Transplantation. 2012;93(4):342-7.
- Puppi J, Strom SC, Hughes RD, Bansal S, Castell JV, Dagher I, Ellis EC, Nowak G, Ericzon BG, Fox IJ, Gómez-Lechón MJ, Guha C, Gupta S, Mitry RR, Ohashi K, Ott M, Reid LM, Roy-Chowdhury J, Sokal E, Weber A, **Dhawan A**. Improving the Techniques for Human Hepatocyte Transplantation: Report from a Consensus Meeting in London. Cell Transplant. 2012;21(1):1-10.

DAVID TETT

QUALIFICATIONS
PhD (University College London)
JOB TITLE
Head of Division, Tissue Engineering & Biophotonics
AWARDS, PRIZES & OTHER RECOGNITION
Italian Civil Honour *'Cavaliere dell'Ordine della Stella d'Italia'* for promotion of national prestige abroad (2012); appointed Guest Professor at Zhejiang University, China (2015); President (& co-chair) World Biomaterials Congress, UK (2020)

Professor Lucy (Luciana) Di Silvio

Research interests

I use biological concepts to design 3D models to mimic cell niches for hard and soft tissues. I am particularly interested in biology in cellular scaffolds, for clinical applications. Research within my group focuses largely on musculo-skeletal tissues for dental, craniofacial and orthopaedic applications. Current projects are exploring vascularization of grafts and their integration with host tissue in critical size defects, and osteochondral defects. Our 'concepts to clinic' approach is achieved by bringing together cell, material and biophotonic scientists and clinicians, thus maximising expertise for the development and advancement of stem cell based tissue regeneration and reconstruction. The core research strategy of my group aims to consolidate the key elements for translating tissue engineered systems into clinical practice.

Publications

- Buranawat, B., **Di Silvio, L.**, Deb, S., Nannmark, U., Sennerby, L., Palmer, R.M. Evaluation of a b-calcium metaphosphate bone graft containing bone morphogenetic protein-7 in rabbit maxillary defects. Journal of Periodontology. 2014;85:298-307.
- Egbuniwe, O, Grant, AD, Renton, T & **Di-Silvio, L.** Phenotype-Independent Effects of Retroviral Transduction in Human Dental Pulp Stem Cells Macromolecular Bioscience. 2013;13:851-59.
- Borzo Gharibi; Giuseppe Cama; Marco Capurro; Ian Thompson; Sanjukta Deb; **Lucy Di-Silvio**; Francis John Hughes. Gene expression responses to mechanical stimulation of mesenchymal stem cells seeded on calcium phosphate cement. Tissue Engineering part A. 2013;13:2426-38.

QUALIFICATIONS
BS (University of Central Florida, 2000); PhD (University of Iowa, 2006)
JOB TITLE
London Law Trust Medal Fellow
AWARDS, PRIZES & OTHER RECOGNITION
London Law Trust Medal Fellow (2013)

Dr Ryan Driskell

Research interests

My research focus is on understanding tissue growth and repair with a specific focus on a specialised cell type called fibroblasts. These cells synthesise the structural scaffold of tissue called the extra-cellular matrix (ECM). My lab uses skin as an experimental platform to study how these specialised cells influence the construction and repair of an organ. The basic discoveries from my lab have broad implications for diseases such as scarring, fibrosis, and cancer.

Publications

- **Driskell RR**, Lichtenberger BM, Hoste E, Kretzschmar K, Simons BD, Charalambous M, Ferron SR, Herault Y, Pavlovic G, Ferguson-Smith AC, Watt FM. Distinct fibroblast lineages determine dermal architecture in skin development and repair. Nature. 2013;504(7479):277-81.
- **Driskell RR**, Juneja VR, Connelly JT, Kretzschmar K, Tan DW, Watt FM. Clonal growth of dermal papilla cells in hydrogels reveals intrinsic differences between Sox2-positive and -negative cells in vitro and in vivo. J Invest Dermatol. 2012;132(4):1084-93.
- **Driskell RR**, Giangreco A, Jensen KB, Mulder KW, Watt FM. Sox2-positive dermal papilla cells specify hair follicle type in mammalian epidermis. Development. 2009;136(16):2815-23.

NICOLA TREE

QUALIFICATIONS
BSc (2000); PhD (2004)
JOB TITLE
Reader in Physiology
AWARDS, PRIZES & OTHER RECOGNITION
Marie Curie Fellow; Scholarship for academic excellence, British Federation of Women Graduates (2003); 1st place Young Investigator Award, European College of Sports Sciences (2005)

Dr Georgina Ellison

Research interests

My research focuses on understanding the role of tissue-specific stem cells in the homeostasis and regeneration of striated (skeletal and cardiac) muscle. Projects investigate cell homeostasis and response following injury; development and optimisation of stem cell therapies for myocardial regeneration; the role of resident stem cells in adaptive response to physiological exercise stimuli; mechanisms that govern stem cell fate; and the effects of ageing and pathological status on stem cell biology.

Publications

- Smith AJ, Lewis FC, Aquila I, Waring CD, Nocera A, Agosti V, Nadal-Ginard B, Torella D, **Ellison GM**. Isolation and characterization of resident endogenous c-Kit(+) cardiac stem cells from the adult mouse and rat heart. Nat Protoc. 2014;9:1662-1681.
- Waring C, Vicinanza C, Papalambrou A, Smith AJ, Purushothaman S, Goldspink DF, Nadal-Ginard B, Torella D and **Ellison GM**. The adult heart responds to increased workload with physiologic hypertrophy, cardiac stem cell activation and new myocyte formation. European Heart Journal. 2014;35:2722-31.
- **Ellison GM** et al. Adult c-kit^{pos} Cardiac stem cells are necessary and sufficient for functional cardiac regeneration and repair. Cell. 2013;154:827-42.

QUALIFICATIONS
MA, MB, BS. PhD, FRCP
JOB TITLE
Honorary Consultant Neurologist
AWARDS, PRIZES & OTHER RECOGNITION
Wellcome Senior Fellowship in the Clinical Sciences

Dr Gerald Finnerty FRCP

Research interests

My interests include the role of experience-dependent plasticity in learning and disease; electrophysiology, confocal microscopy and functional magnetic resonance imaging to understand how the brain reorganises when challenged; application of this knowledge to develop treatments for acute neurological conditions such as stroke and chronic neurodegenerative diseases such as Alzheimer's disease. Part of my research concerns disease modelling with human iPS cells.

Publications

- Barnes SJ, Cheetham CE, Liu Y, Bennett SH, Albieri G, Jorstad AA, Knott GW, **Finnerty GT**. Delayed and temporally imprecise neurotransmission in reorganizing cortical microcircuits. J Neurosci. 2015;35:9024-37.
- Albieri G, Barnes SJ, Alonso B, Cheetham CE, Edwards CE, Lowe AS, Karunaratne H, Dear JP, Lee KC, **Finnerty GT**. Rapid bidirectional reorganization of cortical microcircuits. Cereb Cortex. 2014;pii:bhu098.
- Cheetham CE, Barnes SJ, Albieri G, Knott G & **Finnerty GT**. Pansynaptic Enlargement at adult cortical connections strengthened by experience. Cerebral Cortex. 2014;24:521-31.

QUALIFICATIONS
MD (Università Vita-Salute San Raffaele, Milan) Specialist in Paediatric Surgery (Università degli Studi di Milano); FRCS(Eng); FEBPS

JOB TITLE
Consultant Paediatric Urologist, Evelina London Children's Hospital; Honorary Senior Lecturer, King's College London

AWARDS, PRIZES & OTHER RECOGNITION
First Poster Prize, EUPSA-BAPS Joint Congress (2012); Best Poster of the Conference, 13th World Congress of the International Society for Diseases of the Esophagus (2012)

Dr Massimo Garriboli FEBPS

Research interests

My research interest is in amniotic fluid stem cells and decellularisation of organs for tissue engineering. In collaboration with Professor Paolo De Coppi (UCL) I have developed a decellularisation technique for obtaining acellular scaffolds from the bladder and other organs (intestine, oesophagus, lungs), in various species (rat, sheep, pig, human). In particular my main interest is focused on bladder replacement and I truly believe that bladder reconstruction can be obtained by using the 'composite cystoplasty'. I am a Co-PI on a MRC funded project which aims to develop a technique to augment the bladder using a vascularised de- epithelialised smooth muscle host tissue (eg colon) that is lined by autologous urothelium generated in cell culture.

Publications

- **Garriboli M**, Radford A, Southgate J. Regenerative Medicine in Urology. Eur J Pediatr Surg. 2014;24(3):227-36.
- Totonelli G, Maghsoudlou P, Georgiades F, **Garriboli M**, Koshy K, Turmaine M, Ashworth M, Sebire NJ, Pierro A, Eaton S, De Coppi P. Detergent enzymatic treatment for the development of a natural acellular matrix for oesophageal regeneration. Pediatr Surg Int. 2013;29(1):87-95.
- Totonelli G, Maghsoudlou P, **Garriboli M**, Riegler J, Orlando G, Burns AJ, Sebire NJ, Smith VV, Fishman JM, Ghionzoli M, Turmaine M, Birchall MA, Atala A, Soker S, Lythgoe MF, Seifalian A, Pierro A, Eaton S, De Coppi P. A rat decellularized small bowel scaffold that preserves villus-crypt architecture for intestinal regeneration. Biomaterials. 2012;33(12):3401-10.

WELLCOME LIBRARY

QUALIFICATIONS
PhD (Tulane University, 2005)
JOB TITLE
Wellcome Trust Research Career Development Fellow
AWARDS, PRIZES & OTHER RECOGNITION
Orthopaedic Research Society New Investigator Recognition Award (Finalist 2010); June Wilson Memorial Award (2012); Philip Leverhulme Prize (Engineering) (2013)

Dr Eileen Gentleman

Research interests

My research interests are in tissue engineering and regenerative medicine, predominantly for orthopaedic applications. Much of my work focuses on utilising biomaterial systems to direct mesenchymal stem cells to create functional osteochondral tissue in the laboratory. I am particularly interested in the osteochondral interface, the important transitional tissue that connects cartilage to bone, and the role it plays in normal joint function. My other Research interests include biomineralisation, materials-based characterisation of engineered tissues and the role of mechano-sensing in stem cell differentiation and tissue development. I have also worked extensively with biomaterials, including bioactive glasses, and am interested in the biological effects of surface energy and ion release on cell behaviour.

Publications

- Boonrungsiman S, **Gentleman E**, Carzaniga R, Evans ND, McComb DW, Porter A, Stevens MM. The Role of Intracellular Calcium Phosphate in Osteoblast-Mediated Bone Apatite Formation. Proceedings of the National Academy of Sciences USA. 2012;109(35):14170-5.
- **Gentleman E**, Fredholm YC, Jell G, O'Donnell MD, Lotfibakhshaiesch N, Hill RG, Stevens MM. The Effects of Strontium-Substituted Bioactive Glasses on Osteoblasts and Osteoclasts in vitro. Biomaterials. 2010;31(14):3949-56.
- **Gentleman E**, Swain RJ, Evans ND, Boonrungsiman S, Jell G, Ball MD, Shean, TAV, Oyen ML, Porter A, Stevens, MM. Comparative Materials Differences Revealed in Engineered Bone as a Function of Cell-Specific Differentiation. Nature Materials. 2009;8(9):763-70.

QUALIFICATIONS
BSc (University of Toronto, 1982); MSc (University of Toronto, 1984); PhD (University of Toronto, 1989)

JOB TITLE
Professor of Bone & Cartilage Cell Biology

AWARDS, PRIZES & OTHER RECOGNITION
Education Committee, American Society for Bone and Mineral Research (ASBMR) (2012–14)

Professor Agi Grigoriadis

Research interests

My research interests are in the mechanisms of bone and cartilage cell lineage commitment and activity during embryonic development as well as in adult bone/cartilage remodelling disorders and skeletal malignancies. We use mouse and human pluripotent stem cell approaches for the directed differentiation of stem cells to functional bone-forming osteoblasts, bone-resorbing osteoclasts and cartilage-forming chondrocytes, to better understand embryonic lineage specification and differentiation, and for providing suitable stem cell/precursor populations for regenerative and tissue engineering strategies. Transgenic and knockout mouse models are also being used to investigate Fos/AP-1 and FGFR signalling in bone tumour development and metastasis, and to study the role of osteoclasts in mammalian bone-remodelling disorders such as osteoporosis and osteopetrosis.

Publications

- Weekes D, Kashima TG, Zandueta C, Perurena N, Thomas DP, Sunters A, Vuillier C, Bozec A, El-Emir E, Miletich I, Patiño-Garcia A, Lecanda F, **Grigoriadis AE**. Regulation of osteosarcoma cell lung metastasis by the c-Fos/AP-1 target FGFR1. Oncogene. 2015 [Epub ahead of print].
- Craft AM, Ahmed N, Rockel JS, Baht GS, Alman BA, Kandel RA, **Grigoriadis AE**, Keller GM. Specification of chondrocytes and cartilage tissues from embryonic stem cells. Development. 2013;140:2597-2610.
- **Grigoriadis AE**, Kennedy M, Bozec A, Brunton F, Stenbeck G, Park I-H, Wagner EF, Keller GM. Directed differentiation of hematopoietic precursors and functional osteoclasts from human ES and iPS cells. Blood. 2010;115:2769-2776.

QUALIFICATIONS
PhD (Paris VI university, 2000)
JOB TITLE
Head of the Laboratory of Phagocyte Immunobiology
AWARDS, PRIZES & OTHER RECOGNITION
Jacques Monod Prize 1998; First class scientist at the National Centre for Scientific Research

Dr Pierre Guermonprez

Research interests

My research addresses the role of monocytes and dendritic cells in adaptive immune responses. We are trying to understand i) how phagocytes develop from haematopoietic stem cells at homeostasis and during inflammation, ii) what are the cellular pathways underlying the ability of dendritic cells to activate T lymphocytes. In addition, we are developing new methods to induce the differentiation of iPSCs into dendritic cells for both basic and translational purposes such as cancer immunotherapy. iPSCs offer a convenient platform for gene editing via the CRISPR/Cas9 technology. iPSCs DCs deficient in immunoregulatory genes such as PD-L1 represent an attractive source of antigen presenting cells for adoptive immunotherapy.

Publications

- Schreiber HA, Loschko J, Karssemeijer RA, Escolano A, Meredith MM, Mucida D, **Guermonprez P***, Nussenzweig MC*. Intestinal monocytes and macrophages are required for T cell polarization in response to Citrobacter rodentium. *equal contribution. J Exp Med. 2013;210(10):2025-39.
- **Guermonprez P** et al. Inflammatory Flt3l is essential to mobilize dendritic cells and for T cell responses during Plasmodium infection. Nat Med. 2013;19(6):730-8.
- Bougnères L, Helft J, Tiwari S, Vargas P, Chang BH, Chan L, Campisi L, Lauvau G, Hugues S, Kumar P, Kamphorst AO, Dumenil AM, Nussenzweig M, MacMicking JD, Amigorena S, **Guermonprez P**. A role for lipid bodies in the cross-presentation of phagocytosed antigens by MHC class I in dendritic cells. Immunity. 2009;31(2):232-44.

QUALIFICATIONS
BSc (Technion, Israel, 2000); MSc (Tel Aviv Uniiversity, 2002); PhD (LMU Munich, 2006)
JOB TITLE
Sir Henry Dale Research Fellow
AWARDS, PRIZES & OTHER RECOGNITION
Minerva Fellowship (Max-Planck-Society) for PhD students (2002); EMBO (European Molecular Biology Organization) Fellowship (2008); DFG (Deutsche Forschungsgemeinschaft) Fellowship (2008); Janelia Visitor Program grant, Howard Hughes Medical Institute, USA (2011); Siebel Scholar award (2012); Sir Henry Dale Fellowship (2014)

Dr Shukry J Habib

Research interests

Stem cells have the ability to make more stem cells (self-renew) and also to give rise to differentiated cells. We are interested in the external and internal cues that regulate mammalian stem cell division and cell fate choice. We aim to study and compare these cues during homeostasis, tissue regeneration and tumorigenesis. Our main focus lies on the role of Wnt signals in asymmetric cell division of embryonic and adult stem cells. To that end, we apply principles from organic chemistry, biochemistry, and stem cell biology in conjunction with advanced imaging techniques to further probe this biological phenomenon.

Publications

- **Habib SJ**, Chen BC, Tsai FC, Anastassiadis K, Meyer T, Betzig E, Nusse R. A localized Wnt signal orients asymmetric stem cell division in vitro. Science. 2013;339(6126):1445-8.
- **Habib SJ**, Waizenegger T, Niewienda A, Paschen SA, Neupert W, Rapaport D. The N-terminal domain of Tob55 has a receptor-like function in the biogenesis of mitochondrial beta-barrel proteins. J Cell Biol. 2007;176(1):77-88.
- **Habib SJ**, Waizenegger T, Lech M, Neupert W, Rapaport D. Assembly of the TOB complex of mitochondria. J Biol Chem. 2005;280(8):6434-40.

QUALIFICATIONS
PhD (University of Birmingham, 1993)
JOB TITLE
Professor of Human and Applied Physiology
Director, Centre of Human & Aerospace Physiological Sciences
AWARDS, PRIZES & OTHER RECOGNITION
Editor in Chief: Scandinavian Journal of Medicine & Science in Sports

Professor Stephen Harridge

Research interests

My research takes a multidisciplinary approach to studying human skeletal muscle function and plasticity, with a particular focus on ageing. This laboratory laboratory uses primary cell culture techniques to study the behaviour of human musclederived stem cells, including both myogenic (satellite cells) and non-myogenic cells (fibroblasts). This is coupled to research on the physiology of the human ageing process using both whole body and singlefibre muscle mechanics approaches. In addition my laboratory is involved in a number of projects with clinical colleagues studying conditions where muscle mass is lost and function is impaired. These include patients in critical care and subsequent intensive care acquired muscle weakness and patients with obesity hypoventilation syndrome.

Publications

- Agley CC, Rowlerson A, Velloso CP, Lazarus NR & **Harridge SDR**. Human skeletal muscle fibroblasts, but not myogenic cells, readily undergo adipogenic differentiation. Journal of Cell Science 2013;126(24):5610-25.
- Alsharidah M, Agley C, George T, Lazarus N, Velloso C & **Harridge SDR**. Primary human muscle precursor cells obtained from young and old donors produce similar proliferative, differentiation and senescent profiles in culture. Aging Cell. 2013;12(3):333-44.
- Puthucheary ZA, Rawal J, McPhail M, Connolly B, Ratnayake G, Chan P, Hopkinson N, Padhke R, Dew T, Sidhu PS, Velloso C, Seymour J, Agley CC, Selby A, Limb M, Edwards L, Smith K, Rowlerson A, Rennie M, Moxham J, **Harridge SDR***, Hart N* & Montgomery H*. *co-senior authors. Acute Skeletal Muscle Wasting in Critical Illness. Journal of the American Medical Association. 2013;310(15):1591-600

QUALIFICATIONS
MD (University of Antwerp); PhD (University of Antwerp and Mount Sinai School of Medicine)
JOB TITLE
Lecturer, Department of Infectious Diseases
AWARDS, PRIZES & OTHER RECOGNITION
Belgian American Educational Foundation Fellow (1999); Belgian Haematological Society Fellow (1999); Charles H. Revson Senior Fellow in Biomedical Sciences (2005–7)

Dr Els Henckaerts

Research interests

My research interest is in adeno-associated virus (AAV) biology with a focus on Rep-mediated site specific integration and virushost Interactions. I am also exploring the use of AAV for genome modification of stem cells.

Publications

- Musayev FN, Zarate-Perez F, Bardelli M, Bishop C, Saniev EF, Linden RM, **Henckaerts E**, Escalante CR. Structural Studies of AAV2 Rep68 Reveal a Partially Structured Linker and Compact Domain Conformation. Biochemistry. 2015;54(38):5907-19.
- Petri K, Gabriel R, Agundez L, Fronza R, Afzal S, Kaeppel C, Linden RM, **Henckaerts E**, Schmidt M. Presence of a trs-Like Motif Promotes Rep-Mediated Wild-Type Adeno-Associated Virus Type 2 Integration. J Virol. 2015;89(14):7428-32.
- Dutheil N, Smith SC, Agúndez L, Vincent-Mistiaen ZI, Escalante CR, Linden RM, **Henckaerts E**. Adeno-associated virus Rep represses the human integration site promoter by two pathways that are similar to those required for the regulation of the viral p5 promoter. J Virol. 2014;88:8227-41.

DAVID TETT

QUALIFICATIONS
MD (University of Belgrade, 1985); BSc (University of Belgrade, 1987); MSc (University of Belgrade, 1989); PhD (University of Tokyo, 1995)

JOB TITLE
Reader in Stem Cell Science

AWARDS, PRIZES & OTHER RECOGNITION
Editorial Board, Regenerative Medicine

Dr Dusko Ilic

Research interests

My research interest lies in hESC, iPSC, MSC, reproductive and regenerative medicine. Key objectives of my work are to raise the standard in derivation and culture of human stem cells making them acceptable for cell-based therapies, to understand the molecular mechanisms of diseases using stem cells, and to realise the potential of normal and specific mutation-carrying pluripotent stem cells in drug discovery.

Publications

- Petrova A, Cell A, Jacquet L, Dafou D, Crumrine D, Hupe M, Arno M, Hobbs C, Cvoro A, Karagiannins P, Devito L, Sun R, Adame LC, Vaughan R, McGrath JA, Mauro TM, **Ilic D**. 3D in vitro model of a functional epidermal permeability barrier from hESC and iPSC. Stem Cell Reports 2014;2(5):675-89.
- Jacquet L, Stephenson E, Collins R, Patel H, Trussler J, Al-Bedaery R, Renwick P, Ogilvie C, Vaughan R, **Ilic D**. Strategy for the creation of clinical grade hESC line banks that HLA-match a target population. EMBO Mol Med. 2013;5(1):10-7.
- Stephenson E, Jacquet L, Miere C, Wood V, Kadeva N, Cornwell G, Codognotto S, Dajani Y, Braude P, **Ilic D**. Derivation and propagation of human embryonic stem cell lines from frozen embryos in animal product-free environment. Nat Prot. 2012;7(7):1366-81.

QUALIFICATIONS
PhD
JOB TITLE
Research Fellow
AWARDS, PRIZES & OTHER RECOGNITION
American Heart Association Postdoctoral Fellowship (2013–14); British Heart Foundation Intermediate Basic Science Research Fellowship (2015–19)

Dr Thomas Iskratsch

Research interests

The cellular microenvironment, which is defined by both chemical and physical/mechanical parameters, guides cell migration, growth or differentiation during development to shape the heart and other organs. My research addresses fundamental mechanisms of how mechanical forces regulate cell behavior and in particular the formation and maintenance of the contractile myofibrils in heart cells during heart development or in cardiac disease. To answer these questions I use stem cell derived cardiomyocytes together with picoNewton (pN) strength force probing (micropillar arrays), micro printing, live cell (superresolution) fluorescent imaging, and specifically designed protein activity sensors (fluorescence quenching FRET).

Publications

- **Iskratsch, T.**, Yu, C. H., Mathur, A., Liu, S. M. et al. FHOD1 Is needed for directed forces and adhesion maturation during cell spreading and migration. 2013;27(5):545-59.
- **Iskratsch, T.**, Reijntjes, S., Dwyer, J., Toselli, P. et al. Two distinct phosphorylation events govern the function of muscle FHOD3. Cell Mol Life Sci. 2013;70(5):893-908.
- **Iskratsch, T.**, Lange, S., Dwyer, J., Kho, A. L. et al. Formin follows function: a muscle-specific isoform of FHOD3 is regulated by CK2 phosphorylation and promotes myofibril maintenance. J Cell Biol. 2010;191(6):1159-72.

QUALIFICATIONS
BSc (1979); PhD (1983)
JOB TITLE
Professor of Endocrine Biology
AWARDS, PRIZES & OTHER RECOGNITION
Chair, European Foundation for the Study of Diabetes; Diabetes UK RD Lawrence Lecture (1995); Dorothy Hodgkin lecture (2015)

Professor Peter Jones

Research interests

My research interests have been focused on the regulation of hormone secretion since obtaining my PhD studying peptide hormones in the central nervous system at the National Institute for Medical Research, London. I started working on beta-cell function in diabetes as a postdoctoral fellow at Queen Elizabeth College in 1984 and my main Research interests remains with the beta-cell. Current work is focused improving islet transplantation as a therapy for Type 1 diabetes by the generation of functional beta-cell substitutes, and by using mesenchymal stem cells to enhance graft survival and function. I am also interested in the regulation of the beta-cell mass during pregnancy and in G-protein coupled receptors as therapeutic targets for Type 2 diabetes. Experimental approaches range from in vitro molecular/cell biology of the beta-cell to animal models of diabetes and islet transplantation

Publications

- Clarkin CE, King AJ, Dhadda P, Chagastelles P, Nardi N, Wheeler-Jones CP, **Jones PM**. Activin receptor-like kinase 5 inhibition reverses impairment of endothelial cell viability by endogenous islet mesenchymal stromal cells. Stem Cells. 2013;31(3):547-59.
- Bowe JE, Chander A, Liu B, Persaud SJ, **Jones PM**. The permissive effects of glucose on receptor-operated potentiation of insulin secretion from mouse islets: a role for ERK1/2 activation and cytoskeletal remodelling. Diabetologia. 2013;56(4):783-91.
- Rackham CL, Chagastelles PC, Nardi NB, Hauge-Evans AC, **Jones PM**, King AJ. Co-transplantation of mesenchymal stem cells maintains islet organisation and morphology in mice. Diabetologia. 2011;54(5):1127-35.

QUALIFICATIONS
BSc (1995); PhD (2001)
JOB TITLE
Senior Lecturer in Pharmacology
AWARDS, PRIZES & OTHER RECOGNITION
Integrative Pharmacology Fellow Prize (British Pharmacology Society) (2009)

Dr Aileen King

Research interests

My research focuses on mouse models of diabetes. My particular interest is the improvement of islet transplantation outcome. Approaches I have used include encapsulation strategies, adjunctive stem cell therapies (co-transplantation with mesenchymal stem cells) and pharmacological strategies which may improve beta-cell and/or endothelial cell survival. We have transplanted islets into a variety of sites in diabetic mice including subcutaneously, intraperitoneally, under the kidney capsule and into the liver through the portal vein. Graft outcome is monitored by blood glucose measurements, serum insulin and immunohistochemistry analysis of the graft. Recent experiments using mesenchymal stem cells as an adjunctive therapy in islet transplantation have shown improvements in blood glucose homeostasis as well as increased revascularisation of the grafts. Our current research is focused on understanding some of the mechanisms behind this observation.

Publications

- Kerby A1, Jones ES, Jones PM, **King AJ**. Co-transplantation of islets with mesenchymal stem cells in microcapsules demonstrates graft outcome can be improved in an isolated-graft model of islet transplantation in mice. Cytotherapy. 2013;15(2):192-200.
- **King A**. The use of animal models in diabetes research. British Journal of Pharmacology. 2012;166(3):877-94.
- Rackham CL, Chagastelles PC, Nardi NB, Hauge-Evans AC, Jones PM, **King AJ**. Co-transplantation of mesenchymal stem cells maintains islet organisation and morphology in mice. Diabetologia. 2011;54(5):1127-35.

QUALIFICATIONS
PhD (University of Reading, 2000)
JOB TITLE
Lecturer, Developmental Genetics
AWARDS, PRIZES & OTHER RECOGNITION
BBSRC David Phillips Fellow (2007–12)

Dr Robert Knight

Research interests

Our focus is to identify the molecules and cellular events that drive tissue regeneration. By focusing on the interactions between inflammatory cells and muscle progenitor cells we aim to understand how these cells communicate to drive effective regeneration. We employ a variety of imaging approaches, including confocal and multiphoton microscopy, to quantify cell behaviour and to measure the effects of pharmacological manipulation of signalling pathway activity in zebrafish models of tissue injury and in cell culture. Current projects involve using FLIM to measure NF-kB pathway activity during macrophage responses to injury and to identify regulators of muscle stem cell migration during regeneration.

Publications

- Knappe S, Zammit P, **Knight R**. A population of Pax7-expressing muscle progenitor cells show differential responses to muscle injury dependent on developmental stage and injury extent. Front Aging Neurosci. 2015;7:161.
- Dyer C, Blanc E, Stanley R, **Knight RD**. Dissecting the role of Wnt signalling and its interactions with FGF signalling during midbrain neurogenesis. Neurogenesis. 2015; 2 (1)2 e1057313.
- Dyer C, Blanc E, Hanisch A, Roehl H, Otto G, Yu T, Basson A, **Knight R**. A bi-modal function of Wnt signalling directs a FGF activity gradient to spatially regulate neuronal differentiation in the midbrain. Development. 2014;141(1):63-72.

QUALIFICATIONS
Dr. rer. nat (University of Cologne, 2000)
JOB TITLE
Senior Lecturer
AWARDS, PRIZES & OTHER RECOGNITION
Boehringer Ingelheim Foundation Scholarship (1995); Human Frontier Science Program Fellowship (2001)

Dr Ivo Lieberam

Research interests

The aim of my current research program is to explore how pluripotent stem cell technology can be harnessed to understand the formation, function and dysfunction of neural circuits that control motor behaviour, and how stem cell-derived tissue can be used to restore motor function in humans. To this end, my group is developing:

1. Bio-chips that carry neuromuscular circuits assembled from stem cell-derived, defined cell populations, such as motor neurons, astrocytes and muscle. The aim of this project is to study normal neural development and degenerative disease processes in vitro.
2. A new type of implantable neural prosthesis capable of pacing skeletal muscle. The device will be composed of optogenetic stem cell-derived neural tissue, as well as an opto-electronic pacemaker. In the long-run, we intend to use this device to restore vital motor functions, such as breathing, in patients that have lost motor neurons as a result of spinal cord injury or motor neuron disease.

Publications

- Bryson J.B., Machado CB, Crossley M, Stevenson D, Bros-Facer V, Burrone J, Greensmith L, **Lieberam I**. Optical control of muscle function by transplantation of stem cell-derived motor neurons in mice. Science. 2014;344(6179):94-7.
- Machado CB, Kanning KC, Kreis P, Stevenson D, Crossley M, Nowak M, Iacovino M, Kyba M, Chambers D, Blanc E, **Lieberam I**. Reconstruction of phrenic neuron identity in embryonic stem cell-derived motor neurons. Development. 2014;141(4):784-94.
- Wichterle H, **Lieberam I**, Porter JA, Jessell TM. Directed differentiation of embryonic stem cells into motor neurons. Cell. 2002;110(3):385-97.

QUALIFICATIONS
AB (Columbia University, 1994); PhD (University of California Berkeley, 2003)
JOB TITLE
Reader in Signalling & Development
King's Innovation Fellow

Dr Karen Liu

Research interests

Our lab focuses on the development of the neural crest. Undifferentiated neural crest cells undergo epithelial-mesenchymal transformations (EMT), migrate from the neural tube, and populate distant destinations. These cells display incredible plasticity, giving rise to diverse tissues ranging from bone and cartilage to adipocytes and neurons. Our research makes use of multiple animal models, including frog, mouse, chick and humans. We also bring together biology and chemistry, designing new tools to study development and differentiation over time. Current projects include work on mammalian neural crest stem cells, migratory neural crest, contributions of the neural crest to head structures, and human craniofacial anomalies.

Publications

- Tabler JM, Barrell WB, Szabo-Rogers HL, Healy C, Yeung Y, Perdiguero EG, Schulz C, Yannakoudakis BZ, Mesbahi A, Wlodarczyk B, Geissmann F, Finnell RH, Wallingford JB, **Liu KJ**. Fuz mutant mice reveal shared mechanisms between ciliopathies and FGF-related syndromes. Dev Cell. 2013;25:623-635.
- **Liu KJ***, Arron JA*, Stankunas K, Crabtree, G, Longaker MT. *corresponding author. Chemical rescue of cleft palate and midline defects in conditional GSK-3b mice. Nature. 2007;446:79-82.
- Schulz C, Gomez Perdiguero E, Chorro L, Szabo-Rogers H, Cagnard N, Kierdorf K, Prinz M, Wu B, Jacobsen SE, Pollard JW, Frampton J, **Liu KJ**, Geissmann F. A lineage of myeloid cells independent of Myb and hematopoietic stem cells. Science. 2012;336:86-90.

QUALIFICATIONS
BSc (University of Rome, 1978); PhD (University of Rome, 1981)
JOB TITLE
Professor of Human Transplant Immunology

Professor Giovanna Lombardi

Research interests

My scientific interest is in the understanding of the mechanisms of graft rejection but at the same time improving our knowledge on the role of regulatory T cells (Tregs) in the maintenance of tolerance. The projects are focusing on different aspects of Treg biology from their heterogeneity to the role of the expression of innate receptors for their function. In recent years, in collaboration with other scientists and clinicians within KHP and other groups within the UK and abroad my laboratory has developed protocols for the use of Tregs in the clinic. I am leading two clinical trials in which expanded Tregs are injected into patients that have received either renal or liver transplants to induce transplantation tolerance. My role within the Immunology Hub is to understand whether stem cells transplanted in vivo are immunogenic and if they are whether by using Treg therapy tolerance can be achieved.

Publications

- Xiao F, Ma L, Zhao M, Huang G, Mirenda V, Dorling A, Lechler R, **Lombardi G**. *Ex vivo* expanded human regulatory T cells delay islet allograft rejection via inhibiting islet-derived monocyte chemoattractant protein-1 production in CD34^{+} stem cells-reconstituted NOD-*scid IL2r*γ^{null} mice. Plos ONE. 2014;9(3):e90387.
- Sagoo P, Ali N, Garg G, Nestle FO, Lechler RI, **Lombardi G**. Human Tregs with alloantigen-specificity are more potent inhibitors of alloimmune damage to human skin grafts than polyclonal Tregs. Sci Transl Med. 2011;(3):83:83ra42.
- Tsang JY, Tanriver Y, Jiang S, Xue SA, Ratnasothy K, Chen D, Stauss HJ, Bucy RP, **Lombardi G**, Lechler R. Conferring indirect allospecificity on CD4+CD25+ Tregs by TCR gene transfer favors transplantation tolerance in mice. J Clin Invest. 2008;118(11):3619-28.

QUALIFICATIONS
MD (Guy's Hospital, 1985)
JOB TITLE
Professor of Molecular Dermatology
AWARDS, PRIZES & OTHER RECOGNITION
President, European Society for Dermatological Research; Editorial Board member for nine international journals, including section editor of the Journal of Investigative Dermatology

Professor John McGrath

Research interests

My research interest lies in discovering what causes inherited skin diseases, how these abnormalities disrupt skin structure and function, and what we – as clinician-scientists – can do to develop new clinical and therapeutic benefits for people with genetic skin diseases. Key objectives are to improve and expand prenatal testing options for families at risk for inherited skin diseases and to advance new therapies for affected individuals, which include cell-based, gene, protein and drug treatments.

Publications

- Michael M, Begum R, Fong K, Pourreyrone C, South AP, **McGrath JA**, Parsons M. BPAG1-e restricts keratinocyte migration through control of adhesion stability. Journal of Investigative Dermatology. 2014;134:773-782.
- Hsu, C-K., Wang, S-P., Lee, J. Y-Y. & **McGrath, JA**. Treatment of hereditary Epidermolysis bullosa: updates and future prospects. Am J Clin Dermatol. 2014;15(1):1-6.
- Liu L, Mellerio JE, Martinez AE, McMillan JR, Aristodemou S, Parsons M, **McGrath JA**. Mutations in EXPH5 result in autosomal recessive inherited skin fragility. British Journal of Dermatology. 2014;170(1):1196-9.

Dr John Maher FRCPath

QUALIFICATIONS
BA Mod (Biochem, 1984); MB BCh BAO (1987); MRCPI (1989); MRCP(UK) (1990); PhD (1995); MSc (1998); MRCPath (Immunol; by examination) (2003); FRCPath (2008)

JOB TITLE
Hon. Consultant and Senior Lecturer in Immunology, KCL and King's College London NHS Foundation Trust; Consultant in Immunology, Barnet Hospital and Royal Free NHS Foundation Trust

AWARDS, PRIZES & OTHER RECOGNITION
Deputy Chair, Scientific Advisory Board, Breast Cancer Now Chair-elect and Member, Scientific Advisory Committee, Worldwide Cancer Research

Research interests

My group is interested in developing adoptive T-cell immunotherapy approaches for cancer (and potentially other diseases) using chimeric antigen receptor (CAR)-engineered and gamma delta T-cells. The primary focus of our work is to develop innovative approaches to improve efficacy, safety and quality of cell products that may be applied to the treatment of solid and haematological malignancy in man. Our first phase I trial of CAR T-cell immunotherapy has recently been initiated. At the time of writing, three patients have been treated (clinicaltrials.gov; NCT01818323).

Publications

- Parente-Pereira AC, Shmeeda H, Whilding L, Zambirinis C, Foster J, van der Stegen SJC, Mather S, Beatson R, Zabinski T, Brewig N, Sosabowski J, Ghaem-Maghami S, Gabizon A, Wilkie S, **Maher J**. Adoptive immunotherapy of epithelial ovarian cancer with Vγ9Vδ2 T-cells, potentiated by liposomal alendronic acid. Journal of Immunology. 2014;193(11):5557-66.
- Davies DM, Foster J, van der Stegen S, Parente ACP, Chiapero-Stanke L, Delinassios G, Burbridge SE, Kao V, Liu Z, Bosshard-Carter L, van Schalkwyk MCI, Box C, Eccles SA, Mather SJ, Wilkie S, **Maher J**. Flexible targeting of ErbB dimers that drive tumorigenesis using genetically engineered T-cells. Molecular Medicine. 2012;18(1):565-76.
- **Maher J**, Brentjens RJ, Gunset G, Riviere I, Sadelain M. Human T-lymphocyte cytotoxicity and proliferation directed by a single chimeric TCRzeta/CD28 receptor. Nature Biotechnology. 2002;20:70-75.

QUALIFICATIONS
DDS (Bordeaux II University, France, 1994); BSc (Bordeaux II University, France, 1994); MSc (Paris XI, France, 1996); PhD (Paris XI, France 2000)
JOB TITLE
Lecturer, Craniofacial Development & Stem Cell Biology
AWARDS, PRIZES & OTHER RECOGNITION
William J. Gies award (2006)

Dr Isabelle Miletich

Research interests

My main research interest is the biology of salivary gland stem cells with a focus on the characterization of salivary gland stem/progenitor cells and the signalling pathways activating these cells following salivary gland injury. We use the mouse model with most of our studies carried out in transgenic mice in which genetically labeled cell populations can be monitored during salivary gland injury and repair. The Miletich laboratory is also interested in the signalling pathways controlling the early steps of salivary gland embryonic development.

Publications

- Lapthanasupkul P, Feng J, Mantesso A, Takada-Horisawa Y, Vidal M, Koseki H, Wang L, An Z, **Miletich I**, Sharpe PT. Ring1a/b polycomb proteins regulate the mesenchymal stem cell niche in continuously growing incisors. Developmental Biology. 2012;367:140-153.
- **Miletich I**, Yu WY, Zhang R, Yang K, Caixeta de Andrade S, Pereira SF, Ohazama A, Mock OB, Buchner G, Sealby J, Webster Z, Zhao M, Bei M, Sharpe PT. Developmental stalling and organ-autonomous regulation of morphogenesis. Proc Natl Acad Sci U S A. 2011;108(48):19270-5.
- Patel N, Sharpe PT, **Miletich I**. Coordination of epithelial branching and salivary gland lumen formation by Wnt and FGF signals. Developmental Biology. 2011;358(1):156-167.

QUALIFICATIONS
MB BS (University of London, 1998); MRCS (Royal College of Surgeons of England, 2002); PhD (University of London, 2006); FRCS (Royal College of Surgeons of England, 2010)

JOB TITLE
Reader in Vascular Surgery, British Heart Foundation Intermediate Fellow, Consultant Vascular Surgeon

AWARDS, PRIZES & OTHER RECOGNITION
International Society on Thrombosis & Haemostasis Young Investigator Award (2005), Patey Prize, Society of Academic Research and Surgery (2007), Circulation Foundation/Vascular Society President's Early Career Award (2013), EVBO/European microcirculation society best presentation (2015)

Mr Bijan Modarai PhD FRCS

Research interests

My research involves developing novel therapeutic, diagnostic and preventative strategies for patients with critical limb ischaemia. This research programme, in partnership with national and international collaborators, focuses on angiogenesis in tissue remodelling, angiogenic cell therapies, the use of biomaterials to enhance cell therapy and novel imaging techniques applied to vascular disease. We are studying the angiogenic properties of monocytes and adipose derived stem cells isolated from patients with critical limb ischaemia. We also have an active collaboration to investigate the use of microencapsulation for improving the efficacy of angiogenic cells therapies. These studies are running in parallel with a first in man study aimed at demonstrating the feasibility of using angiogenic monocytes to revascularise the limb in 'no option' patients with critical limb ischaemia who would otherwise require an amputation.

Publications

- Bajwa A, Wesolowski R, Saha P, Ludwinski F, Patel A, Smith A, Nagel E, **Modarai B**. Blood oxygenation level dependent (BOLD)-CMR derived measures in critical limb ischemia and changes with revascularization. Journal of the American College of Cardiology. (In press).
- Patel AS, Smith A, Nucera S, Biziato D, Saha P, Attia RQ, Humphries J, Mattock K, Grover SP, Lyons OT, Guidotti LG, Siow R, Ivetic A, Egginton S, Waltham M, Naldini L, De Palma M, **Modarai B**. TIE2-expressing monocytes/macrophages regulate revascularization of the ischemic limb. EMBO Mol Med. 2013;5:858.
- Patel A, Smith A, Attia R, Saha P, Jayasinghe S*, **Modarai B***. *joint senior authors. Encapsulation of angiogenic monocytes using bio-spraying technology. Integrative Biology. 2012;4(6):628-32.

QUALIFICATIONS
MD (University of Kashmir, 1973)
JOB TITLE
Professor of Haematological Oncology
Consultant Haematologist, King's College Hospital
AWARDS, PRIZES & OTHER RECOGNITION
Non-executive Director, King's College Hospital (NHS Trust)

Professor Ghulam Mufti FRCP

Research interests

I am head of the Section of Haemato-oncology at King's, a centre for basic and translational laboratory research into haematological malignancies. We also carry out specialist tests through the Haematological Malignancies Diagnostic Centre which provides a diagnostic service to our local NHS partners and the South East of England. Our research includes identifying and exploiting genetic changes and molecular characteristics of proliferation to further develop and test novel interventions and immunotherapies. My specific interests are in molecular evolution and treatment of myelodysplastic syndromes; immune gene therapy for leukaemia; bone marrow transplantation for myeloid malignancies.

Publications

- Gaymes TJ, Mohamedali AM, Patterson M, Matto N, Smith A, Kulasekararaj A, Chelliah R, Curtin N, Farzaneh F, Shall S, **Mufti GJ**. Microsatellite instability induced mutations in DNA repair genes CtIP and MRE11 confer hypersensitivity to poly (ADP-ribose) polymerase inhibitors in myeloid malignancies. Haematologica. 2013;98:1397-1406.
- Costantini B, Kordasti SY, Kulasekararaj AG, Jiang J, Seidl T, Perez Abellan P, Mohamedali A, Thomas NSB, Farzaneh F, **Mufti GJ**. The effects of 5-azacytidine on the function and number of regulatory T-cells and T-effectors in myelodysplastic syndrome. Haematologica. 2013;98:1196-1205.
- Mian SA, Smith AE, Kulasekararaj AG, Kizilors A, Mohamedali AM, Lea NC, Mitsopoulos K, Ford K, Nasser E, Seidl T, **Mufti GJ**. Spliceosome mutations exhibit specific associations with epigenetic modifiers and proto-oncogenes mutated in myelodysplastic syndrome. Haematologica. 2013;98:1058-66.

DAVID TETT

QUALIFICATIONS
MD (1990); MRCPsych (1999); Specialist in Psychiatry, Honours Degree (1994); Section 12 approval (1999); PhD (2003); Certificate of Completion of Specialist Training in General Adult Psychiatry, Endorsement in Liaison Psychiatry, London Deanery (2004)

JOB TITLE
Professor in Biological Psychiatry and Head of Section, Institute of Psychiatry

AWARDS, PRIZES & OTHER RECOGNITION
Young Minds in Psychiatry Award by the American Psychiatric Institute; British Association for Psychopharmacology Senior Psychopharmacology Award; Royal College of Psychiatrists Academic Psychiatrist of the Year

Professor Carmine Pariante

Research interests

Together with my co-workers in the Section of Perinatal Psychiatry & Stress, Psychiatry and Immunology, I am studying the role of the stress hormones in the pathogenesis of mental disorders and in the mechanism of action of psychotropic drugs, in a variety of experimental models and clinical samples, including subjects with depression, first-episode psychosis, and psychiatric problems during pregnancy.

Publications

- Egeland M, Zunszain PA, **Pariante CM**. Molecular mechanisms in the regulation of adult neurogenesis during stress. Nat Rev Neurosci. 2015;16:189-200.
- Zunszain PA, Anacker C, Cattaneo A, Choudhury S, Musaelyan K, Myint AM, Thuret S, Price J, **Pariante CM**. Interleukin-1-beta: A new regulator of the kynurenine pathway affecting human hippocampal neurogenesis. Neuropsychopharmacology. 2012;37:939-49.
- Anacker C, Zunszain PA, Cattaneo A, Carvalho LA, Garabedian MJ, Thuret, Price J, **Pariante CM**. Antidepressants increase human hippocampal neurogenesis by activating the glucocorticoid receptor. Molecular Psychiatry. 2011;6:738-50.

DAVID TETT

QUALIFICATIONS
BSc (1975), PhD (1982)
JOB TITLE
Head of King's Division of Women's Health/Women's Health Academic Centre
AWARDS, PRIZES & OTHER RECOGNITION
Fellow, Royal College of Obstetricians and Gynaecologists (2003); Fellow, Academy of Medical Sciences (2009); GL Brown Lecture prize (2011); Keith Harrison Memorial Lecture Prize (2012)

Professor Lucilla Poston FMedSci FRCOG

Research interests

My lab studies the consequences of maternal obesity and calorie-rich diets on the developing fetus. My laboratory was amongst the first to develop animal models which have shown that the offspring of obese rodents develop a predisposition to obesity, hypertension and insulin resistance at a young age. Recent work has suggested that endocrine influences on the developing hypothalamus may permanently affect hypothalamic function, including pathways affecting satiety and blood pressure control. In the clinic, my team have developed a complex intervention with the aim of improving pregnancy outcome and, potentially, reducing the risk of obesity in the child (the UPBEAT trial). In addition, I have a long standing interest in pre-eclampsia. Early on, I showed that endothelial dysfunction in maternal blood vessels plays a focal role in the disease, and that oxidative stress is likely to have a mechanistic function. Much of my present research effort is directed towards early biomarker discovery, which not only has benefit in terms of prediction of the disorder but also in identification of contributory causes.

Publications

- Briley et al. A complex intervention to improve pregnancy outcome in obese women: the UPBEAT randomised controlled trial. BMC Pregnancy and Childbirth. 2014;14:74.
- Samuelsson et al. Experimental hyperleptinemia in neonatal rats leads to selective leptin responsiveness, hypertension, and altered myocardial function. Hypertension. 2013;62(3):627-33.
- **Poston** et al. Developing a complex intervention for diet and activity behaviour change in obese pregnant women (the UPBEAT trial); assessment of behavioural change and process evaluation in a pilot randomised controlled trial. BMC Pregnancy and Childbirth. 2013;13:148.

QUALIFICATIONS
BA (Open University);
PhD (University College London)
JOB TITLE
Professor of Developmental Biology
Head, Centre for the Cellular Basis of Behaviour
AWARDS, PRIZES & OTHER RECOGNITION
Consultant and Director of Cell Biology for ReNeuron Ltd

Professor Jack Price

Research interests

We are interested in stem cells and how they might impact on studies of the brain in health and disease. We are pursuing two different lines of endeavour. First, we are using pluripotent stem cells (iPS cells) to model neurodevelopmental disorders. We are part of three large European consortia (EU-AIMS, StemBANCC, and EU-MATRICS) studying how we can model complex psychiatric disorders in relatively simple cellular systems, and how we can use these models to devise novel therapies. Second, we are interested in stem cell diversity. What makes stem cell populations different? We have shown that part of the diversity depends on whether cells express one or more copies of certain neurodevelopmental genes. Interestingly, these same genes are risk genes for autism and schizophrenia, and we are interested in what this means for the etiology of these diseases.

Publications

- Cocks G, Curran G, Gami P, Uwanogho D, Jeffries AR, Kathuria A, Lucchesi W, Wood V, Dixon R, Ogilvie C, Steckler T, **Price J**. The utility of patient specific induced pluripotent stem cells for the modeling of autistic spectrum disorders. Psychopharmacology (Berl). 2014;231(6):1079-88.
- Jeffries AR, Collier DA, Vassos E, Curran C, Ogilvie CM, **Price J**. Random or stochastic monoallelic expressed genes are enriched for neurodevelopmental disorder candidate genes. PLoS ONE. 2013;8(12):e85093.
- Jeffries AR, Perfect LW, Ledderrose J, Schzlkwyk LC, Bray NJ, Mill J, **Price J**. Stochastic choice of allelic expression in human neural stem cells. Stem Cells. 2012;30:1938-47.

QUALIFICATIONS
BSc, MBBS (Imperial College, 2002); MRCP (London, 2006) MRes (University of Manchester, 2006); PhD (University of Cambridge, 2012)

JOB TITLE
MRC Clinician Scientist, Senior Lecturer and Honorary Consultant Hepatologist

AWARDS, PRIZES & OTHER RECOGNITION
American Association for the Study of Liver Disease – Fellows Prize (2011); University of Cambridge, Clare Hall – Salje Medal (2012); Academy of Medical Sciences UK – Young Investigator Award (2012); British Association for the Study of the Liver – Sheila Sherlock Prize (2012); Co scientific founder Definigen Ltd; Visiting Scholar – Stanford University, USA

Dr S Tamir Rashid

Research interests

I am interested in studying how extracellular signals delivered via the complex eco-system surrounding hepatocytes (known as the hepatic 'niche') can be used to understand liver development, homeostasis and disease. Combining a unique collection of patient derived iPSCs with cutting edge tools in gene editing, 3-D tissue culture and animal models, we are generating 'miniaturised-livers' as a novel *ex vivo* approach to the study of several inherited and acquired liver pathologies. In the longer term, we plan to use these new constructs as an alternative source of transplant material for patients with liver failure.

Publications

- **Rashid ST** et al. Modeling inherited metabolic disorders of the liver using human induced pluripotent stem cells. J Clin Invest. 2010;120:3127-36.
- **Rashid ST*** & Yusa K* et al. Targeted gene correction of alpha1-antitrypsin deficiency in induced pluripotent stem cells. Nature. 2011;478:391-94.
- **Rashid ST**, et al. Proteomic analysis of extracellular matrix from the hepatic stellate cell line LX-2 identifies CYR61 and Wnt-5a as novel constituents of fibrotic liver. J Proteome Res. 2012;11:4052-64.

QUALIFICATIONS
PhD (1975)
JOB TITLE
Deputy Head of Department (Research)
Professor of Politics
AWARDS, PRIZES & OTHER RECOGNITION
Over the past 5 years, projects totalling over £1.5 million funded by the ESRC and the European Framework Programme

Professor Brian Salter

Research interests

A political scientist specialising in the analysis of public policy, I have studied the political forces at work in the policy arenas of education, health and, most recently, the life sciences. Here my work deals with the politics of new health technologies and the national and international governance issues associated with the global competition between nation states for innovative advantage in the knowledge economies of the future. Funded by the ESRC, I am currently exploring the governance challenges posed by the emergence of China, India and Brazil as the 'Rising Powers' in the global biomedical economy, focusing in particular on stem cell science and regenerative medicine. Closely associated with my academic work is my role as policy adviser to government, funding agencies, professional and international bodies and my contribution as ethical adviser to the European Framework Programmes. Between 2006 and 2011 I was a member of the national committee of the UK National Stem Cell Network.

Publications

- **Salter B**, Zhou Y, Datta S. Hegemony in the marketplace of biomedical innovation: consumer demand and stem cell science. Social Science and Medicine. 2015;131:156-63.
- **Salter B** and Salter C. Bioethical ambition, political opportunity and the European governance of patenting: the case of human embryonic stem cell science. Social Science and Medicine. 2013;98:286-92.
- Harvey A and **Salter B**. Governing the moral economy: animal engineering, ethics and the liberal government of science. Social Science and Medicine. 2012;75:193-9.

QUALIFICATIONS
BSc, MSc (University of Oviedo, Oviedo, Spain; 2004); PhD (University of Heidelberg/German Cancer Research Center; December 2009); Postdoctoral Research (The Salk Institute for Biological Studies, San Diego, California; 2010–15)

JOB TITLE
Research Fellow

AWARDS, PRIZES & OTHER RECOGNITION
Nomis Fellowship for postdoctoral studies at the Salk Institute (2012–14); Prize Fellow Award, King's College London (2015)

Dr Ignacio Sancho-Martinez

Research interests

My research focuses on the molecular basis underlying reprogramming and cell fate. Specifically, we investigate how functionally mature somatic cell lineages can be generated whether by differentiation of induced Pluripotent Stem Cells and/or by alternative reprogramming strategies such as lineage conversion. In addition, we are interested on unveiling the means for inducing regeneration in higher vertebrates in vivo. We believe that leveraging in vitro models for the study of human development in combination with investigations on naturally regenerating organisms, such as the zebrafish, might shed new light onto the mechanisms preventing adult mammalian regeneration and provide the necessary knowledge for the establishment of strategies facilitating their experimental re-activation in murine models in vivo. Altogether, we hope that our strategies will provide new opportunities for the future translation of regenerative medicine strategies into the clinic.

Publications

- **I Sancho-Martinez***, L Kurian*, E Nivet* et al. *joint first authors. Conversion of human fibroblasts to angioblast-like progenitor cells. Nat Methods. 2013;10(1):77-83.
- **I Sancho-Martinez***, N Montserrat*, E Nivet* et al. *joint first authors. Reprogramming of human fibroblasts to pluripotency with lineage specifiers. Cell Stem Cell. 2013;13(3):341-50.
- **I Sancho-Martinez***, Y Xia*, E Nivet* et al.* joint first authors. Directed differentiation of human pluripotent cells to ureteric bud kidney progenitor-like cells. Nat Cell Biol. 2013;15(12):1507-15.

Professor Rosamund Scott

QUALIFICATIONS
BA (Australian National University, Canberra); LLB (Corpus Christi College, Oxford); PhD (King's College London), Barrister (LI)

JOB TITLE
Professor of Medical Law and Ethics; Co-Director, Centre of Medical Law and Ethics

AWARDS, PRIZES & OTHER RECOGNITION
Wellcome Trust Senior Investigator Award: 'The Donation and Transfer of Human Reproductive Materials', (jointly with Professor Stephen Wilkinson, Lancaster University); Co-Applicant, 'The London and Brighton Translational Ethics Centre', Wellcome Trust Strategic Award; Member, MRC Steering Committee, UK Stem Cell Bank; Quentin Gibson Prize, ANU 1986

Research interests

My research interests largely concern the field of reproductive ethics and law. I have published on a wide range of ethical and legal topics in the area of reproduction, including 'maternal-fetal conflict', abortion, prenatal screening and diagnosis, selective abortion, preimplantation genetic diagnosis, 'wrongful birth', 'wrongful life', stem cell research and the donation of so-called 'spare' embryos to stem cell and other research. I am fortunate to have extensive involvement in interdisciplinary research projects with others.

Publications

- **Scott R**, Williams C, Ehrich K, Farsides B. Donation of 'spare' fresh or frozen embryos to research: who decides that an embryo is 'spare' and how can we enhance the quality and protect the validity of consent? 20/2 Med Law Rev. 2012;20(3)255-303.
- Farsides B and **Scott R**. No small matter for some: practitioners' views on the moral status and treatment of human embryos. Med Law Rev. 2012;20(1):90-107.
- **Scott R**. Choosing Possible Lives: Law and Ethics of Prenatal and Preimplantation Genetic Diagnosis. Oxford: Hart Publishing. 2007.

QUALIFICATIONS
BA (1974); PhD (1977)
JOB TITLE
Dickinson Professor of Craniofacial Biology & Head of Department of Craniofacial Development and Stem Cell Biology
AWARDS, PRIZES & OTHER RECOGNITION
IADR William J Gies Award for Biomaterials and Bioengineering Research (2006); The Royal College of Surgeons of Edinburgh, Honorary Fellowship in Dental Surgery (2011)

Professor Paul Sharpe

Research interests

Mesenchymal stem cells in tissue repair: the perivascular origin of MSC contribution to tissue repair is studied with a focus on the role of canonical Wnt signalling. *In vivo* epigenetic programming of perivascular MSCs as a mechanism of restricting differentiation following tissue damage is being investigated. Stem cell niches in continuously growing teeth: the mouse incisor is a continuously growing tooth and mesenchymal stem cell niches are located in close proximity to each other in the proximal end of the incisor. Mouse genetic models are used to investigate the 'architecture' of the MSC niche and associated cell-cell interactions. Immune modulation by MSCs: MSCs have the ability to suppress T-cell proliferation in vitro. *In vivo*, this suppression is probably locally restricted to damage repair processes as a mechanism of limiting immune reactions during the initial phases of tissue repair. We study the mechanisms of in vitro suppression and their role *in vivo* in graft v host disease humanised mouse models.

Publications

- Kaukua N, Shahidi MK, Konstantinidou C, Dyachuk V, Kaucka M, Furlan A, An Z, Wang L, Hultman I, Ahrlund-Richter L, Blom H, Brismar H, Lopes NA, Pachnis V, Suter U, Clevers H, Thesleff I, **Sharpe P**, Ernfors P, Fried K, Adameyko I. Glial origin of mesenchymal stem cells in a tooth model system. Nature. 2014;513(7519):551-4.
- Zhao H, Feng J, Seidel K, Shi S, Klein O, **Sharpe P**, Chai Y. Secretion of shh by a neurovascular bundle niche supports mesenchymal stem cell homeostasis in the adult mouse incisor. Cell Stem Cell. 2014;14(2):160-73.
- Feng J, Mantesso A, De Bari C, Nishiyama A and **Sharpe PT**. Dual origin of mesenchymal stem cells contributing to organ growth and repair. Proc Natl Acad Sci U S A. 2011;108(16):6503-8.

QUALIFICATIONS
MBChB (1984); MD (1997)
JOB TITLE
Professor of Neurology and Neurogenetics
Director, Maurice Wohl Clinical Neuroscience Institute
AWARDS, PRIZES & OTHER RECOGNITION
King's College London Prize for Best Research Project (2009); Forbes Norris Award for ALS Care and Research (2009); Sheila Essey Prize for Amyotrophic Lateral Sclerosis Research (2012); Director MRC Centre for Neurodegeneration Research (2009–12)

Professor Christopher E Shaw
FRCP FMedSci

Research interests

My clinical and research interest is elucidating the pathobiology of amyotrophic lateral sclerosis (ALS). My group was the first to discover mutations in TDP-43, FUS and TUBA4A in familial and sporadic ALS patients and show that they are toxic to neurons in a variety of cellular and animal models. We have demonstrated that IPSC derived neurons from ALS patients recapitulate key features of TDP-43 and FUS proteinopathies. We plan to perform detailed phenotyping of multiple ALS IPSC lines to map out pathogenic pathways and work with industry to identify druggable targets and advance drug discovery.

Publications

- Bilican B, et al. Mutant induced pluripotent stem cell lines recapitulate aspects of TDP-43 proteinopathies and reveal cell-specific vulnerability. Proc Natl Acad Sci U S A. 2012;109:5803-8.
- Vance C et al. Mutations in FUS, an RNA processing protein, cause familial amyotrophic lateral sclerosis type 6. Science. 2009;323:1208-11.
- Sreedharan J et al. TDP-43 Mutations in Familial and Sporadic ALS. Science. 2008;319:1668-72.

QUALIFICATIONS
PhD
JOB TITLE
Chair in Leukaemia Biology
AWARDS, PRIZES & OTHER RECOGNITION
EMBO Young Investigator Award (2009); The Pezcoller Foundation – EACR Cancer Researcher Award: A Researcher of Excellence (2012)

Professor Eric So

Research interests

The primary goal of my research program is to characterise the mechanisms of transcriptional regulation that are corrupted in leukemia. By identification and molecular dissection of the transcriptional and epigenetic networks deregulated by oncogenic transcription factors, the research work should give important mechanistic insights into the molecular basis of the diseases, and in longer term, provide fruitful avenues for development of specific therapeutic interventions.

Publications

- Fung TK, Leung AY, **So CW**. Sox4you: a new player in C/EBP-alpha leukemia. Cancer Cell. 2013;24(5):557-9.
- Arteaga MF, Mikesch JH, Qiu J, Christensen J, Helin K, Kogan SC, Dong S, **So CW**. The histone demethylase PHF8 governs retinoic acid response in acute promyelocytic leukemia. Cancer Cell. 2013;23(3):376-89.
- Smith LL, Yeung J, Zeisig BB, Popov N, Huijbers I, Barnes J, Wilson AJ, Taskesen E, Delwel R, Gil J, Van Lohuizen M, **So CW**. Functional crosstalk between Bmi1 and MLL/Hoxa9 axis in establishment of normal hematopoietic and leukemic stem cells. Cell Stem Cell. 2011;8(6):649-62.

QUALIFICATIONS
PhD (National Institute for Medical Research/ University College London, 2004)
JOB TITLE
Cancer Research UK Career Development Fellow (Tenure-track Principal Investigator)
AWARDS, PRIZES & OTHER RECOGNITION
University College London Neuroscience Domain Early Career Prize (2011); Medical Research Council Special Award (2012;) Member of American Association for the Advancement of Science (2012)

Dr Rita Sousa-Nunes

Research interests

My major research interest is control of neural stem cell (NSC) proliferation: in development, adulthood and disease. We address mechanisms of asymmetric cell division, balance of proliferation versus differentiation, quiescence (reversible) versus termination (irreversible), and temporal progression of progenitors. We enquire into cell-autonomous and non-autonomous regulation of these properties and how some or all of the above differ in tumourous NSCs. We mostly use the fruitfly Drosophila melanogaster as a model but, concerning quiescence, we are performing comparative studies with mouse NSCs in vitro and have initiated contact with KCH clinicians to perform our first analyses of human samples. Concerning temporal progression, Drosophila NSCs have an 'internal timer', consisting in the sequential expression of a few transcription factors, A fascinating question is whether this is conserved in mammalian NSCs.

Publications

- **Sousa-Nunes R**, Somers WG. Mechanisms of asymmetric progenitor divisions in the Drosophila central nervous system. Adv Exp Med Biol. 2013;786:79-102.
- **Sousa-Nunes R**, Yee LL, Gould AP. Fat cells reactivate quiescent neuroblasts via TOR and glial insulin relays in Drosophila. Nature. 2011;471(7339):508-12.
- Chang KC, Garcia-Alvarez G, Somers WG, **Sousa-Nunes R**, Rossi F, Lee YY, Soon SB, Gonzalez C, Chia W, Wang H. Interplay between the transcription factor Zif and aPKC regulates neuroblast polarity and self-renewal. Dev Cell. 2010;19(5):778-85.

DAVID TETT

QUALIFICATIONS
BSc (University of Leeds, 1974), PhD (UCL, 1978)
JOB TITLE
Professor of Sensory Function
AWARDS, PRIZES & OTHER RECOGNITION
Kresge-Mirmelstein prize (New Orleans) (1998); Fellow of the Academy of Medical Sciences (London) (2004); Fellow of the Royal Society (2009); Grete Lundbeck European Brain Research Foundation Brain Prize (joint) (2012); EMBO (2014); Guyot prize 2014.

Professor Karen Steel

Research interests

I study the genetics of deafness, using the mouse as a model to identify the genes involved and to understand the molecular, cellular and physiological mechanisms involved. We use a very broad range of approaches including positional cloning to identify causative mutations, ultrastructural and genome-wide expression studies, developmental analysis, and electrophysiological measures of hearing function. We identified the first mouse gene involved in deafness, *Myo7a*; this and many other mouse deafness genes we have characterised also underlie human deafness. While at I established a large scale programme at the Sanger Institute to generate new mouse mutants from targeted ES cells and screen them for key signs of disease. Over 1,000 new mutant lines have now been generated and screened, revealing 30 new and unexpected genes underlying deafness. These new deaf mutants are available to follow up and characterise the multiple different ways that auditory function can be affected.

Publications

- Chen J, Ingham N, Kelly J, Jadeja S, Goulding D, Pass J, Mahajan VB, Tsang SH, Nijnik A, Jackson IJ, White JK, Forge A, Jagger D, **Steel KP**. Spinster homolog 2 (spns2) deficiency causes early onset progressive hearing loss. PLoS Genet. 2014;10(10):e1004688.
- White JK, Ingham, NJ, 28 others, Watt, FM, **Steel KP**. Genome-wide generation and systephenotyping of knockout mice reveals new roles for many genes. Cell. 2013;154(2):452-64.
- Hilton JM, Lewis MA, Grati M, Ingham N, Pearson S, Laskowski RA, Adams DJ, **Steel KP**. Exome sequencing identifies a missense mutation in Isl1 associated with low penetrance otitis media in dearisch mice. Genome Biol. 2011;12(9):R90.

DAVID TETT

QUALIFICATIONS
MSc (University of Cologne); PhD (University of Heidelberg, 1990)
JOB TITLE
Professor of Developmental Neurobiology
AWARDS, PRIZES & OTHER RECOGNITION
Editorial Board, Developmental Biology (2001 to present); Core Member, BBSRC Committee A (2009–12); Chair, Gordon Research Conference on Craniofacial Morphogenesis & Tissue Regeneration (2014)

Professor Andrea Streit

Research interests

Relating to the outside world relies on functional sense organs, which provide visual, auditory and olfactory input. Our research aims to understand how cells transit from a pluripotent state to definitive sensory progenitors and are subsequently specialised as ear, eye and olfactory. We combine in vivo experiments with molecular and bioinformatics approaches to uncover the gene networks that underlie these processes. A second aspect of our research focuses on regeneration of sensory cells in the inner ear. Specifically, we explore the epigenetic mechanisms that prevent hair cell regeneration in the mammalian cochlea.

Publications

- Lleras Forero L, Tambalo M, Christophorou N, Chambers D, Houart C, **Streit A**. Neuropeptides: developmental signals in placode progenitor formation. Dev Cell. 2013;26(2):195-203.
- Theveneau, E., Steventon, B., Scarpa, E., Garcia, S., Trepat, X., **Streit, A.** & Mayor, R. Chase-and-run between adjacent cell populations promotes directional collective migration. Nat Cell Biol. 2013;15(7):763-72.
- Papanayotou C, De Almeida I, Liao P, Oliveira N, Lu S-Q, Kougioumtzidou E, Zhu L, Shaw A, Sheng G, **Streit A**, Yu D, Wah Soong T, Stern CD. Calfacilitin is a calcium channel modulator essential for initiation of neural plate development. Nature Commun. 2013;4:1837.

QUALIFICATIONS
BSc (1994); MSc (1997); MSc (1998); PhD (2002)
JOB TITLE
Lecturer in Neural Stem Cell Research and Head of the Neurogenesis and Mental Health Laboratory
AWARDS, PRIZES & OTHER RECOGNITION
Boehringer Ingelheim Fonds Ph.D. Scholarship (1999–2002); Christopher and Dana Reeve Foundation Fellow (2002–6); Paralysis Project of America Award, USA (2002); Research Councils UK Academic Research Fellow (2006–11); MRC Centenary Award (2012)

Dr Sandrine Thuret

Research interests

My lab explores the mechanisms regulating adult hippocampal neurogenesis (AHN) and its implication in mental health. The adult mammalian brain contains small populations of neural stem cells dividing and differentiating into neurons. This process of neurogenesis occurs in the hippocampus. AHN decreases with age and stress whereas increased AHN is linked to improved memory and mood. Therefore, AHN emerges as a target for counteracting the effect of ageing and stress and thus preventing cognitive and mood decline. In the Thuret lab we investigate the molecular mechanisms governing neurogenesis by using human hippocampal cell lines and the mouse as a model to study cognition and mood. We are currently studying the molecular mechanisms by which interventions (ie diet, antidepressants) and diseases (ie Alzheimer's Disease, depression) impacts on AHN and subsequently affect cognition and mood.

Publications

- Borsini A, Zunszain PA, **Thuret S**, Pariante CM. The role of inflammatory cytokines as key modulators of neurogenesis. Trends Neurosci. 2015;38(3):145-57.
- Musaelyan K, Egeland M, Fernandes C, Pariante CM, Zunszain PA, **Thuret S**. Modulation of adult hippocampal neurogenesis by early-life environmental challenges triggering immune activation. Neural Plast. 2014;2014:194396.
- Anacker C, Zunszain PA, Cattaneo A, Carvalho LA, Garabedian MJ, **Thuret S***, Price J, Pariante CM*. *Co-corresponding authors. Antidepressants increase human hippocampal neurogenesis by activating the glucocorticoid receptor. Mol Psychiatry. 2011;16(7):738-50.

QUALIFICATIONS
BA (University of Cambridge, 1994); PhD (UCL, 1998)
JOB TITLE
Lecturer in Cardiovascular Development
AWARDS, PRIZES & OTHER RECOGNITION
Wellcome Trust Prize PhD Studentship (1994–97); Herman and Margaret Sokol Fellowship (Whitehead Institute, 2001); EMBO Short Term Fellowship (2005); Lister Institute Research Prize (2007–12); MRC Career Development Award (2007–12); Committee member British Society for Developmental Biology (2009–14); Member of Scientific Organizing Committee for '18th International Conference of the International Society of Differentiation' (2014)

Dr Fiona Wardle

Research interests

We are interested in the transcriptional networks that control gene expression as cells move from being pluripotent to become specified and subsequently differentiated into different tissues and organs. We combine genomics and proteomics techniques with experimental work in zebrafish embryos and embryonic stem cells to characterize these transcriptional networks, with a particular focus on mesoderm and endoderm cells, which will go on to form organs such as the heart and pancreas, respectively.

Publications

- Evans AL, Faial T, Gilchrist MJ, Down T, Vallier L, Pedersen RA, **Wardle FC**, Smith JC. Genomic targets of Brachyury (T) in differentiating mouse embryonic stem cells. PLoS ONE. 2012;7(3):e33346.
- Nelson AC, Pillay N, Henderson S, Presneau N, Tirabosco R, Halai D, Berisha F, Flicek P, Stemple DL, Stern C, **Wardle FC**, Flanagan AM. An integrated functional genomics approach identifies the regulatory network directed by brachyury (T) in chordoma. J Pathol. 2012;228(3):274-85.
- Nelson AC, Cutty SJ, Niini M, Stemple DL, Flicek P, Houart C, Bruce AE, **Wardle FC**. Global identification of Smad2 and Eomesodermin targets in zebrafish identifies a conserved transcriptional network in mesendoderm and a novel role for Eomesodermin in repression of ectodermal gene expression. BMC Biol. 2014;12:81.

DAVID TETT

QUALIFICATIONS
BA (University of Cambridge, 1976); DPhil (University of Oxford, 1979)

JOB TITLE
Director, Centre for Stem Cells and Regenerative Medicine

AWARDS, PRIZES & OTHER RECOGNITION
Member, European Molecular Biology Organization (1999); Fellow, Academy of Medical Sciences (2000); Fellow, Royal Society (2003); Doctor Honoris Causa, Universidad Autonoma de Madrid (2016)

Professor Fiona M Watt FRS FMedSci

Research interests

My major research interest is in the role of stem cells in adult tissue maintenance. Current projects are exploring self-renewal and lineage selection by human and mouse epidermal stem cells, the role of stem cells in epidermal and oral tumour formation, and the nature of mesenchymal cells in skin. We have active collaborations with bioengineers and chemists in order to study stem cell-niche interactions in vitro. We are also collaborating with bioinformaticians and computational biologists who are helping us to explore stem cell heterogeneity at single cell resolution. With Richard Durbin at the Wellcome Trust Sanger Institute I lead HIPSCI – the Human Induced Pluripotent Stem Cell Initiative – to examine how genetic variation between cells impacts on their phenotypic behaviour in culture. I also direct the UKRMP Immunomodulation Hub.

Publications

- Hoste E, Arwert EN, Lal R, South AP, Salas-Alanis JC, Murrell DF, Donati G, **Watt FM**. Innate sensing of microbial products promotes wound-induced skin cancer. Nat Commun. 2015;6:5932.
- Driskell RR, Lichtenberger BM, Hoste E, Kretzschmar K, Simons BD, Charalambous M, Ferron SR, Herault Y, Pavlovic G, Ferguson-Smith AC, **Watt FM**. Distinct fibroblast lineages determine dermal architecture in skin development and repair. Nature. 2013;504(7479):277-81.
- Mulder KW, Wang X, Escriu C, Ito Y, Schwarz RF, Gillis J, Sirokmány G, Donati G, Uribe-Lewis S, Pavlidis P, Murrell A, Markowetz F, **Watt FM**. Diverse epigenetic strategies interact to control epidermal differentiation. Nat Cell Biol. 2012;14(7):753-63.

ALEX GRIFFITHS

QUALIFICATIONS
MD (Innsbruck University, Austria); PhD (Peking Union Medical College))

JOB TITLE
BHF John Parker Chair of Cardiovascular Sciences

AWARDS, PRIZES & OTHER RECOGNITION
Fogarty Fellow, National Institutes of Health; Rokitansky-Prize for Pathology, Austria; Consulting Editor, American Heart Association Journal ATVB

Professor Qingbo Xu

Research interests

My research interesting is in the field of vascular regeneration in vascular disease. We have discovered the presence of stem/progenitor cells in the adventitia of the vessel wall that have the ability to differentiate into endothelial or smooth muscle cells. To clarify the ways on how the stem cell is becoming a vascular cell, ie signal pathway from stimulation to cell nucleus response, our group is studying the mechanisms of stem cell differentiation into vascular lineages and found that several crucial genes localised in the nucleus plays a key role by using cell culture and chick embryonic studies. Our group is studying the contribution of stem/progenitor cells to the pathogenesis of atherosclerosis, clarifying the mechanisms of stem cell differentiation into endothelial and smooth muscle cells, and testing a potential use of stem cell therapy for the vascular disease.

Publications

- Karamariti E, Margariti A, Winker B, Wang X, Hong X, Baban D, Ragoussis J, Huang Y, Han JD, Wong MM, Sag CM, Shah AM, Hu Y, **Xu Q**. Smooth muscle cells differentiated from reprogrammed embryonic lung fibroblasts through DKK3 signaling are potent for tissue engineering of vascular grafts. Circ Res. 2013;112(11):1433-43.
- Margariti A, Winkler B, Karamariti E, Zampetaki A, Tsai T, Baban D, Ragoussis J, Huang Y, Han JJ, Zeng L, Hu Y, and **Xu Q**. Direct reprogramming of fibroblasts into endothelial cells capable of angiogenesis and reendothelization in tissue-engineered vessels. Proc Natl Acad Sci U S A. 2012;109:13793-8.
- Hu Y, Zhang Z, Tosney E, Afzal AR, Davison F, Metzler B and **Xu Q**. Abundant progenitor cells in the adventitia contribute to atherosclerosis of vein grafts in apoE-deficient mice. J Clin Invest. 2004;113:1258-65.

QUALIFICATIONS
BSc (King's College London, 1987); PhD (King's College London, 1992); Postgraduate College Certificate of Academic Practice (King's College London, 2007)

JOB TITLE
Professor of Cell Biology in the Randall Division of Cell and Molecular Biophysics

AWARDS, PRIZES & OTHER RECOGNITION
Founding member of the 'London Myology Forum'; Editorial board of 'Skeletal Muscle' and 'Bone and Tissue Regeneration Insights'

Professor Peter Zammit

Research interests

My core research is understanding how muscle stem cells are regulated in healthy, aged and diseased skeletal muscle: an archetypal adult stem cell model in which maintenance, growth and repair of functionally specialised post-mitotic cells is achieved by recruitment of undifferentiated precursors. The resident stem cells of skeletal muscle, satellite cells, are activated to undergo extensive proliferation to generate myoblasts that then differentiate to provide new myonuclei for muscle fibres. This normally efficient mechanism however, gradually fails in muscle wasting diseases, such as muscular dystrophies. Our main themes include investigating transcriptional and signalling pathways that control satellite cells, and the contribution of satellite cell dysfunction to Emery-Dreifuss muscular dystrophy, Fascioscapulohumeral muscular dystrophy and cancer, such as rhabdomyosarcoma.

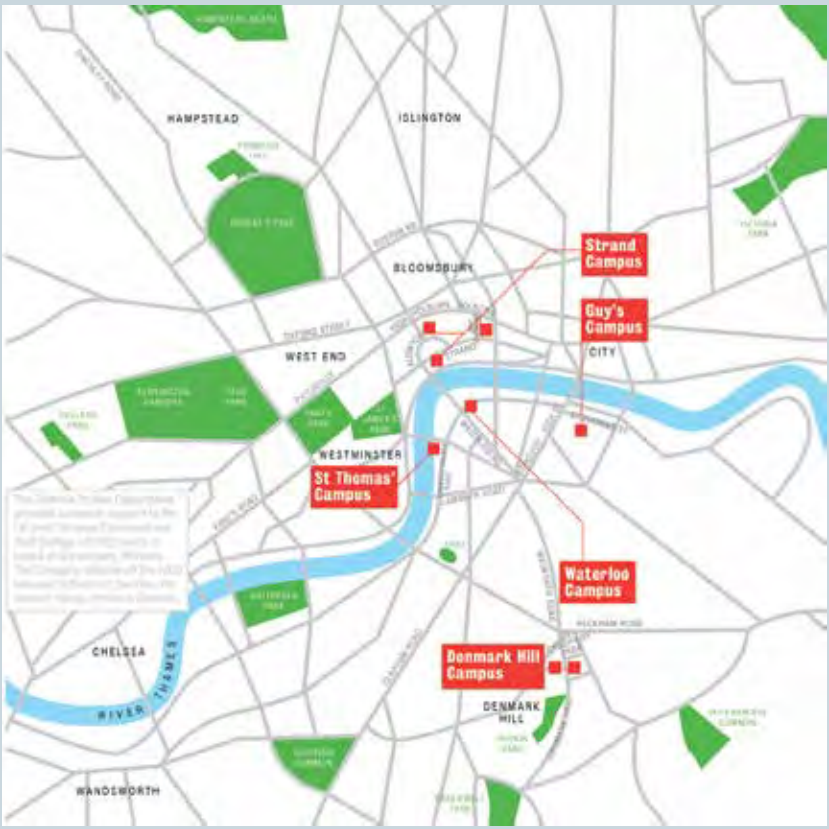
Publications

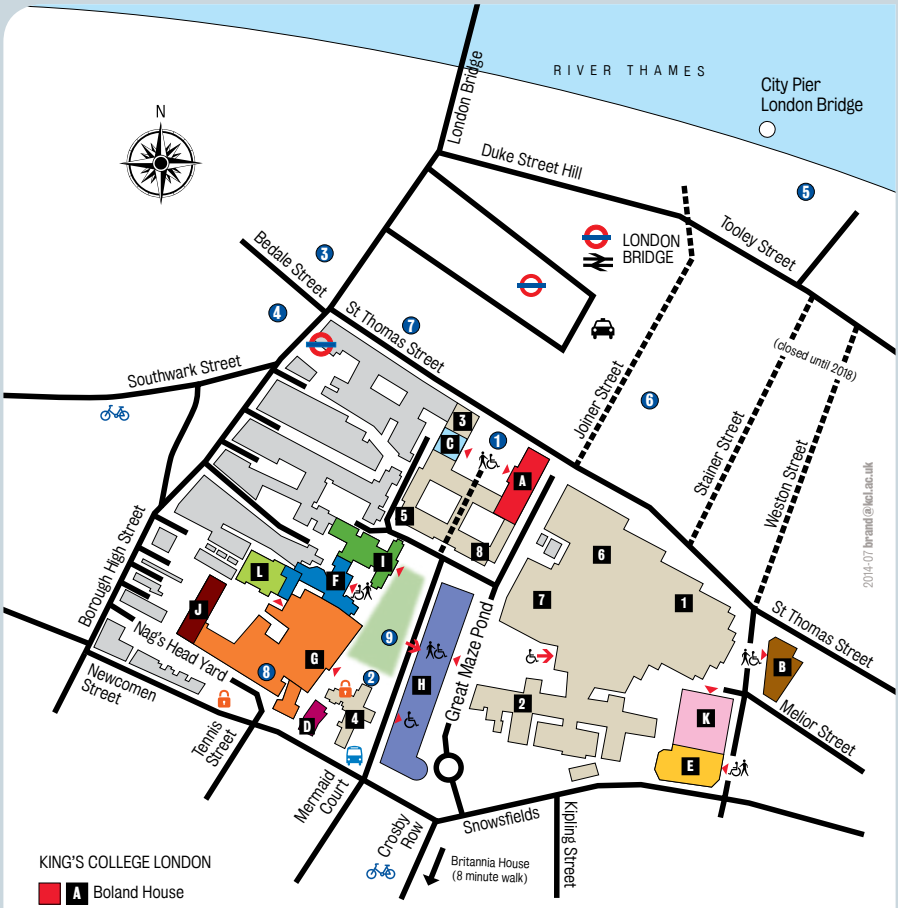
- Calhabeu F, Hayashi S, Morgan JE, Relaix F, **Zammit PS**. Alveolar rhabdomyosarcoma-associated proteins PAX3/FOXO1A and PAX7/FOXO1A suppress the transcriptional activity of MyoD-target genes in muscle stem cells. Oncogene. 2013;32(5):651-62.
- Ono Y, Calbaheu F, Morgan JE, Katagiri T, Amthor H, **Zammit PS**. BMP signalling permits population expansion by preventing premature myogenic differentiation in muscle satellite cells. Cell Death Differ. 2011;18(2):222-34.
- Collins CA, Olsen I, **Zammit PS**, Heslop L, Petrie A, Partridge TA, Morgan JE. Stem cell function, self-renewal, and behavioral heterogeneity of cells from the adult muscle satellite cell niche. Cell. 2005;122(2):289-301.

WORKING IN THE CENTRE FOR STEM CELLS & REGENERATIVE MEDICINE

KING'S COLLEGE LONDON CAMPUSES OVERVIEW

The four Thames-side campuses of King's, located within a single square mile in the heart of London, together with the Denmark Hill Campus in south London.





KING'S COLLEGE LONDON

- A Boland House
- B Capital House – Admissions Office
- C Chapel
- D Doyles House
- E Greenwood Theatre
- F Henriette Raphael House
- G Hodgkin Building
- H New Hunt's House
- I Shepherd's House
- J Wolfson Centre for Age-Related Diseases
- K Wolfson House
- L Nuffield Annexe

GUY'S HOSPITAL

- 1 Bermondsey Wing
- 2 Borough Wing
- 3 Conybeare House
- 4 Nuffield House
- 5 West Wing
- 6 Southwark Wing
- 7 Tower Wing
- 8 Counting House

- Main entrance
- Other entrance
- Disabled access
- Assisted disabled access
- Secure bike shed*
- Shuttle bus stop

* You must register with Security at the Hodgkin Building in order to have access

POINTS OF INTEREST

1. Statue of Thomas Guy
2. Guy's Memorial Arch
3. Southwark Cathedral
4. Borough Market
5. Hay's Galleria
6. The Shard
7. Old Operating Theatre
8. Gordon Museum (King's/NHS Trust staff and medical public only)
9. Quadrangle

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www.susenvural.com
Approved by brand@kcl.ac.uk
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ISG plc

King's College London
Centre for Stem Cells &
Regenerative Medicine
28th floor, Tower Wing
Guy's Hospital
Great Maze Pond
London
SE1 9RT

Tel. +44 (0)20 7188 5604
Email. ea-fionawatt@kcl.ac.uk
www.kcl.ac.uk