UNIVERSITY OF BIRMINGHAM

Stonewall TOP 100 EMPLOYERS 2016

Job Description

Post Title and Post Number	Clinical Research Fellow- 57204
Organisation Advertising Description	Institute of Immunology and Immunotherapy College of Medical and Dental Sciences

Job Summary

- To contribute to the achievement of the Institute's research strategy by undertaking specified research activities within inflammatory bowel disease, including creation of cohorts, prediction of outcomes and evaluate novel markers.
- To undertake phenotypic and deep immunophenotyping stratification in inflammatory bowel disease.
- To register for a postgraduate higher degree (PhD or MD), and proceed to completion.

Main Duties

- To establish appropriate research database to explore biomarker evaluation in inflammatory bowel disease, based on prospective cohorts in IBD and drug related IBD.
- To gain sufficient research data and experience that will enable completion of a higher degree (PhD or MD). To comply with the terms and conditions set out in the fellowship and in the University of Birmingham's graduate programme of study.
- To undertake prescribed research tasks and collection of research data.
- To prioritise tasks within the agreed work schedule to ensure that projects are delivered in a timely fashion according to the Gantt chart time line in the MRC proposal.
- To suggest and contribute to the development of research techniques, models and methods in collaboration with colleagues.
- To contribute to writing bids for research grants.
- To disseminate research findings using appropriate and effective media such as publication, research seminars, etc.
- To provide guidance to other staff and students.
- To contribute to the production of research reports and publications.
- To plan and develop research contributions to subject area using methodologies, critical evaluations, interpretations, analyses and other appropriate techniques.
- To disseminate research findings using appropriate and effective media such as publication, research seminars, conferences, etc.

Knowledge, Skills, Qualifications and Experience Required

Essential:

- Candidates should be registered with the GMC with a Licence to Practice.
- Medical degree.
- Possession of MRCP (or equivalent).
- Applicant should ideally be on the Specialty Training Programme for Gastroenterology at ST1 level or above; or with evidence of experience in Clinical Gastroenterology; or have a CCT in Gastroenterology.

Desirable:

- Demonstrate of research experience such as a BSc Upper Second Class Honours, Masters or equivalent.
- The applicant should have an understanding and experience of research methods and processes related to the study of IBD.
- Experience in gastrointestinal endoscopy.

The College of Medical and Dental Sciences

College Overview and Structure

The College of Medical and Dental Sciences (MDS) is the largest of the University's Colleges with over 1500 members of staff ensuring teaching and research excellence across a wide range of pre-clinical and clinical disciplines.

The College is structured into 8 Institutes:

- Institute of Applied Health Research
- Institute of Cancer and Genomic Sciences
- Institute of Cardiovascular Sciences
- Institute of Clinical Sciences
- Institute of Immunology and Immunotherapy
- Institute of Inflammation and Ageing
- Institute of Metabolism and Systems Research
- Institute of Microbiology and Infection

Our Institutes are focused academic units in identified areas of high-performing research and teaching excellence, each with an ambitious strategy and empowered leadership. We draw together outstanding academic, clinical and professional services staff around coherent and highly collaborative themes. The Institutes are responsible for driving the further development and delivery of priority themes identified in the institutional Life Sciences Strategy (see below). They are championing interdisciplinary collaboration across the University's Colleges and in partnership with our regional NHS Trusts. Each Institute contributes to our translational pipeline, supporting fundamental research excellence through to clinical and applied health programmes. This strategy ensures that our research delivers real impact in health and wealth generation and that our educational programmes are informed by our research strengths. Co-location and core focal points for each of the Institutes ensure cohesion, whilst at the same time promoting cross-Institute working and collaboration. This is further enabled through access to key College-managed facilities and resources and the provision of high quality professional services support including core academic, technical and specialist administration in support of teaching and research delivery.

Professional Services

A diverse range of committed and high-performing Professional Services staff, managed through integrated College-wide teams, underpin and provide support to the establishment, development and delivery of all aspects of the College's activity. They support academic staff and students and provide core functions and support services in addition to delivering specialist technical services. The model of central management with localised focus and delivery provides flexible, high-quality support according to academic need. The teams operate in close and effective partnership with colleagues across campus and in the NHS.

University of Birmingham Life Sciences Strategy

The Life Sciences Strategy (LSS) has been developed following detailed engagement both internally and externally. The LSS identifies the priorities for the University as an outstanding, distinctive centre for Life Sciences research and education focused on areas relevant to human health including clinical and biomedical sciences and human biology.

The LSS is focused on building multidisciplinary research and teaching activities across the whole campus. It will help to deliver the region's ambition to establish Birmingham as one of the UK's pre-eminent locations for the Life Sciences sector delivering improved healthcare, economic growth and making the UK the best place to invest in life sciences research.

College Location

The principal base of the College is part of the main campus of the University in Edgbaston, co-located with the Queen Elizabeth Hospital Birmingham (QEHB), University Hospitals Birmingham NHS Foundation Trust (UHBFT), and with a number of other key buildings both on and off campus, including the new Birmingham Dental Hospital and School of Dentistry at Pebble Mill just a mile from the central campus. Other NHS Trust partners are also on the same campus including Birmingham Women's Hospital and the Barberry (Psychiatric) Hospital.

Research

With over 1000 academic staff and around £60M new research funding per year, MDS represents a major international centre for biomedical research.

Our overall research objective is to develop and promote excellence in basic and clinical science with an ultimate goal of delivering improvements in human health. We take pride in a truly translational pipeline, delivering cutting edge clinical trials and patient studies, underpinned by cell and molecular biology research on both model organisms and humans.

Our research is supported by peer-reviewed multi-million-pound funding from Research Councils UK, medical research charities such as Wellcome Trust, Cancer Research UK (CRUK), Bloodwise, Arthritis Research UK and the British Heart Foundation (BHF) as well as the National Institute for Health Research (NIHR) and the European Union. This is together with strategically important support from other government bodies (such as Birmingham City Council, the Greater Birmingham & Solihull Local Enterprise Partnership, the Department for Business, Energy & Industrial Strategy, the Department of Health, the Office for Life Sciences) and industrial partners including large pharmaceutical companies (e.g. GSK, Roche) and SMEs (e.g. Vital Therapies).

The University of Birmingham was ranked in the top 100 universities worldwide for Clinical Medicine and Pharmacy in 2016 by the Academic Ranking of World Universities (ARWU), also known as the Shanghai Ranking.

Clinical Medicine at the University of Birmingham was ranked 94th in the Performance Ranking of Scientific Papers for World Universities 2016, (also known as the National Taiwan University Ranking).

With an average field weighted citation impact of 2.10 for medical and dental sciences our research is truly world leading and over 20% of our publications appear in the top 10% cited papers worldwide. Our collaborative ethos and the multi- and inter-disciplinary nature of our research are highlighted by the fact that over 75% of our publications are developed in collaboration with national and international partners.

Our Institutes

Our Institutes focus on our scientific strengths and are targeted to areas of major clinical significance.

The ***Institute of Applied Health Research*** is focused in two broad areas: (i) primary care & population health research; (ii) healthcare evaluation & methodology. There is expertise in the main community focused clinical disciplines of public health, primary care and occupational medicine. Methodological expertise encompasses biostatistics, health economics, clinical trials, evidence synthesis, patient reported outcomes, epidemiology, health psychology and qualitative research. The Birmingham Clinical Trials Unit (BCTU) is internationally renowned and delivers both specific discipline related research and provides an exceptional collaborative framework for developing and delivering translational outputs from the University of Birmingham's wider research portfolio.

The ***Institute of Cancer and Genomic Sciences*** represents our major academic strengths in fundamental cancer research, particularly in Clinical Cancer Genomics and Bioinformatics, Genome Biology, Viral Oncology, Stem Cell Biology, Haematology, Surgery (Colorectal, Head and Neck, Gynae and Neuro) as well as cancer clinical trials. The latter of these is driven through our CRUK Cancer Clinical Trials Unit, which is the national lead for paediatric cancer trials. We are also a CRUK Centre, receiving £5m in 2017 to enable new treatment approaches to be developed and made available to patients, with a focus on personalised medicine to meet individual patient needs. Additional key infrastructure includes an Experimental Cancer Medicine Centre and the success of academic Haematology as a national Bloodwise Centre of Excellence which has provided a model for the development of a Bloodwise-funded Trials Acceleration Programme (TAP). We are also a Centre for Rare Diseases and a key driver for our future development will be the West Midlands Genomic Medicine Centre, the largest in the UK and linking all 18 regional NHS Trusts, with academic leadership based within this Institute.

Our ***Institute of Cardiovascular Sciences*** is a developing area of strength, focused around two key themes: Vascular Inflammation, Thrombosis and Angiogenesis; and Clinical and Integrative Cardiovascular Sciences. Major awards centre on the regulation of platelet and leukocyte responses in vascular diseases, and the

pathogenesis of cardiac diseases particularly atrial fibrillation. With a BHF Chair and a number of senior BHF Fellows, this is a cluster of collaborative activity, which champions interdisciplinary working through partnerships such as the Engineering and Physical Sciences Research Council (EPSRC) Physical Sciences for Health integrated Centre for Doctoral Training and the NIHR Surgical Reconstruction & Microbiology Research Centre (SRMRC). The Institute is leading the recently awarded joint Universities of Birmingham-Nottingham research centre, the Centre for Membrane Proteins and Receptors (COMPARE), which is developing novel methods for visualising and studying membrane proteins with a particular focus on cardiovascular disease.

The ***Institute of Clinical Sciences*** consists of a number of Schools dedicated to the delivery of research and education including:

- Medical School
- School of Pharmacy
- School of Nursing
- School of Biomedical Sciences
- School of Dentistry
- Graduate School

Benefitting from a highly interdisciplinary approach, it works closely with all other College Institutes to ensure delivery of teaching excellence and high quality research outputs. Some of the main focusses of research within the Institute include:

- Dentistry **-** The School of Dentistry had an outstanding performance in REF2014 in its unit of assessment, ranked first in the country for research recognised as internationally excellent (4*/3*). Research in the School of Dentistry is focussed into two overarching themes, clinical and experimental oral sciences and regenerative and rehabilitative science. The School of Dentistry was ranked 17th in the 2016 QS (Quacquarelli Symonds) World University Rankings.
- Nursing - Research from our School of Nursing specifically looks at end of life care, child, maternal and family health, and organisation and delivery of services.
- Pharmacy - The main research themes stem between two complementary research areas namely: pharmaceutical science - discovery and delivery and clinical pharmacy practice.

The ***Institute of Immunology and Immunotherapy*** builds on the longstanding tradition of research in immunology at the University of Birmingham. This is reflected in the Birmingham Centre of Excellence in Immunology, previously funded through three cycles as the 'Medical Research Council (MRC) Centre for Immune Regulation' which is now driving translational outputs through closer integration with leading clinical expertise. The Institute hosts the recently awarded Biomedical Research Centre (BRC) Inflammation which builds on the success of the NIHR Liver Biomedical Research Unit (BRU) and establishment of the Advanced Therapies Facility (ATF). The £12M NIHR funded BRC will help provide improved therapies for

a range of inflammatory conditions affecting gut, liver, joint and muscle tissues. Furthermore, the newly established CRUK Birmingham Centre will fund a ~£5M initiative focussing on the generation of novel therapeutic approaches – including immunotherapies – arising from innovative fundamental science. Our Clinical Immunology Service supports a range of national cancer trials, and led a £7.3m MRC Clinical Infrastructure award to provide 'deep' immunophenotyping of patients.

Our ***Institute of Inflammation and Ageing*** benefits from a highly collaborative leadership team focused on translational outputs, based within a dedicated wing of the QEHB. The strength of their vision is represented by a number of major national awards, including the MRC-Arthritis Research UK Centre for Musculoskeletal Ageing Research (with Nottingham University); Arthritis Research UK Centre of Excellence in the Pathogenesis of RA (with the Universities of Glasgow and Newcastle); Arthritis Research UK Experimental Arthritis Treatment Centre; NIHR SRMRC Trauma Research Centre; NIHR Healthcare Technology Cooperative (Trauma); and the Scar Free Foundation Burns Research Centre, as well as our key role in the NIHR Translational Research Partnership on Joint & Related Inflammatory Disease. The new BRC Inflammation will be established in 2017 with £12m funding from the NIHR. The Inflammatory Joint Disease and Inflammatory Sarcopaenia themes are led by researchers in the institute. The BRC will support a 5 year programme to better understand a range of debilitating inflammatory diseases for patients in Birmingham and beyond. A £7m investment from the Kennedy Trust for Rheumatology Research will also support a new partnership with the University of Oxford to accelerate the development and testing of new therapies for patients with arthritis.

The ***Institute of Metabolism and Systems Research*** (IMSR) offers a highly multi-disciplinary collaborative environment that combines leading excellence in metabolism, endocrinology and reproduction research with world class expertise in metabolome analysis, live cell imaging, model-based and human *in vivo* physiology and computational systems science approaches. The IMSR drives strategic leadership for the University of Birmingham Metabolomics Core, which comprises a unique cluster of capacity and expertise for metabolome analysis, delivered by the Phenome Centre Birmingham (recent £7.3M MRC Clinical Infrastructure award), the Steroid Metabolome Analysis Core, the Metabolic Tracer Analysis Core and the Henry Wellcome Biomedical Nuclear Magnetic Resonance (NMR) Facility. IMSR researchers drive key components of COMPARE, developing novel methods for visualising membrane proteins for prevention and treatment of disease. Our science is translated into health facilitated by the IMSR translational centres. These include the Centre for Endocrinology, Diabetes and Metabolism (CEDAM), the Centre for Women's and New-born Health (CNWH) and the recently established Tommy's National Centre for Miscarriage Research (£5M), alongside key contributions to the MRC ARUK Centre for Musculoskeletal Ageing and the newly funded NIHR BRC Inflammation.

The ***Institute of Microbiology and Infection*** draws together one of the largest groups of academic expertise in this area nationally and internationally. Our staff are expert microbiologists, immunologists, biochemists and chemists, with technical expertise in next generation sequencing, genomics, proteomics, molecular and

structural biology, biotechnology and modelling. Diverse research programmes encompass fundamental science of model organisms to the biochemical and biophysical analysis of microbial components to translational research on key pathogens of medical and veterinary importance. Major interests include pathogenomics, chromosome architecture and gene regulation, plasmids and mobile DNA, physiology and adaptive response, cell wall structure and membrane proteins, pathogenesis and host-pathogen interactions, infection and host-immune response, antibiotic and antimicrobial resistance and environmental biotechnology. The Institute is supported by two Wellcome-funded PhD programmes, the NIHR SRMRC, the MRC Cloud Infrastructure for Microbial Bioinformatics and the Biotechnology and Biological Sciences Research Centre (BBSRC) supported MicrobesNG, a national platform for microbial genome sequencing and strain repository.

Education

Each year the College trains more than 370 medical students including a Graduate Entry cohort. Nearly one third of our medical students intercalate on a choice of programmes after the second, third or fourth year of their course. We also train 70 dental students, 20 biomedical materials science students, 150 biomedical science students, 125 nursing students, 70 pharmacy students and 60 physician associate students. Clinical teaching takes place at all hospitals in Birmingham and many of the hospitals across the region.

There are also approximately 700 postgraduate taught students and 500 research students in the College, managed by a cross-College Graduate School. The College has excellent library and reference facilities including the Barnes library and Doug Ellis Learning Hub, which complement the wider facilities available to students on campus.

The Institute of Clinical Sciences provides a clear focus for integrating our education and training programmes, co-ordinating all teaching, student engagement and related activity across the College to deliver a high quality student experience. The Institute also supports increased recognition of the value of education and teaching contribution through an enhanced emphasis on pedagogy.

We are committed to providing students from all backgrounds with the opportunity to discover education and research in biomedical sciences and healthcare. We deliver a range of widening participation activities to bring students onto campus allowing them to explore what it is like to be a student at our University while giving them an insight into the courses they could study here and the pioneering research underpinning them. Almost 3500 students have received support from our extensive widening participation activities over the last 10 years. Around 15% of our medicine intake is now from under represented backgrounds.

The Complete University Guide 2017 ranked Birmingham 7th in the UK for Nursing.

Our employability rates within the College are excellent, with some notable alumni in influential positions all around the world. The University is also proud to have been awarded the University of the Year for Graduate Employment in *The Times* and *The*

Sunday Times Good University Guide 2015-16.

Highlights from the 2016 National Student Survey included:

- 90% of our BDS (Hons) Dentistry students were satisfied with the overall quality of the course
- 90% of our Medicine and Surgery MBChB students were satisfied with the overall quality of this programme and 94% said they were satisfied with the teaching on the course.

Partnerships

Our partnerships with regional NHS Trusts are very strong as exemplified by Birmingham Health Partners (BHP), an exciting collaborative platform between the University, University Hospitals Birmingham NHS Foundation Trust (UHBFT) and Birmingham Women's and Children's NHS Foundation Trust (BWCH). BHP enables the rapid translation of laboratory discovery to patient benefit, fostering new therapeutic and healthcare innovations by creating an integrated environment for researchers and clinicians. It co-funds and manages our recently opened Institute of Translational Medicine and has delivered the largest single renewal grant from NIHR of £12.8m in 2016 for the Birmingham NIHR Wellcome Trust Clinical Research Facility (NIHR-WT CRF), which includes a paediatric facility at Birmingham Children's Hospital, a satellite facility in the Centre for Translational Inflammation Research (CTIR; located within the QEHB) and gene and cell therapy programmes within our ATF.

The ATF incorporates the Human Biomaterials Resource Centre (HBRC) which works with a large number of NHS Trusts in the region and acts as the hub for collaborative initiatives such as the 100,000 Genomes Project (West Midlands Genomic Medicine Centre [WM GMC]). The WM GMC draws upon our unique population demographic through a collaboration of 18 NHS Trusts co-ordinated by our partnership with the West Midlands Academic Health Science Network (WM AHSN). The WM AHSN brings together NHS commissioners, providers of NHS services, industry, academia and representatives of the people of the West Midlands to support the spread and adoption of innovation across the region.

We also partner with many other Universities both in the UK and overseas on collaborative research projects and more recently, split site PhD opportunities. These partnerships maximise our research outputs, and provide PhD students with opportunities to broaden their knowledge and skills across multiple world leading institutions. Projects with international partners include a large number of Horizon 2020 awards and more specialist strategic collaborations such as Universitas 21 and Sun Yat Sen University, China. The COMPARE project (outlined above - a collaboration with the University of Nottingham) will augment our position as a research powerhouse for academic drug discovery. COMPARE will harness cutting-edge developments in Super Resolution Microscopy that will enable researchers to visualise what happens when a drug binds to a cell surface receptor or protein in

real-time. The Phenome Centre Birmingham is a large metabolic phenotyping facility led by internationally-recognised metabolomics and clinical experts at the University in collaboration with BHP. It has been established as part of a UK Stratified Medicine initiative led by the MRC to develop capacity and capability to perform large-scale metabolic phenotyping of the human population for stratified medicine. The centre along with additional facilities, including the ITM laboratory, were funded through the University's £7.2m MRC Enhancing UK's Clinical Research Capabilities and Technologies award and Wolfson, bringing technology and infrastructure to design and deliver novel precision medicine trials.

In addition to the NHS Trusts in our immediate vicinity, the College works closely with many of the teaching hospitals, clinical commissioning groups (CCGs), and training practices across the West Midlands. Students are encouraged to broaden their knowledge and experience by working across a wide range of organisations and experiencing the varied cultures and demographics of the West Midlands.

Our cross campus collaborations within the University are vital, to share expertise and knowledge across disciplines, as well as facilities, equipment and resources. We have strong relationships with all other University Colleges, most notably with the College of Life and Environmental Sciences in connection with the Life Sciences Strategy as outlined above. Other strong links are with the Business School, within the College of Social Sciences for education delivery, and with the College of Engineering and Physical Sciences for both teaching and research activity.

Facilities

The College has an impressive range of facilities to support its teaching and research activities, many of which have been described above, which are continually developing and improving to meet changing needs.

Within the Medical School these facilities include the 450 seat Leonard Deacon lecture theatre and the 398 seat Arthur Thompson hall. Additionally there are dedicated undergraduate practical teaching spaces for pharmacy, anatomy and clinical skills including and a prosectorium facility incorporating 10 ventilated tables and high tech AV teaching aids.

The MedCafé and Wolfson common room provide our students, staff and visitors ample space to interact in a less formal environment whilst still providing facilities to promote group working.

Our research laboratories are accommodated across several buildings with a large concentration of these in the Institute of Biomedical Research complex where they are arranged to promote collaborative working with access to the ATF, our Human Tissue Authority (HTA) compliant biorepository (HBRC) and the NIHR-WT CRF.

The £24m Institute of Translational Medicine (ITM) which sits between the College and QEHB was co-funded by the former Department for Business, Innovation & Skills (BIS) and BHP. It is an innovative development bringing together world class clinicians, scientists and clinical trials teams to accelerate access to new diagnostics,

drugs and medical devices thereby enabling patients to benefit more rapidly from breakthrough therapies and technologies. It incorporates the BHP Centre for Rare Diseases, the NIHR Trauma Healthcare Technology Co-operative (HTC), the Medical Devices Testing and Evaluation Centre (MD-TEC) led by the College of Engineering & Physical Sciences, a new early-phase trials unit and a commercial hub to host pharmaceutical companies and SMEs. It provides excellent facilities for interaction between different specialities; Informatics, the ARUK-MRC West Midlands stratified medicine facility, the Centre for Patient Reported Outcomes, biomarkers analysis, and clinical trials design all have a strong presence along with the NIHR BRC Inflammation, CRUK Centre, and the NIHR SRMRC.

BioHub Birmingham is also co-located on campus within the Birmingham Research Park. This £6.8m facility offers fully serviced laboratory and office space for growing Life Sciences businesses. Just 500 metres from the ITM, it supports a growing portfolio of medical spin-out companies from the University and other local growing businesses.

2016 saw the opening of the new £50m Birmingham Dental Hospital and School of Dentistry. The hospital and school, at Pebble Mill, is the first integrated, stand-alone dental hospital and dental school to be built in the UK for almost 40 years and provides a superb facility for dental research, teaching and practice.

Investment into the University estate continues across campus, with an ambitious programme of development underway, including targeted investment to further develop and maintain the College teaching and research estate.

Finally, the College is also taking a leading role in development of an initiative to establish the Birmingham Life Science Park adjacent to the University. The Birmingham Life Sciences Park will harness our academic and clinical strengths with commercial partners to accelerate innovation and shorten the time for new healthcare technologies to be taken from the early stages of concept to real life application for improved patient care. The site will include state-of-the-art research laboratories and commercial facilities for new and existing partners to come together, helping reinforce the city's reputation as a leader in this field.

Our outstanding facilities and strong ethos of partnership working, combined with multi-disciplinary academic excellence across the University and a diverse regional population of over five million mean that Birmingham is ideally placed to occupy a world-leading position in the rapidly evolving Life Sciences sector.

To find out more about our research, education and outstanding facilities, please visit our website: www.birmingham.ac.uk/mds