2027 Academic Clinical Fellowship in Infectious Diseases and Microbiology

Description of ACF Programme: Infectious Diseases and Medical Microbiology
Title: Infectious Diseases and Medical Microbiology Duration: 3 years
Lead NHS Hospital/Trust and contact details:
Southampton University Hospitals Foundation Trust Southampton General Hospital, Tremona Road, Southampton. SO16 6YD
Research Institution in which training will take place:
University of Southampton, Department of Clinical and Experimental Sciences
Arrangements for protected research time:
9-month block of full time research within the ACF programme (or as agreed with the designated supervisor)
Research Objectives:
To train the ACF in research methodologies by executing a project in partnership with researchers engaged in ongoing research programmes, leading to collection of pilot data for application for an externally funded doctoral fellowship.
Description of research component of programme (up to 500 words):
Infection research benefits from the excellent research infrastructure available as part of the recently renewed NIHR Southampton Biomedical Research Centre. Microbiology Infection and Immunity (MII) is now a dedicated research theme within the BRC and is co-chaired by Professor Read and Saul Faust. The successful fellow will be able to choose from a range of planned projects which will be available from the academic year 2024-or 2025. The precise choice of project will be determined by the interests of the fellow, their experience and the research studies at the time. The fellow will choose the project in collaboration with the academic supervisor at the outset of their ACF: The general areas of research in *Infectious diseases and Microbiology* that are available and suitable include: (i) Point-of-care in-vitro diagnostics for infection. Professor Tristan Clark has a programme of NIHR funded and industry supported research involving multiple clinical trials of rapid molecular test platforms and host-response based technologies for diagnosing infection. These novel technologies allow patients to be tested for infection at the point-of-care, with subsequent pathogen-directed or host response-

directed management whilst awaiting laboratory test results, thus potentially improving antimicrobial stewardship, infection control and patient outcomes.

The newly created, NIHR funded (£2.9 million), Antimicrobial Resistance (AMR) laboratory allows novel rapid diagnostic technologies to be assessed for accuracy and usability in a state-of-the-art research laboratory situated in a near-patient setting, close the emergency department. Once diagnostic tests have been assessed they are evaluated for their clinical impact in clinical trials recruiting patients from the relevant acute area and tested at the point-of-care.

This innovative approach aims to change current pathways in the NHS and beyond, and is is interdisciplinary with trials involving patients, clinicians and academics in emergency medicine, acute medicine, gastroenterology, respiratory medicine, intensive care, acute oncology, primary care and pre-hospital care. Professor Clark's research group includes, PhD students, clinical research fellows, 2 ACFs and one Senior Clinical Lecturer. His groups recent publications include papers in *New England Journal of Medicine* and Lancet series journals and have directly influenced national testing policy, including during the Covid-19 pandemic. Professor Clark is the holder of a highly prestigious NIHR Research Professorship (£1,980,000) to assess rapid host response diagnostics.

(ii) Controlled Human Infection.

The Southampton Controlled Human Infection Group (CHIG) was established by Professor Robert Read in 2012 and now incorporates a dynamic team of 3 Principal Investigators (PIs) and research awards in excess of £6 million. The focus of the group is to utilise controlled human infection models (CHIM) to guide the development and testing of new vaccines that target upper respiratory tract bacterial pathobionts such as *N. meningitidis*, *B. pertussis* and *S. pneumoniae*.

The impact of our work is evidenced by our publication record (*Science Translational Medicine*, *The Lancet Microbe, Nature Communications*, *Clinical Infectious Diseases, eClinicalMedicine, npj Vaccines etc*), ongoing collaborations with industry, and successful Programme Grant bids. From the pertussis perspective, we recently utilised our *B. pertussis* CHIM to test the efficacy of the novel mucosal pertussis vaccine, BPZE1 (ILiAD Biotechnologies), in a Phase II trial, with a large Phase III vaccine-CHIM study due to start imminently. We also have funding from Moderna Ltd to deconvolute mechanisms of protection against *B. pertussis* using multi-omics, while our *N. lactamica* programme is currently underpinned by a £3.5 million 5-year MRC-funded award that will evaluate the feasibility of a mucosal vaccine for *N. meningitidis* using genetically modified *N. lactamica*.

To date, Southampton CHIG has trained two ACFs, both of whom have secured independent doctoral fellowships (Wellcome Trust and MRC) and subsequent NIHR Clinical Lecturer positions. One is now an Associate Professor in a UK medical school. Prospective trainees can expect to gain expertise in the clinical design and delivery of vaccine and CHIM trials, while working alongside allied basic scientists (currently including 2 post-doctoral researchers, 4 PhD students, 1 ACF and two technicians). There will be excellent opportunity to exploit our collaborative networks to develop a competitive independent doctoral fellowship application.

Description of clinical component of programme (up to 500 words):

The Wessex Infectious Diseases (ID) and Medical Microbiology and Virology training programme provides comprehensive and curriculum-mapped programme training in all aspects of infection. Tertiary care services at UHS provide training in speciality areas such as HIV, neurosurgery, cardiothoracic surgery, paediatric infection, immunology and haematology/oncology/bone marrow transplant, not available in many other programmes.

There is high-quality clinical educational supervision from experienced and certified consultants at UHSFT with excellent trainee feedback.

There are extensive academic opportunities including world leading research in clinical trials of rapid diagnostics for infection, antimicrobial resistance and experimental human challenge.

The Wessex Deanery Joint Training Programme in Infectious Diseases and Medical Microbiology/Virology aims to train infection specialists with appropriate experience and competencies to manage the full spectrum of community and hospital acquired infections leading to the award of a Certificate of Completion of Training (CCT) in Infectious Diseases (ID) and Medical Microbiology/Virology (MMV). Training will be in accordance with the requirements laid down by the JRCPTB/RCPath programme on joint training in Infectious Diseases and Medical Microbiology/Virology.

ID training component involves comprehensive clinical training in the assessment and management of the complete range of adult ID conditions including HIV, Tuberculosis, viral hepatitis, imported infection, community-acquired infection, and hospital-acquired infection and infection in non-HIV immune compromised patients. This includes placements within the adult ID inpatient service and regular outpatient clinics in general ID, TB, and HIV. Further placements are available depending on individual interest within the regional GU medicine department (Solent Health Care NHS Trust), regional health protection unit and at the Rare and Imported Pathogens Laboratory (RIPL) at Porton Down.

The Microbiology and Virology component involves comprehensive clinical training in all aspects of clinical and laboratory microbiology and virology. Trainees rotate through other trusts within the region gaining general experience including inpatient consultations, telephone liaison and result interpretation and validation. Trainees are then attached to the regional Virology laboratory at UHS and within specialist areas at UHS such as neurosurgery, cardiothoracic surgery, paediatric infection, and haematology/oncology/bone marrow transplant.

Specific support provided to trainee

Professors Robert Read, Tristan Clark and Dr Adam Dale will provide senior research mentorship to ensure that they have the best chance of progression into a research training fellowship.

Milestones and timing of achievement of academic and clinical competencies

Year 1	
Q1	Research induction phase. Trainee to visit potiential supervisors and discuss projects
Q2	Trainee to discuss with academic lead which project to undertake and prepare for research (create IRAS form, protocol, etc)

Q3	Clinical attachment
Q4	Diagnostics attachment
Year 2	
Q1	Begin research phase
Q2	Research work
Q3	End of research training component, start to write doctoral fellowship application
Q4	Clinical attachment
Year 3	
Q1	Fellowship application submitted by end of Q1
Q2	Clinical attachment
Q3	Clinical attachment
Q4	Completion of interview(s) for doctoral fellowship

How post links in to the NIHR approved Research Training Programme at your locality:

The ACF will enter the clinical research training programme alongside our two existing ACFs in Infectious Disease and Microbiology

Trainee centeredness:

The research programme will be set up in consensus with the trainee, and the trainee will seek and set up appropriate teaching sessions with the mentor and academic supervisor, as needed.

Quality assurance of the programme:

The academic lead will report regularly to the Wessex Clinical Academic Working Group

Mentoring Arrangements:

Monthly meetings (or more frequently if needed) with research supervisor (Professor Read, Professor Clark or Dr Dale) during research block and every 3-6 months outside of this period .

An independent mentor will be appointed with whom the trainee will be able to discuss any issues of supervision/primary mentorship and the overall quality of the programme.

Academic Lead (University) for the IAT Programme:

Name: Professor Elaine Dennison
Position: Professor of Musculoskeletal Epidemiology
Address: Faculty of Medicine, University of Southampton, Building 85, Life Sciences Building, Highfield Campus, Southampton, SO171BJTelephone: 023 8070 4021

Email: emd@mrc.soton.ac.uk

Academic Supervisor (University) Details:

Professor Tristan Clark, Professor of Infectious diseases and Honorary Consultant in Infectious Diseases. LF101, Level F, South Block, Southampton General Hospital, Tremona Road Southampton SO16 6YD. Tel 023 81208410, t.w.clark@soton.ac.uk

Professor Robert Read, Professor of Infectious Diseases and Honorary Consultant in Infectious Diseases, Head of Clinical and Experimental Sciences Academic Unit, University of Southampton, Southampton General Hospital, Tremona Road, Southampton SO16 6YD. Tel 023 81206455, r.c.read@soton.ac.uk

Dr Adam Dale, Associate Professor of Infectious Diseases and Medical Microbiology, and Honorary Consultant in Medical Microbiology. LC71A, Level C, South Academic Block, Southampton General Hospital, Tremona Road, Southampton, SO16 6YD. Tel: 023 81208896, a.p.dale@soton.ac.uk

Education Supervisor (Trust) Details:

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Clinical Supervisor(s) Details:

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Deanery Programme Training Director Details:

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Deanery Programme Manager Details:

Katie Luckhurst
Education Programme Manager
england.medicine.wx@nhs.net

Confirmation that ACF posts attract an NTN(a):

This post will attract an NTN in infectious Diseases and Medical Microbiology