ACADEMIC CLINICAL FELLOWSHIP in MEDICINE CT1/CT2
ADDELBROOKE’S HOSPITAL, CAMBRIDGE

A total of 3 posts are available in NIHR Medicine as follows:

a) X1 post in Renal Medicine or Rheumatology
b) X1 post in Cardiology or Clinical Pharmacology or Acute Internal Medicine
c) X1 post in Endocrinology and Diabetes or Gastroenterology or Neurology

A further 3 locally funded posts are available. Run through will be in one of the specialties listed above, subject to availability.

These Core Medical Training posts will be appointed at CT1/CT2 level and provide funding for up to three years. The principal aim of the ACF scheme is to allow academically gifted clinical trainees the opportunity for 25% protected research training alongside completion of CMT and during that time to formulate and submit an application for an externally funded Research training Fellowship (RTF) (e.g. MRC, Wellcome Trust, BHF). If candidates are unsuccessful in obtaining funding for a RTF/PhD, they can transfer into non-ACF ST3+ posts and pursue full time clinical sub-specialty training. It is anticipated that all successful ACFs completing RTFs would be in a strong position to compete for Clinical Lecturer posts following award of their higher research degree, as per the Integrated Academic Training programme. These posts will attract a NTN(A).

Locality
The Cambridge ACF programme in General Medicine Specialties is based at Addenbrooke’s Hospital, Cambridge University Hospital NHS Foundation Trust, but includes opportunities to rotate to GIM and sub-specialty CT1/2 posts at Papworth Hospital, Hinchingbrooke Hospital and the West Suffolk Hospital.

Aims of the Academic Clinical Fellowship
The main aim of these posts is to allow individuals to be exposed to academic environments and research techniques that would inform their choice of subsequent full time research training and provide the senior academic input needed to support the submission of an externally funded RTF. As such, the research components are not constrained. For example, an individual may wish to undertake an initial project involving basic molecular and cell biology followed by periods undertaking translational and/or patient based studies. Alternatively, an individual may be interested in exploring different research techniques and/or wish to spend their entire research time working in a single research area. It is anticipated that all Medical ACFs will rotate into research in 3 month blocks spread throughout the 3 years, with at least one spent working with the proposed supervisor for the RTF. This would allow time to undertake preliminary studies in support of the RTF and time for background reading and preparation of a RTF application. These ACFs are intended to support clinical academics wishing to undertake subsequent sub-specialty training in the above areas.
Clinical component
ACFs would participate in the normal CT1/2 CMT programme for 9 months in each year and rotate through a balanced set of GIM/sub-specialty CMT training posts. The choice, blend and sequence of jobs would be overseen by Dr T Burton (ST1/2 CMT Clinical Lead) and Dr A Floto and be designed to allow exposure to the principal sub-specialist area of interest but also to include a broad portfolio of jobs capable of delivering CMT, including a 3-6 month placement in a DGH. These posts would be indistinguishable from the mainstream CT1/2 CMT posts and involve normal pro-rata on-call commitments, medical take/post take rounds and night cover.

The Clinical Programme Director is Dr Tim Burton

Academic Component
Medical ACFs will rotate into three periods of research (in 3 month blocks) spread over the 3 years, with at least one period spent working with the proposed supervisor for the anticipated RTF. This would allow time to undertake preliminary studies in support of the RTF and time for background reading and preparation of a RTF application. ACFs will also have the opportunity to register for a taught MPhil in Clinical Science (Translational Medicine and Therapeutics) (usually spread over two years), and attend relevant scientific talks and meetings during their fellowship.

ACFs are encouraged to explore the possibility of research attachments and subsequent PhD projects with Principal Investigators (PIs) from the Department of Medicine (www.med.cam.ac.uk), the Cambridge Institute for Medical Research (www.cimr.cam.ac.uk), the Institute for Metabolic Science (www.ims.cam.ac.uk), other departments within the Schools of Clinical Medicine (www.medschl.cam.ac.uk) and Biological Sciences (www.bio.cam.ac.uk) and within affiliated Institutes such as the MRC Laboratory of Molecular Biology (www2.mrc-lmb.cam.ac.uk), the CRUK Cambridge Research Institute (www.cambridgecancer.org.uk), The Babraham Institute (www.babraham.ac.uk) and the Wellcome Trust Sanger Institute (www.sanger.ac.uk). More information on PIs in Infection/Immunology can be found at Cambridge Immunology (www.immunology.cam.ac.uk), in Neuroscience at Cambridge Neuroscience (www.neuroscience.cam.ac.uk) and in Cardiovascular at www.cardiovascular.cam.ac.uk

The Academic Programme Director is Professor Andres Floto

Details of academic groups in the clinical specialty areas listed:

a) X1 post in Renal Medicine or Rheumatology

Renal medicine
Research in the Division of Renal Medicine is focused on immunity and inflammation in both basic science and clinical settings

1. Professor Ken Smith’s group is based in the CIMR and works on how defective regulation of the immune system (in particular of B cells and plasma cells) can lead to autoimmune disease such as lupus and why the genetic defects underlying this dysregulation are common in normal populations. This has led to work examining how genetic predisposition to autoimmunity influences the risk of infections such as malaria. Menna Clatworthy is studying how defects in lymphatic development might be involved in autoimmunity. Much attention is focused on "inhibitory receptors", the cell surface molecules that as brakes on the immune system and on the new area of micro-RNA control of gene expression. The Cambridge Hinxton Centre for Translational Research in Autoimmune Disease (CHIC TRIAD), coordinated by Professor Smith, is a collaboration between the laboratory in the CIMR (led by Smith and Paul Lyons), the vasculitis and Lupus Clinic (see below) and the European Bioinformatics Institute at Hinxton. It is studying patients with autoimmune disease and with renal
transplants to understand pathological mechanisms and is defining biomarkers to guide immunosuppressive therapy

2. Dr David Jayne runs the Vasculitis and Lupus Clinic and coordinates multi-centre trials in vasculitis and SLE. These have focused on the evaluation of newer agents and the optimization of conventional therapies. He co-ordinates the European Vasculitis Study Group which performs clinical trials and long-term evaluation of vasculitis patients. He is a visiting Professor of Chiba University, Japan and has conducted studies with the Japanese Ministry of Health on vasculitis.

3. Dr John Bradley’s group is studying the pathways involved in signaling by TNF receptor family members in endothelial cells and their relevance to renal inflammation and transplant rejection. He also coordinates the Yale Cambridge Cardiovascular Research Initiative. There are also links with the Department of Medical Genetics (Fiona Karet and Richard Sandford’s groups) and Surgery (the Transplantation programme headed by Andrew Bradley)

Rheumatology
Dr Ken Poole and colleagues
The Rheumatology and Bone Disease Research Groups at Addenbrooke’s Hospital are part of Cambridge Musculoskeletal Sciences, an exciting new collaboration aiming to deliver world leading interdisciplinary translational musculoskeletal research by effective interaction between Physical Sciences, Biological Sciences, Technology and Clinical Medicine
http://sciences.musculoskeletal.group.cam.ac.uk

Dr Poole’s research strategy is to discover modifiable causes of pathology in human osteoporosis and arthritis and to evaluate novel diagnostics, treatments and exercise modalities. His team uses CT bone mapping technology; an in-vivo imaging technology based around ordinary clinical to predict hip fracture, to predict osteoarthritis, for quantifying drug effects in phase 2-3 and for assessing the responses to exercise interventions. Arthritis Research UK Senior Fellow Dr Jane Goodall leads a laboratory investigating the modification of innate immune cells responses to pathogens through the activation of cellular stress pathways in arthritis.

NHS colleagues serve as Associate lecturers, and include Honorary Visiting Senior Research Fellow Dr Nicholas Shenker who leads a programme in clinical findings and brain plasticity changes in relation to Complex Regional Pain Syndrome (CRPS). Dr Natasha Jordan studies lupus nephritis in SLE. Research opportunities are not only confined to the Division or the Department (e.g. Professor Ken Smith and Reader Dr. David Jayne direct a world-leading programmes of lupus nephritis and vasculitis research respectively within nephrology), and the Addenbrooke’s Biomedical Campus provides rich opportunities related to Musculoskeletal research (e.g. Department of Orthopaedics, where Professor Andrew McCaskie leads the UK Stem Cell Network in arthritis and tissue regeneration, Department of Chemistry where Professor Melinda Duer has transformed understanding of the atomic structures of musculoskeletal tissues such as bone and cartilage).

b) X1 post in Cardiology or Clinical Pharmacology or Acute Internal Medicine

Cardiology
Professor Martin Bennett, Professor Ziad Mallat, Dr James Rudd, Dr Sanjay Sinha, Dr Murray Clarke, Dr Helle Jørgensen, Dr Xuan Li,

Our predominant research theme is vascular biology, and in particular the development and progression of atherosclerosis leading to both heart attack and stroke, the identification of vulnerable
atherosclerotic plaques using clinical intravascular and non-invasive imaging and in vivo models, and the use of cardiovascular stem cells to model disease, for regenerative medicine and for drug screening (http://www.cardiovascular.cam.ac.uk). We span the whole spectrum of laboratory and clinical research activity from cell and molecular biology through transgenic and other models to clinical imaging and studies in heart failure and ischaemic heart disease. We comprise some 60 research and support staff including clinical and non-clinical Professors, Senior Research Fellows, lecturers, postdoctoral research associate, technicians, students and administrative staff, all supported by peer-reviewed external grants, mostly from the British Heart Foundation and The Wellcome Trust. We direct a University-wide Strategic Research Initiative in Cardiovascular Research, a Cardiovascular Regenerative Medicine Centre, and a Cardiovascular 4-year PhD programme, and are major participants in the BHF Cardiovascular Centre of Research Excellence (www.cardiovascular.cam.ac.uk). We work closely with cardiovascular researchers in other divisions, (see below), and clinical investigators at Papworth Hospital where some ACFs are based. The majority of our ACFs undertake a PhD within the Division on a RTF, and we offer excellent research training opportunities for both clinical and non-clinical PhD students.

Clinical Pharmacology & Therapeutics  
Dr KM O'Shaughnessy, Dr AP Davenport, Dr IB Wilkinson

The Clinical Pharmacology Division was established in 1985. We were the first example in the University of NHS funding for academic developments. In 1998 we moved into our purpose-built clinical and basic science laboratories in the Addenbrooke’s Centre for Clinical Investigation, funded by the BHF and an MRC Technology Foresite grant (joint with Cardiovascular Medicine and Neurosurgery). Although our work is mainly academic, we have been strong protagonists of translational research long before this became a common buzzword. Many of our research outputs have been translated rapidly into improving practices, mainly in hypertension, where both diagnosis and treatment has been transformed by our AB/CD rule, and use of plasma renin as a routine test in most patients. Members of the Clinical Pharmacology Unit hold senior positions in the British Hypertension Society and British Pharmacological Society. We give equal weight to the clinical and non-clinical members of the Unit, encouraging the clinicians to learn basic science skills, and the scientists to take part in patient-orientated research. Most of the research relates to cardiovascular disease including hypertension, arterial stiffness, genetics of sodium handling and action on the circulation of G-protein coupled receptors.

As well as research and clinical work, the Unit undertakes teaching of undergraduates and training of junior doctors in Clinical Pharmacology and Therapeutics. We have taken the lead in creating programmes of dual training in CPT and an organ-based specialty. Our trainees have progressed to Consultant posts in Cardiology, Respiratory Medicine, Nephrology and Endocrinology/Metabolic Medicine. Currently the only dual programmes approved by the GMC are: Clinical Pharmacology with Allergy, Clinical Pharmacology with Dermatology, Clinical Pharmacology with Medical Oncology. Applicants cannot apply for dual training in another specialty unless prospectively approved.

c) X1 post in Endocrinology and Diabetes or Gastroenterology or Neurology

Endocrinology and Diabetes  
Professor Stephen O’Rahilly and colleagues.

The Wellcome Trust-MRC Institute of Metabolic Science is dedicated to research, education, prevention and clinical care in the areas of diabetes, obesity and related metabolic and endocrine diseases. Over 25 Principal Investigators direct research focused on understanding the biological basis of diabetes, obesity and metabolic disorders and translating those scientific discoveries into improved patient care and disease prevention. Full details of individual research programmes can be
found at http://www.mrl.ims.cam.ac.uk/staff/. Allied to this, clinical services in diabetes, endocrinology and obesity, located in the Wolfson Diabetes and Endocrine Clinic, are described further at http://www.mrl.ims.cam.ac.uk/

**Gastroenterology**

1. Professor Arthur Kaser’s group investigates the mechanisms that underlie inflammation at mucosal surfaces. A single layer of intestinal epithelial cells – which may be considered the evolutionary most ancient innate immune cell type – separates the complex and densely populated habitat of the microbiota from the sterile host tissue of the gut, which itself harbours the majority of the host's bona fide immune cells. A loss of the mutualistic relationship between host and microbiota is thought to be at the basis of the inflammatory bowel diseases Crohn's disease and ulcerative colitis. Using a variety of techniques, including complex genetic models, the group explores the major biological mechanisms that are affected by risk genes of inflammatory bowel disease. This approach opens up a window to explore the environmental factors that may trigger disease in genetically susceptible individuals, and which are the cause for the steep increase in incidence and prevalence of these diseases around the world. Following this path, the group has reported mechanisms of how hypomorphic autophagy and mediators of the unfolded protein response lead to inflammatory bowel disease, defining a key pathway of Crohn's disease pathogenesis. Further following this paradigm, the group has more recently discovered an entirely novel immunometabolic pathway that determines risk for Crohn's disease, leprosy, and systemic juvenile idiopathic arthritis.

2. Professor Rebecca Fitzgerald’s group focuses on the early detection and treatment of cancer of the oesophagus. Oesophageal cancers are the 8th most common cancer worldwide and the 6th most common cause of cancer death with only 15% surviving 5 years. The two main subtypes of oesophageal cancer: adenocarcinoma and squamous cell carcinoma (OSCC) have a remarkably improved survival when diagnosed at an early stage. The main research aims are to: a) Understand the underlying clinical, genetic and cell environmental factors that lead to the conversion of a low-risk pre-malignant state into invasive cancer. B) Find new diagnostic tools that will identify those patients who are at an increased risk of developing cancer. C) Improve the molecular characterisation of oesophageal adenocarcinoma and identify novel approaches for tumour classification, monitoring and therapy.

3. Dr Miles Parkes’ interest is the molecular genetics of Crohn’s disease and ulcerative colitis. Our IBD repository consists of >3000 DNA samples recruited from patients across Eastern England, intestinal biopsies from >400 IBD cases plus serum and stool samples. Current interests include fine mapping of the >200 confirmed IBD susceptibility loci identified to date - using sequencing and array-based technologies together with expression and functional studies; correlation of association signals with immediate clinical end-points such as drug response and need for surgery in IBD; investigation of differential methylation in colonoscopic biopsies from IBD cases and controls; and participation in both investigator-led and commercial trials of new therapies in IBD. His group works closely with colleagues at the Wellcome Trust Sanger Institute, with members of the UK and international IBD genetics research consortia, chaired by MP, and with the Wellcome Trust Case Control Consortium.

**Neurology**

The Department of Clinical Neurosciences has five divisions, spanning much of experimental and clinical neuroscience, including the Cambridge Centre for Brain Repair, Neurosurgery, Wolfson brain Imaging Centre and the division of regenerative medicine. Of particular interest to neurology trainees are the strong research themes in neurodegenerative diseases, stroke, head injury and multiple sclerosis.

The department’s research strategy is to apply these five techniques to common neurological diseases:

1. Exploration of underlying molecular and cellular mechanisms.
2. Deeply phenotyped clinical cohorts with improved diagnostics and natural history data.
4. Target identification through mechanistic studies, with a particular focus on inflammation, metabolism and mitochondrial dysfunction.
5. Evaluation of new treatments, including precision repurposing and novel therapeutics.

Current research projects are on mitochondrial disorders [Prof Patrick Chinnery]; Huntington’s disease [Prof Roger Barker]; clinical trials of immunotherapies and remyelination treatments in multiple sclerosis [Prof Alasdair Coles]; regulatory cells in multiple sclerosis [Dr Joanne Jones]; optic nerve regeneration [Profs James Fawcett and Keith Martin]; spinal cord repair [Prof James Fawcett]; neuronal regeneration [Prof Michael Coleman]; biology of stem cells in the brain [Dr Mark Kotter]; the unfolded protein response in neurodegeneration [Prof Giovanna Mallucci]; small vessel cerebrovascular disease genetics and imaging [Prof Hugh Markus]; neuroimmune interactions in the stroke brain [Dr Stefano Pluchino]; Decision making in dementia [Professor James Rowe]; stem cell biology in demyelination and remyelination [Dr Chao Zhao and Prof Robin Franklin]. More details are available here: http://www-neurosciences.medschl.cam.ac.uk/postgraduate-training/projects/

For further information please contact:

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Further details can be obtained from the website of the National Coordinating Centre for Research Capacity Development (NCCRD)
NIHR website

Health Education East of England, 2-4 Victoria House, Capital Park, Fulbourn, Cambridge, CB21 5XB. Heee.recruitmenthelpdesk@nhs.net