B6. 2-YEAR SPECIALISED FOUNDATION PROGRAMMES AT UNIVERSITY COLLEGE LONDON MEDICAL SCHOOL (UCL)

1. INTRODUCTION

The North London Foundation School is a foundation school linked to **UCL Medical School**. North London/UCL offers **21** specialised Foundation Programme (SFP) posts comprising different speciality-based academic placements. The two-year programmes will deliver the full range of competences required of the Foundation Programme Curriculum. The F2 posts will each include a placement in a centre of academic and research excellence.

The F1 posts are based at Barnet Hospital (Royal Free London NHS Foundation Trust) or North Middlesex University Hospital NHS Trust. The F2 posts are based in central London, either at University College London Hospitals NHS Foundation Trust, the Royal Free Hospital (Royal Free London NHS Foundation Trust), or the Whittington Health.

All trainees accepted for the two-year specialised Foundation Programme will have:

- A four-month academic placement as one element of their 12-month F2 post
- A mentor throughout the F2 year (Academic Supervisor)
- Teaching sessions aimed at developing academic skills
- Visitor status within the appropriate Division to enable access to UCL online library facilities

2. DETAILS OF TRAINING PROGRAMMES

Programme Reference	**Programme Theme**	**Based at**
2627/UCL/01	Anaesthetics and Perioperative Medicine	University College London Hospitals NHS Foundation Trust
~~2627/UCL/02~~	~~Clinical Pharmacology and Cardiovascular Medicine~~	~~University College London Hospitals NHS Foundation Trust~~
2627/UCL/03	Haematology	University College London Hospitals NHS Foundation Trust
2627/UCL/04	Medical Virology	Royal Free London NHS Foundation Trust (Royal Free Hospital)
2627/UCL/05	Primary Care and Population Health	Whittington Health
~~2627/UCL/06~~	~~Hepatology~~	~~University College London Hospitals NHS Foundation Trust~~
2627/UCL/07	Clinical Immunology	Royal Free London NHS Foundation Trust (Royal Free Hospital)
~~2627/UCL/08~~	~~Integrated Cancer Care (Medical Oncology, Clinical Oncology, Pathology)~~	~~University College London Hospitals NHS Foundation Trust~~

2627/UCL/09	Medical Education	Royal Free London NHS Foundation Trust (Royal Free Hospital)
~~2627/UCL/10~~	~~Clinical Radiology~~	~~University College London Hospitals NHS Foundation Trust~~
2627/UCL/11	Neurosurgery	University College London Hospitals NHS Foundation Trust
2627/UCL/12	Cellular Pathology	University College London Hospitals NHS Foundation Trust
2627/UCL/13	Neurology and Neuroscience	Royal Free London NHS Foundation Trust (Royal Free Hospital)
2627/UCL/14	Nuclear Medicine	Royal Free London NHS Foundation Trust (Royal Free Hospital)
~~2627/UCL/15~~	~~Paediatrics~~	~~University College London Hospitals NHS Foundation Trust~~
2627/UCL/16	Psychiatry	North London Foundation Trust (linked to University College London Hospitals NHS Foundation Trust)
2627/UCL/17	Renal Medicine	Royal Free London NHS Foundation Trust (Royal Free Hospital)
2627/UCL/18	Respiratory Medicine	University College London Hospitals NHS Foundation Trust
~~2627/UCL/19~~	~~Rheumatology~~	~~University College London Hospitals NHS Foundation Trust~~
2627/UCL/20	Obstetrics & Gynaecology	University College London Hospitals NHS Foundation Trust
~~2627/UCL/21~~	~~Urology~~	~~University College London Hospitals NHS Foundation Trust~~

3. POSTS

Information regarding specific programmes is provisional and may be subject to change. Precise details of rotations are subject to service delivery requirements of the NHS and subsequent confirmation by employing Trusts.

Programme 1 – Anaesthetics and Perioperative Medicine – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/01

Type of programme

Health Services Policy
Biological mechanisms of human performance, health & illness
Perioperative workforce education and training

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	University College London Hospitals NHS Foundation Trust

Brief outline of department

Anaesthesia and Perioperative Medicine clinicians interact with almost all acute medical and surgical specialities across the spectrum of acute illness. Alongside our clinical care we are an exciting, dynamic and welcoming group engaged in moving forward the care of patients contemplating, undergoing or recovering from surgery.

Our department of Anaesthesia and Perioperative Medicine has experts in perioperative medicine, clinical trials, quality improvement, preoperative risk assessment and exercise physiology. We run an innovative MSc in Perioperative Medicine and teach on many other of UCL's programmes such as cardiovascular and respiratory physiology. We teach MBBS students in years 1, 4 and 6.

Structure of academic project/what expected

Trainees will have the opportunity to be directly involved in aspects of research or education which interests them within a supportive and encouraging environment. During the four-month placement Academic Foundation doctors will be exposed to our many research disciplines, each adopting varied methodologies and covering the entire perioperative pathway of care.

For details, please see
UCL Centre for Perioperative Medicine
UCL Patient Safety Research Collaborative

Our team are happy to meet and chat with you about your career plans and how we might help.

Clinical commitments during academic placement

Trainees will have some time in theatre, preoperative assessment, exercise testing and the post anaesthesia care unit all with dedicated teaching doctors. This is so the trainees understand the processes involved. Trainees can also undertake our unique online learning module in Perioperative Medicine.

Departmental academic teaching programme (if applicable)

Weekly Tuesday departmental research meeting- Professor Ramani Moonesinghe's Group. A rolling dynamic programme of external and internal presentations on all aspects of departmental research.

Weekly Human Physiology and Human Performance Laboratory meetings, exploring all aspects of health performance from bench to bedside, led by Associate Professor John Whittle.

Weekly Perioperative Medicine Teaching afternoons, welcome doctors to partake in popular teaching sessions on all aspects of perioperative care and led by the clinical consultant of the week.

In addition, there are many other teaching and training opportunities held throughout the week, including Improvement Science and departmental audit activities.

Academic Lead:

Prof David Walker
d.walker@ucl.ac.uk
UCL Professor of Perioperative Medicine Education
Honorary Consultant in Critical Care Medicine UCLH
Co-Director of the Patient Safety Research Collaborative (SPACE) UCL
contact

Programme 2 – Clinical Pharmacology and Cardiovascular Medicine – based at University College London Hospitals NHS Foundation Trust

Reference:
2627/UCL/02

Type of programme

Clinical Pharmacology and Therapeutics

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	Institute of Health Informatics, University College London

Brief outline of department

The attachment offers a high-quality experience and training in clinical academic medicine in a unit with strengths in the delivery of evidence-based clinical care, as well as biomedical and translational research. The clinical pharmacology team at UCL cover a wide range of research and quality improvement activities in the cardiovascular, health informatics and population health domains.

The clinical firm cares for patients presenting to University College Hospitals (UCLH) with a broad range of general medical, multisystem and cardiovascular disorders, and there are close links with the specialist services Cardiology, Heart Failure, Renal and Endocrine services.

Consultants and trainees are involved in evaluating new medicines for inclusion in the hospital formulary and in the development of drug policy and use a rigorous evidence-based approach. Research activity is located in close proximity to the hospital at the Centres for Clinical Pharmacology and Cardiovascular Medicine, UCL Institute of Cardiovascular Science and UCL Institute of Health Informatics, where research groups are engaged in genomic medicine, understanding the fundamental basis of cardiovascular disease, improving electronic health record systems, and understanding biological processes including inflammation and atherogenesis supported by the British Heart Foundation, MRC, and Wellcome Trust.

Structure of academic project/what expected

Trainees can gain experience in a number of research areas including wet and dry labs. Potential areas include health informatics and data science, artificial intelligence, implementation of electronic health record innovations.
There are also well-equipped BHF-funded laboratories with core facilities for cell culture, patch-clamping, FACS analysis, genomics, organ bath pharmacology and clinical investigation.

The team has a strong track record of supporting trainees at a range of levels from foundation to academic clinical fellows, lectureships and PhD fellowships.

Clinical commitments during academic placement None
Departmental academic teaching programme (if applicable) The clinical pharmacology ward team organise clinical teaching every Thursday morning, and there are monthly clinical academic seminars with a range of departmental or guest speakers. The different UCL departments have a range of seminars and other teaching programmes which trainees can participate in.
Academic Lead: Dr Anoop D. Shah and Prof Aroon Hingorani a.shah@ucl.ac.uk, a.hingorani@ucl.ac.uk University College London, University College London Hospitals Institute of Health Informatics

Programme 3 – Haematology – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/03

Type of programme

Research

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	Department of Haematology, UCL Cancer Institute

Brief outline of department

The Department of Haematology at the UCL Cancer Institute compromises clinician scientists and scientists with diverse research interests, primarily in translational cancer research. Areas of particular strength and interest include:
-Genomics and clonal evolution in Myeloma
-Leukaemia/Lymphoma biology
-Targeted protein degradation
-CAR-T cell therapy

Structure of academic project/what expected

Before the start of the 4-month academic block, the trainee will meet with the academic lead to discuss projects. Having identified an area of translational malignant haematology (in one of the areas described above), a focused project in that area will be developed. The trainee will spend 4 months in the chosen lab learning and using core laboratory techniques that may include molecular cloning, cell culture, flow cytometry.

There will also be the opportunity to be involved in data analysis and clinical projects.

Clinical commitments during academic placement

None

Departmental academic teaching programme (if applicable)

The trainee will be embedded in the department of haematology which has weekly departmental seminars and regular institute wide seminars, and research progress meetings. There are also weekly teaching seminars for all academic trainees (ACFs, CRTFs, CLs) that the trainee will attend.

Academic Lead:
Dr Rob Sellar
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Research Department of Haematology

Programme 4 – Medical Virology – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/04

Type of programme

Clinical and research training in Virology

Employing trust:	*Academic placement based at:*
Royal Free London NHS Foundation Trust (Royal Free Hospital)	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

Virology is an exciting and rapidly moving subject which integrates laboratory work with clinical needs. Trained specialists need both a good working knowledge of applied molecular biology and a clear understanding of viral pathogenesis.

Virologists reach out from their laboratory base to interact with clinical colleagues in a wide variety of areas (e.g. solid organ transplantations, dialysis, HIV, viral hepatitis, antenatal, infectious diseases including high consequence infections, occupational health, infection prevention & control etc.). This placement will give trainees an experience of working in a clinical diagnostic Virology department and understand the role and importance of interaction between laboratory and clinical medicine in patient management. They will acquire knowledge and gain experience of common clinical scenarios, range of differential diagnoses, evidence-based diagnostic approach, rational use of investigations, appropriate interpretation of results, and clinical liaisons including giving management advice.

Recent publications/submissions from SFP Trainees:

Zeng J, Macdonald D, Durkin R, Irish D, Hart J, Haque T. Opt-out testing for hepatitis B and C infections in adults attending the emergency department of a large London Teaching Hospital. *Submitted to Journal of Clinical Virology*. (2023)
Lumley S, Green C, Rafferty H, Zuhair M, Haque T, Griffiths P et al. Cytomegalovirus viral load parameters associated with earlier initiation of preemptive therapy after solid organ transplantation. PLoS One. (2019)

Zuhair M, Smit GSA, Wallis G, Jabbar F, Smith C, Devleesschauwer B, Griffiths PD. Estimation of the worldwide seroprevalence of cytomegalovirus: A systematic review and meta-analysis. *Reviews in Medical Virology* (2019)

Snell LB, Smith C, Chaytor S, McRae K, Patel M, Griffiths P. Screening for potential susceptibility to rubella in an antenatal population: A multivariate analysis. *Journal of Medical Virology*. (2017)

Structure of academic project/what expected

- Gain experience of the application of scientific methods through hypothesis generation and through collection, interpretation, analysis and presentation of data for the chosen research project.
- Undertake and complete quality improvement and audit projects
- Develop and improve presentation skills by presenting audit and research findings to local and where appropriate national & international meetings.

Write up the findings of the audit/research projects for publication under the supervision of a designated supervisor.

Clinical commitments during academic placement

The trainee will assist the specialty registrar in providing clinical liaison to the major users served by the diagnostic laboratory. This will provide excellent experience of how to get the most out of a laboratory which will stand the trainee in good stead when he/she returns to the wards. Usually, 60% of the time will be spent on clinical work and 40% on research. A timetable will be drawn at the start of the training to combining both the clinical and academic components. This timetable will be reviewed regularly by the trainee and the clinical supervisor.

Departmental academic teaching programme (if applicable)

There is a tutorial programme delivered by the Virology consultants at the start of the placement. In addition, the trainee will attend and participate in research seminars, journals clubs and other educational events that take place in the Virology/Infection department and attend the core FY2 teaching programme. The weekly handover meetings attended by the Virology Medical Team where clinical cases are discussed.

Academic Lead:

Dr Tanzina Haque
Consultant Virologist, Royal Free London NHS Foundation Trust
Honorary Associate Professor, UCL
Based at: Royal Free Hospital
E-mail address: thaque@nhs.net

Programme 5 – Primary Care and Population Health – based at Whittington Health

Reference: 2627/UCL/05

Type of programme

Primary Care & Population Health

Employing trust:	*Academic placement based at:*
Whittington Health	UCL Research Department of Primary Care & Population Health

Brief outline of department

The Research Department of Primary Care and Population Health (PCPH) at University College London is one of the largest departments of its kind in Europe encompassing a vibrant programme of internationally competitive multi-disciplinary primary care research as well as a large programme of undergraduate medical education and postgraduate academic training. PCPH is a member of the prestigious NIHR School for Primary Care Research, a partnership between the nine leading academic centres for primary care research in England.

As a department we are well placed to offer experience in any one or more of our established and internationally recognised research units as follows:

- Ageing
- eHealth Unit
- Mental Health
- Sexual Health and Infection
- Medical Education

See: https://www.ucl.ac.uk/epidemiology-health-care/research/pcph

PCPH is also part of the wider Institute of Epidemiology and Health Care. See: https://www.ucl.ac.uk/epidemiology-health-care/

PCPH academic staff include clinicians, epidemiologists, statisticians, health psychologists and sociologists. The department also has a major programme of undergraduate teaching, delivering 15% of teaching across all years of the UCL undergraduate medical curriculum. The department has a successful history of hosting academic training integrated with clinical roles.

Examples of recent publications/submissions from SFP Trainees

https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(24)00084-1/fulltext

file:///D:/Foundation/882b8694-5e17-4ec2-9936-b6ee8cb6aedc_18591_-_katarina_hoernke.pdf

https://pubmed.ncbi.nlm.nih.gov/37286327/

https://pubmed.ncbi.nlm.nih.gov/37997073/

https://pubmed.ncbi.nlm.nih.gov/37997096/

https://bjgpopen.org/content/8/1/BJGPO.2023.0202

Structure of academic project/what expected

The PCPH Academic Foundation post will provide practical experience of research through apprenticeship to an established research team with opportunities to engage actively in one or more current research projects. Trainees will receive individually tailored academic mentoring and supervision in order to develop knowledge and skills in areas such as epidemiology, qualitative research, intervention development and evaluation, implementation and translational research, clinical trials and methodological innovation.

Clinical commitments during academic placement

This is a non-clinical attachment

Departmental academic teaching programme (if applicable)

PCPH offers a lively programme of departmental research meetings and access to a wider range of training courses including numerous UCL short courses and access to NIHR SPCR training opportunities. Practical experience of undergraduate teaching can also be available to trainees subject to interest and experience.

Academic Lead:

Prof Joe Rosenthal
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Clinical Professor of Primary Care Education
Department of Primary Care & Population Health, UCL Royal Free

Programme 6 – Hepatology – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/06

Type of programme

Research

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

Hepatology is a major clinical speciality, and UCL has one of the largest academic departments of Hepatology in the UK and in Europe. The clinical practice is the investigation and treatment of all types of liver disease, from the investigation of abnormal liver function tests to liver transplantation. The associated clinical and laboratory science includes subjects as varied as chronic viral disease, hepatic fibrogenesis, liver regeneration and tissue bioengineering, the immunology of liver disease including transplant rejection, the pathophysiology of liver failure, cellular and molecular biology, hepatocyte transplantation, gene therapy, primary liver cancers, interventional radiology and biliary endoscopy

Recent publications/submissions from SFP Trainees:

Evolution of spontaneous portosystemic shunts over time and following aetiological intervention in patients with cirrhosis.

Vidal-González J, Martínez J, **Mulay A,** López M, Baiges A, Elmahdy A, Lampichler K, Maleux G, Chang J, Poncela M, Low G, Ghigliazza G, Zipprich A, Picón C, Shah R, Llop E, Darnell A, Maurer MH, Bonne L, Ramón E, Quiroga S, Abraldes JG, Krag A, Trebicka J, Ripoll C, La Mura V, Tandon P, García-Martínez R, Praktiknjo M, Laleman W, Reiberger T, Berzigotti A, Hernández-Gea V, Calleja JL, Tsochatzis EA, Albillos A, Simón-Talero M, Genescà J; Baveno VI-SPSS group from the Baveno Cooperation.

JHEP Rep. 2023 Nov 30;6(2):100977. doi: 10.1016/j.jhepr.2023.100977.

Prognostic value of non-invasive scores based on liver stiffness measurement, spleen diameter and platelets in HIV-infected patients.

Benmassaoud A, Macias J, Delamarre A, Corma-Gomez A, Guaraldi G, Milic J, Rockstroh JK, Van Bremen K, Tsochatzis E**, Mulay A,** Price J, Garvey LJ, Lemoine M, Kablawi D, Lebouche B, Klein MB, Ballesteros LR, Boesecke C, Schepis F, Bhagani S, Cooke G, Berzigotti A, Hirose K, Pineda JA, Ramanakumar AV, De-Ledinghen V, Saeed S, Sebastiani G.Liver Int. 2023 Jul;43(7):1427-1439. doi: 10.1111/liv.15605.

Liver fibrosis stage based on the four factors (FIB-4) score or Forns index in adults with chronic hepatitis C.

Huttman M, Parigi TL, Zoncapè M, Liguori A, Kalafateli M, Noel-Storr AH, Casazza G, Tsochatzis E.Cochrane Database Syst Rev. 2024 Aug 13;8(8):CD011929. doi: 10.1002/14651858.CD011929.pub2.

Structure of academic project/what expected

The academic attachment will include an attachment to a specific clinical scientist/investigator for training, with a defined achievable project intended to lead to a publication or presentation. Clinically orientated laboratories using physiological, biochemical, immunological and cellular and molecular biotechnologies are in current use in well-equipped laboratories. Clinical projects might involve biliary endoscopy, alcoholic liver disease, non-alcoholic fatty liver disease, immune-mediated liver disease, cirrhosis and complications of portal hypertension and clinical trials such as the use of anti-viral agents for chronic hepatitis, new approaches to immunosuppression, and improvements in the management of acute and acute on chronic liver failure.

Trainees may also have some clinical training relevant to the understanding of and treatment of severely ill patients, applicable to many other specialities such as intensive care, nephrology and cardiology, and direct involvement will provide important training in the F2 competencies. Trainees will be allocated an academic and clinical supervisor who will ensure that the aims of the attachment and of the Foundation Programme are met.

Clinical commitments during academic placement

None

Departmental academic teaching programme (if applicable)

Journal club, regular research seminars/guest lectures, clinical meetings (weekly updates in Hepatology, radiological and histopathological conferences)

Academic Lead:

Prof Emmanouil Tsochatzis
e.tsochatzis@ucl.ac.uk
Professor of Hepatology
UCL Institute for Liver and Digestive Health

Programme 7 – Clinical Immunology – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/07

Type of programme

Clinical Immunology

Employing trust:	*Academic placement based at:*
Royal Free London NHS Foundation Trust (Royal Free Hospital)	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

The Clinical Immunology department at the Royal Free Hospital is an internationally recognised centre of expertise and research for patients with immune deficiency. It provides a comprehensive, predominantly outpatient-based clinical service with a focus on primary immunodeficiency diseases (PID) and a growing provision for secondary immunodeficiencies. In addition, the Department provides multiple highly specialist outpatient clinics in chronic granulomatous disease, young adults, complement disorders and assessment/follow-up of haematopoietic stem cell transplant for PID patients.

A number of joint clinics are held, for example with respiratory, hepatology and dermatology colleagues. The clinical department works very closely with the UCL Institute of Immunity and Transplantation with most consultants holding appointments at both institutions. With Great Ormond Street NHS Foundation Trust, the Department forms the UCL Centre of Primary Immunodeficiency, linking clinical and research activities across paediatrics and adult medicine. In 2009 the Centre received a Jeffrey Modell Foundation award to become an international centre of excellence for Primary Immunodeficiency and it retains the award to this day.

Recent accepted abstracts from trainees:

British Society of Immunology Clinical Immunology Professionals Network conference 2024:

Yu A, et al. Cardiovascular risk in common variable immunodeficiency (CVID)

Mangtani A, et al. Chronic norovirus infection in immunodeficiency: a UK national case series [oral presentation].

Mangtani A, et al. Favipiravir for treatment of chronic norovirus infection: an international survey.

European Society for Immunodeficiencies conference 2024:

Chow K, et al. Thromboembolic complications of chronic granulomatous disease.

Recent publications from trainees:

- Roa-Bautista A, Brown LK, Tadros S, Burns SO, Godbole G, Lowe DM. **Clinical Features, Immunological Characteristics, and Treatment Outcomes of Campylobacter spp. Infections in Patients With Common Variable Immunodeficiency.** *J Allergy Clin Immunol Pract* 2023; 11:3493-3501.e4
- Maimaris J, O'Sullivan A, Underhill I, Green G, Symes A, Lowe D, Burns S, Campbell M, Elfeky R. **Immunoglobulin Replacement Therapy During COVID-19 Pandemic: Practical and Psychological Impact in Patients with Antibody Deficiency.** *J Clin Immunol* 2023; 43:1519-1525
- Upasani V, Townsend K, Wu MY, Carr EJ, Hobbs A, Dowgier G, Ragno M, Herman LS, Sharma S, Shah D, Lee SFK, Chauhan N, Glanville JM, Neave L, Hanson S, Ravichandran S, Tynan A, O'Sullivan M, Moreira F, Workman S, Symes A, Burns SO, Tadros S, Hart JCL, Beale RCL, Gandhi S, Wall EC, McCoy L, Lowe DM. **Commercial immunoglobulin products contain neutralising antibodies against SARS-CoV-2 spike protein.** *Clin Infect Dis* 2023; 77:950-960
- Chan M, Linn MMN, O'Hagan T, Guerra-Assunção JA, Lackenby A, Workman S, Dacre A, Burns SO, Breuer J, Hart J, Tadros S, Lowe DM. **Persistent SARS-CoV-2 PCR Positivity Despite Anti-viral Treatment in Immunodeficient Patients.** *J Clin Immunol* 2023; 43:1083-1092
- Verma N, Tadros S, Bahal S, Lowe DM, Burns SO. **Case of Fatal Meningitis in an Adult Patient with IRAK4 Deficiency.** *J Clin Immunol* 2023; 43:1137-1138
- Sperlich JM, Grimbacher B, Soetedjo V, Workman S, Burns SO, Lowe DM, Hurst JR. **Predictive Factors for and Complications of Bronchiectasis in Common Variable Immunodeficiency Disorders.** *J Clin Immunol* 2022; 42:572-581
- Brown LK, Moran E, Goodman A, Baxendale H, Bermingham W, Buckland M, AbdulKhaliq I, Jarvis H, Hunter M, Karanam S, Patel A, Jenkins M, Robbins A, Khan S, Simpson T, Jolles S, Underwood J, Savic S, Richter A, Shields A, Brown M, Lowe DM. **Treatment of chronic or relapsing COVID-19 in immunodeficiency.** *J Allergy Clin Immunol* 2022; 149:557-561
- van Schewick CM, Lowe DM, Burns SO, Workman S, Symes A, Guzman D, Moreira F, Watkins J, Clark I, Grimbacher B. **Bowel Histology of CVID Patients Reveals Distinct Patterns of Mucosal Inflammation.** *J Clin Immunol* 2022; 42:46-59
- Campos LC, Di Colo G, Dattani V, Braggins H, Kumararatne D, Williams AP, Alachkar H, Jolles S, Battersby A, Cole T, Elcombe S, Gilmour KC, Goldblatt D, Gennery AR, Haddock J, Lowe DM, Burns SO. **Long-Term Outcomes for Adults with Chronic Granulomatous Disease in the United Kingdom.** *J Allergy Clin Immunol* 2021; 147:1104-1107
- Bahal S, Verma N, Tadros S, Lowe DM, Burns SO. **A Case of Burkholderia Prostatitis in a Patient with Chronic Granulomatous Disease.** *J Clin Immunol* 2020; 40:1204-1206
- van Schewick CM, Nöltner C, Abel S, Burns SO, Workman S, Symes A, Guzman D, Proietti M, Bulashevska A, Moreira F, Soetedjo V, Lowe DM, Grimbacher B. **Altered Microbiota, Impaired Quality of Life, Malabsorption, Infection, and Inflammation in CVID Patients With Diarrhoea.** *Front Immunol* 2020; 11:1654
- Brown LK, Ruis C, Clark I, Roy S, Brown JR, Albuquerque AS, Patel SY, Miller J, Karim MY, Dervisevic S, Moore J, Williams CA, Cudini J, Moreira F, Neild P, Seneviratne SL, Workman S, Toumpanakis C, Atkinson C, Burns SO, Breuer J, Lowe DM. **A comprehensive characterisation of chronic norovirus infection in immune deficient hosts.** J Allergy Clin Immunol 2019; 44:1450-1453
- Ghurye RR, Bright P, Lowe D, Buckland MS. **Successful rapid push subcutaneous desensitization in a patient with delayed local hypersensitivity reactions to immunoglobulins.** J Allergy Clin Immunol Pract 2019; 7:2906-2908

- Jones TPW, Buckland M, Breuer J, Lowe DM. **Viral infection in primary antibody deficiency syndromes.** Rev Med Virol 2019: e2049
- Ankcorn M, Moreira F, Ijaz S, Symes A, Buckland MS, Workman S, Warburton F, Tedder RS, Lowe DM. **Absence of persistent Hepatitis E virus infection in antibody-deficient patients is associated with the transfer of antigen neutralising antibodies from immunoglobulin products.** J Infect Dis 2019; 219:245-253
- Harris S, Braggins H, van Leeuwen K, Gilmour K, Buckland MS, Roos D, Lowe DM**. Male X-chromosome mosaicism leading to carrier phenotype and inheritance of chronic granulomatous disease.** J Allergy Clin Immunol Pract 2018; 6(5):1775-1777
- Sperlich JM, Grimbacher B, Workman S, Haque T, Seneviratne SL, Burns SO, Reiser V, Vach W, Hurst JR, Lowe DM. **Respiratory Infections and Antibiotic Usage in Common Variable Immunodeficiency.** *J Allergy Clin Immunol Pract* 2018; 6:159-168

Structure of academic project/what expected

The Clinical Immunology department delivers high quality clinical research in the area of immune deficiency with a particular interest in infectious complications, chronic granulomatous disorder, care of young adults and stem cell transplant. The department also delivers interventional and observational clinical trials with commercial or academic sponsorship.

All consultants are research active with allocated time in job plans and the department employs three clinical research staff. It also regularly hosts overseas trainees who conduct clinical research projects adding to the critical mass of research activity and expertise. Clinical staff work closely with laboratory-based teams at the Institute of Immunity and Transplantation and the Centre for Clinical Microbiology; most consultants are also involved in leadership roles in national or international studies.

The department collaborates closely with other specialists, particularly in respiratory medicine, hepatology, gastroenterology and dermatology, and delivers joint research projects with these partners.

Most patients in the department have consented to allow the use of clinical data for research, to complete additional questionnaires or diaries and to donate additional samples of blood or other body fluids for research. The department has expertise in the acquisition and analysis of high-quality clinical data including the use of advanced statistical techniques, while close collaborators undertake cutting edge laboratory investigations on collected samples.

There will be flexibility for the FY2 trainee to develop their own research ideas within the field of immunodeficiency, but current areas of particular interest are chronic RNA viral infection, antibiotic resistance in immune-deficient patients and thrombotic or vascular complications in patients with immune deficiency.

Clinical commitments during academic placement The FY2 trainee is welcome to attend clinics including national referral clinics, but there is no fixed clinical commitment.
Departmental academic teaching programme (if applicable) The department runs a bi-weekly multidisciplinary teaching session on Friday afternoons which the FY2 trainee will be encouraged to attend and present at. They will also be encouraged to attend the weekly IIT Research meeting (weekly on a Wednesday morning) and the UCL Infection & Immunity external speaker afternoons (Mondays once per month). Further educational opportunities include the hospital Grand Round (weekly on a Wednesday morning) and Infectious Diseases teaching sessions (weekly on a Thursday afternoon).
Academic Lead: Prof Siobhán Burns siobhan.burns@ucl.ac.uk Professor of Translational Immunology Dr David Lowe d.lowe@ucl.ac.uk Honorary Clinical Associate Professor

Programme 8 – Integrated Cancer Care (Medical Oncology, Clinical Oncology, Pathology)– based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/08

Type of programme

Integrated Cancer Care (Medical Oncology, Clinical Oncology, Pathology)

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	UCL Cancer Institute, Research Department of Oncology and Pathology

Brief outline of department

The UCL Cancer Institute and UCLH Cancer Services offer a unique environment combining world-class clinical care with cutting-edge research. The institute hosts key facilities like the CRUK City of London Cancer Centre and the CRUK Radiation Research Unit, enabling translational and clinical research across a range of cancer specialties.

UCLH is one of only two NHS sites in the UK offering proton beam radiotherapy, providing unparalleled opportunities for trainees to gain clinical exposure to this advanced modality. The oncology services at UCLH encompass medical oncology, clinical oncology, and pathology, fostering a multidisciplinary approach to cancer diagnosis and treatment.

Trainees will work within an integrated framework, balancing clinical exposure and academic development, and will gain insight into innovative cancer care approaches, including radiotherapy, immunotherapy, and precision oncology.

Structure of academic project/what expected

The trainee will have the opportunity to undertake a research project tailored to their interests, supported by experts in pathology, oncology, and radiotherapy. Potential projects include:

- Exploring the use of biomarkers in predicting outcomes of proton beam radiotherapy.
- Studying cancer evolution through genomic data from large cohort studies such as TRACERx or STAMPEDE.
- Applying AI and machine learning to improve cancer diagnostics and prognostics.

The first three weeks of the placement will introduce the trainee to relevant clinical and research techniques, including bioinformatics and laboratory methods. The

remaining time will focus on a defined research question, with mentorship to support data analysis, interpretation, and publication or presentation.

Clinical commitments during academic placement

None

Departmental academic teaching programme (if applicable)

- Core Facility (TTP) Training: Introductory courses on laboratory techniques and bioinformatics.
- Weekly Research Seminars (CIRPS): Presentations on ongoing research by faculty and trainees.
- Guest Lectures: Talks from national and international experts on cancer research and care.
- Immuno-oncology and Pathology Forums: Specialist groups discussing emerging trends and findings.

Academic Lead:

Dr Crispin Hiley
crispin.hiley@ucl.ac.uk
Associate Professor and Consultant Clinical Oncologist
UCL Cancer Institute

Programme 9 – Medical Education – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/9

Type of programme

Medical Education

Employing trust:	*Academic placement based at:*
Royal Free London NHS Foundation Trust (Royal Free Hospital)	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

The PME department at RFH is well established and has an excellent track record. There are 630 trainees and 130 clinical fellows. The department is supported by a strong administrative team. The structure of the senior faculty and the governance of education and training are clear and strong. There is a vibrant Simulation department presenting a huge range of additional opportunities. The department has hosted two foundation education FY2s in the past and has the benefit of several part-time education fellows. There are strong links with the undergraduate medical school and with trust non-medical training. There is a tradition of multi-disciplinary learning.

Structure of academic project/what expected

The FY2 trainee would be expected to participate in the life of the PME department. There would be twice weekly operation meetings with senior faculty. They would be expected to choose two to three specific education projects (from a large menu of possible projects or choose one of their own design) to develop, pilot, evaluate and present or publish during their time in the department. They will be mentored in Sim training and participate in several varied simulation activities. They will learn to use simulation equipment (Sim man, sim baby etc). They will be tutored and gain experience in feedback/de-brief and after-action reviews. They will participate in a monthly education journal club and be expected to present on more than one occasion. Their teaching sessions will be observed by a senior faculty member. Each teaching session will be evaluated by participants. The trainee will gain experience of multi-disciplinary teaching and will assist with the organization of the generic aspects of the FY1 mandatory teaching.

Clinical commitments during academic placement

The trainee will either gain some OPD experience in the institute of immunology and/or some evening/night A&E or MAU experience.

Departmental academic teaching programme (if applicable)

Journal club (once per month)

FY1 didactic and generic programme FY2 didactic and introduction to healthcare leadership (multi-disciplinary)
Academic Lead: Prof Aine Burns aine.burns@nhs.net Consultant Nephrologist and Director of Post-Graduate Medical Education Royal Free London NHS Foundation Trust (Royal Free Hospital)

Programme 10 – Clinical Radiology – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/10

Type of programme

Clinical Radiology

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	University College London Hospitals NHS Foundation Trust

Brief outline of department

The SFP placement will be hosted at The Centre for Medical Imaging (CMI) (for more details see https://www.ucl.ac.uk/medicine/research/medical-imaging-0), which sits within the Division of Medicine and is the focus for clinical radiology research at UCL/UCLH. CMI is the leading UK focus for academic clinical radiology, and hosts six Professors, including two radiologist NIHR Senior Investigators/Fellows of the Academy of Medical Sciences (Halligan/Taylor), an NIHR Professor (Punwani), and the President of the International Society of MRI in Medicine (Hall-Craggs). An independent RAND report rated UCL imaging research top of the UK by a large margin and a 2021 exercise to support BRC reapplication placed us 4th in the world.

Our work encompasses the complete imaging research pipeline, from first in man experiments (e.g. development of novel acquisition methods such as hyperpolarised MRI), through to large multicentre NIHR trials of imaging technology (e.g. the HTA funded streamline trial of whole-body MRI in cancer staging). We have particular research interests in novel MRI techniques, cancer imaging, inflammation imaging, medical statistics and interventional oncology. These research themes are supported by a multi-disciplinary team of radiologists, physicists, engineers and imaging statisticians (with one of the only Professors of Diagnostic and Prognostic Statistics in the UK – Mallett), providing an exceptionally diverse environment.

We also collaborate with researchers in statistical methodology, health economics, modelling, health psychology, medical image computing, artificial intelligence (AI) and pre-clinical imaging, both at UCL and beyond. CMI has access to an unparalleled range of platforms for human imaging including several clinical multi-detector row CT and MR scanners, a dedicated 3T Philips research magnet, and a Philips interventional 3T magnet and Siemens PET/MRI, as well as preclinical systems for photoacoustic imaging.

Structure of academic project/what expected

SFP trainees will have the opportunity to select a project and area which fits with their interests; a large variety of potential projects crossing the areas above will be available. For example, current ACFs and other fellows are currently working on

projects including imaging of renal tumours, inflammation imaging in the bowel and skeleton, hyperpolarised MRI, obesity imaging and AI-assisted imaging.

An SFP placement at CMI would provide a unique opportunity to be involved in imaging research in a diverse and thriving department. The trainee would have their own allocated desk space at CMI with access to both UCL and NHS computers and would have access to the full suite of administrative and technical infrastructure available at CMI.

Clinical commitments during academic placement

The trainee will be given some latitude to determine their exposure to clinical radiology, which will predominantly be within the Imaging Department at UCLH (one of the largest and most academically active in the UK).

Departmental academic teaching programme (if applicable)

The trainee will receive personal supervision on a weekly basis and will also be able to participate in a wide range of activities hosted at CMI and collaborating groups, including journal clubs, interest groups and seminars across UCL.

Academic Lead:

Dr Timothy Bray
t.bray@ucl.ac.uk
Honorary Associate Professor and Consultant Radiologist

Programme 11 – Neurosurgery– University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/11

Type of programme

Research

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	UCL Division of Neurosurgery

Brief outline of department

UCL Neurosurgery is affiliated with the Victor Horsley Department of Neurosurgery at UCLH, which includes a group of 29 neurosurgeons, 10 of whom have protected academic time. Our clinical activity covers the range of neurosurgery (except trauma and paediatrics), and being a large, busy neurosurgical centre at the National Hospital for Neurology and Neurosurgery, there is no shortage of patient numbers in any subspecialty area.

Our academic activities range from wet lab fundamental/mechanistic research to AI/Robotics and to clinical trials. We have a strong academic training environment, currently with 2 ACFs and 3 CLs. Each academic trainee has a mentor for both project and career advice, and as such are well supported.

Structure of academic project/what expected

An initial session with the SFP trainee and the Academic Lead will help the trainee to select a project that is best-suited for them. SFP trainees will have a selection of projects ranging from the wet lab to the bedside. Example projects include:

Project 1 (Lead: Ciaran Hill): **Dissecting the role of Injury in Glioblastoma**. This project aims to explore the role of specific aspects of injury on glioblastoma, a highly aggressive form of brain cancer. Using a variety of basic research methods (to be adapted based on the SFP applicants interests and experience – but including the full range of molecular biology and genomic techniques, tissue culture, and animal models), we will examine the underlying molecular mechanisms involved in the injury response of glioblastoma. Our focus will be on identifying specific injury response programmes injury that could be potentially exploited for therapeutic intervention.

Project 2 (Lead: Hani Marcus): **Automated Assessment of Surgical Operative Workflows Utilising Computer Vision.** This project aims to develop a machine learning platform for predicting the phases and steps of neurosurgical operations, using the insertion of intracranial pressure monitoring probes (ICP bolts) as an exemplar.

Operative videos capturing ICP bolt insertion are collected using GoPro cameras worn by the operating surgeon. These videos will be securely uploaded to an annotation platform, where they undergo labelling with the various phases and steps of the operation. Prior consent is obtained from patients and the project is registered with our GDPR department. Subsequently, an in-house machine learning platform will be developed using these annotated videos as training data. The primary objective is to train the platform to accurately predict the steps of the surgical procedure based on the visual cues present in the videos.

The success of the project will be evaluated based on the platform's ability to accurately predict the steps of test videos. This information will be used to support automated indexing for surgical coaching, automated operation notes, and decision-support during live surgery.

The SFP student's role will include: maintenance of the video dataset; annotation of the video dataset; close collaboration with AI engineers in the development of the platform; and composition of a manuscript documenting the project's findings and outcomes.

Project 3 (Lead: Hani Marcus): **Early-stage evaluation of a new handheld robot in neurosurgery**. This project aims to evaluate a hand-held neurosurgical robot under development which aims to improve patient care in endoscopic brain and spine surgery.

The project will be based upon the recent IDEAL framework for evaluating surgical robots published in Nature Medicine, led by the supervising consultant. This guidance outlines multiple domains necessary to evaluate a robot including clinical studies, economic evaluations, and human factors assessments to evaluate a surgical robot comprehensively. This framework will be applied to evaluate a robotic system developed for surgery at NHNN, supporting its early stage preclinical and clinical evaluation. These evaluations are necessary to determine the safety, cost-effectiveness and usability of the device to support its implementation and safe use.

Research methodologies will include prospective observational clinical studies and qualitative methodologies including thematic analysis and process mapping. The success of the project will be evaluated based successful completion of early-stage studies in line with the IDEAL robotics framework, supporting progression of the device through the IDEAL stages.

The SFP student's role will include: collection of data pertaining to the analytical domain (e.g., clinical data for safety assessment, financial data for economic assessment); execution of qualitative research methods (e.g., surveys); close collaboration with robotics engineers to curate study design; and composition of a manuscript documenting the project's findings and outcomes.

Project 4 (lead: Ciaran Hill): **Incorporating VR Headsets into awake craniotomies**. Envision transforming the daunting experience of an awake craniotomy, a surgical procedure to remove brain tumors while the patient is conscious, into a more patient-friendly and efficient process. Our project seeks to revolutionize this experience by incorporating Extended-Reality Headsets into the procedure. This innovative approach will not only facilitate the performance of visual, language, and cognitive tasks required for monitoring and protecting brain function during surgery but also create a calming environment for patients, potentially improving outcomes and their overall experience.

Awake craniotomies, while crucial for preserving vital brain functions, can be stressful and uncomfortable for patients. Traditionally, conducting necessary tasks to test brain function involves cumbersome setups where patients must interact with physical screens or objects, often in awkward positions while also communicating with the surgeon or therapists. Additionally, the sterile and intimidating operating room environment can heighten patient anxiety, which could affect the surgery's success. By integrating Extended-Reality Headsets into the procedure, we can streamline cognitive and sensory assessments directly within the patient's field of view, eliminating the need for awkward positioning or external equipment. Furthermore, we can enhance the patient's environment by projecting soothing visuals or familiar scenes, reducing stress and potentially improving cooperation and outcomes. By digitizing task delivery and environmental control within the headset, we not only refine the procedure but also pioneer a compassionate approach to neurosurgery that considers patient comfort and mental well-being as integral to successful outcomes.

This project aims to: (a) Enhance the precision and efficiency of monitoring brain function during awake craniotomies by integrating visual, language, and cognitive tasks into a mixed-reality environment; (b) Improve patient comfort and reduce anxiety during surgery through customizable, calming visuals, contributing to better overall patient experiences; and (c) Potentially reduce surgery times and improve outcomes by streamlining the process and enhancing patient cooperation. We anticipate that this approach will lead to significant advancements in patient care during awake craniotomies, setting new standards for efficiency and comfort in neurosurgical procedures.

Project 5 (Lead: Rob Brownstone): **Towards novel treatments for dystonia**. This is a wet lab-based project in which neural circuits underlying dystonia will be studied. Methodologies could include tissue analysis (confocal microscopy, machine-learning algorithms for image analysis) and/or physiological analysis (including machine learning algorithms for analysing neural or animal behavioural data). The lab studies dystonias primarily in mouse models, but investigations range from studies in flies to

physiological studies of people with dystonia – so there are many opportunities for SPF trainees.

Project 6 (Lead: Marie Krueger / Ludvic Zrinzo): **The role of pallidothalamic tractotomy in the management of Parkinson's disease.** The pallidothalamic tract carries neural signals from the pallidum to the ventrolateral thalamus and was an early target for "campotomy" by stereotactic ablation in the management of Parkinson disease (PD) before the introduction of levodopa in the late 1960s and MRI in the 1980s. Stereotactic ablation is going through a resurgence after the introduction of MR-guided focused ultrasound and, as a result, MR-guided radiofrequency ablation is also gaining traction in experienced centres. Initial data suggests that pallidothalamic tractotomy (PTT) may benefit patients with PD whose symptoms do not respond adequately to medical management. However, patient selection, its impact on different symptoms (tremor, stiffness, bradykinesia, gait freezing, etc.), and how this intervention compares with other surgical treatments of PD is poorly understood. Clinical studies exploring PTT combined with MR connectivity studies to explore mechanistic aspects will provide ample opportunity for research for SPF trainees who will also be exposed to other exciting areas of development within the UK's largest functional neurosurgery service.

Research environment:

UCL is one of the world's largest and most successful research institutions in both neuroscience and cancer. There are many research groups that provide exceptional training for junior researchers. The specialized foundation program (SFP) trainee will receive guidance and support from experienced researchers across the spectrum from the wet labs to clinical research. They will have access to advanced resources and opportunities for skill development through regular seminars and meetings. Close supervision will ensure the trainee's progress and understanding of the research objectives.

We are integrated with various teams across UCL, UCLH, and the Crick, and collaborate with investigators around the world. For example, we are integrated with a robotics team responsible for the evaluation of guidelines. We have a strong track record of publications (see annual report on UCL Neurosurgery webpage). The above listed projects have received millions of pounds of research funding.

In summary, we offer junior academic researchers a unique opportunity to contribute to ground-breaking research, collaborate with renowned experts, and pursue a path of academic and professional success in the dynamic field of neurology and neurosurgery. We have a strong track record facilitating trainees' entries into competitive training programmes (e.g. 19 neurosurgical training numbers secured by

our junior academic staff in the past 4 years). And prior ACFs have gone on to PhD programmes and Clinical Lectureships.

Supervisory arrangements:

Supervisory arrangements for these projects will be structured to provide comprehensive support and guidance to the specialized foundation program (SFP) trainee. Led by academic-clinician neurosurgeons with relevant sub-specialty expertise, the trainee will benefit from clinical insights and experience in managing patients. Additionally, the trainee will work closely with other personnel (e.g. basic science teams; engineering teams; PhD students; lab technicians; postdoctoral researchers). This interdisciplinary approach ensures a rich learning environment where the trainee will receive mentorship from both clinical and basic science perspectives. Regular meetings and progress reviews will be conducted to monitor the trainee's development and provide opportunities for feedback and discussion. By integrating various approaches, the supervisory team will foster the trainee's growth and facilitate meaningful contributions to the projects.

Clinical commitments during academic placement

The trainee will have no specific clinical commitments but will attend the clinical meetings and will have the opportunity to be involved in clinical assessments and post-operative management of patients relevant to their area of research.

Departmental academic teaching programme (if applicable)

We offer a comprehensive educational experience tailored to surgeons and scientists at all career stages. Through lectures, seminars, and MDT meetings, participants engage in discussions on fundamental clinical issues, complex case management, and interdisciplinary collaboration spanning both clinical and academic domains. Hands-on surgical workshops (run by the renowned Queen Square Simulation Centre) and academic journal clubs, and seminars, provide opportunities for practical skills enhancement, scientific development, and critical evaluation of literature. Trainees are encouraged to engage in teaching activities to stay abreast of clinical advancements. With a focus on cultivating future clinician-scientists, the program equips participants with the knowledge, skills, and resources necessary for excellence in patient care and academic advancement.

Some examples of formal training opportunities:

- Neurosurgical Teaching Programme – *Fundamentals for Early Neurosurgical Trainees (FENT)* - An educational committee derived from two UK neurosurgical units deliver a course to junior doctors working within neurosurgical departments. The course covers key concepts and presentations necessary for success of junior doctors working within neurosurgical departments.

- Crash Course in the Academic Evaluation of Surgical Innovation: this

dedicated course, tailored over four years of academic fellow participation, gives students a crash course in the evaluation of surgical innovation, with a focus on disruptive technologies including AI and robotics. Topic areas include *Robotics, Artificial Intelligence, The IDEAL Framework, Surveys and Delphi Studies, Adaptive Trials, Observational Studies, Randomised Control Trials, Economic and Costs Analyses,* and *Identifying Unmet Needs: the Stamford Model*.

- Weekly Group Meetings – Each of the groups for the projects described above have weekly group meetings, providing the opportunity for trainees to learn from a wide range of participants.

- The Future of Neurosurgery lecture series – a quarterly lecture series with outside speakers discussing their research at the leading age of science related to neurosurgical conditions

- Annual Research Day – an opportunity for trainees at all levels to present their research

- The Victor Horsley lecture – an annual event in which a prominent neurosurgeon is invited to our centre to present their world-leading research.

Academic Lead:

Prof Rob Brownstone
r.brownstone@ucl.ac.uk
Brain Research UK Chair of Neurosurgery

Programme 12 – Cellular Pathology – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/12

Type of programme

Clinical and research training in cellular and molecular pathology

Employing trust:	*Academic placement based at:*
Royal National Orthopaedic Hospital NHS Trust	UCL Cancer Institute- Department of Cancer Biology and Pathology

Brief outline of department

The Department of Cancer Biology and Pathology at University College London offers students a vibrant educational environment embedded within the UCL Cancer Institute. It brings together basic molecular biology, pathology, genomics and translational research to advance understanding of cancer.

The department boasts world-class research groups in areas like cancer cell signalling, genome function, sarcoma biology, digital pathology and computational cancer biology, supported by state-of-the-art facilities including a biobank and molecular services.
In short, students joining this department can expect a multidisciplinary, research-driven education at the heart of one of Europe's leading centres in cancer science.

Structure of academic project/what expected

This rotation gives the opportunity for development of a wide range of skills practised in Cellular Pathology, Including exposure to the use of artificial intelligence and genomics for diagnostic decision making. The trainee will have the opportunity to undertake a research project tailored to their interests, supported by experts in pathology, and cancer biology. Potential projects include:

- Applying AI and machine learning to improve cancer diagnostics and prognostics.
- Learn how liquid biopsy is transforming monitoring of disease relapse.
- Learn how to interpret the DNA and RNA code in cancer genomics for clinical decision making.
- Use cutting edge genomic technologies like single cell sequencing and spatial transcriptomics to advance our understanding of the immune microenvironment in cancer.

The first three weeks of the placement will introduce the trainee to relevant clinical and research techniques, including bioinformatics and laboratory methods. The remaining time will focus on a defined research question, with mentorship to support data analysis, interpretation, and publication or presentation.

Clinical commitments during academic placement

None
Departmental academic teaching programme (if applicable) • Core Facility (TTP) Training: Introductory courses on laboratory techniques and bioinformatics. • Weekly Research Seminars (CIRPS): Presentations on ongoing research by faculty and trainees. • Guest Lectures: Talks from national and international experts on cancer research and care. • Pathology Forums: Specialist groups discussing emerging trends and findings.
Academic Lead: Prof Nischalan Pillay n.pillay@ucl.ac.uk Professor of Cellular Pathology Royal National Orthopaedic Hospital NHS Trust and UCL Cancer Institute

Programme 13 – Neurology and Neuroscience – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/13

Type of programme

Clinical and research training in neurology/neuroscience

Employing trust:	*Academic placement based at:*
Royal Free London NHS Foundation Trust (Royal Free Hospital)	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

The department is a tertiary referral centre for all neurological disorders. The trainees will be exposed to particular sub-speciality aspects of neurology, including Parkinson's disease, neuromuscular disease, and epilepsy, and the combined clinical and laboratory investigations of neurological diseases. This placement is ideally suited to provide a solid clinical and academic foundation to those considering a career in neurology, but the experience will also be invaluable for other specialties. The department has a very active research programme, with Parkinson's disease a particular strength, including clinical and epidemiological research and clinical trials of new pharmacological approaches as well as basic molecular and genetic investigation of the underlying aetiology and biomarker research of disease. The trainees will be expected to participate in a clinical or lab-based research project within the department, and, if no suitable project is identified, appropriate projects across the entire UCL Institute of Neurology can be considered.

Recent publications/submissions from SFP Trainees:

1. Jugnarain D, **Schrag A.** Quick MSA-QoL: A validated, abbreviated health-related quality of life questionnaire for use in Multiple System Atrophy. Parkinsonism Relat Disord. 2024 Nov;128:107143. doi: 10.1016/j.parkreldis.2024.107143. Epub 2024 Sep 6.
2. Summary from another SFP: I spent … time studying the application and theory of Singular Value Decomposition by applying it to the dataset from the Parkinson's clinic. It is mainly used in finding pattern when there are many variables in a dataset. It is quite an important part of applied statistics. I also spent some of my time working towards my GradCert in Mathematics at that time. Clinically, I also had the chance to work on the Royal Free Stroke and Neuro wards to recognise and manage common neurological conditions requiring in-patient treatment. I also completed an Audit + QIP with the Neuro team to implement a LOCSSIP proforma for LP in the whole Royal Free Trust (RFH and BH). I also had the chance to attend weekly Friday Neuroscience Conference.

Structure of academic project/what expected

Depending on the trainee's interest, the project can involve original data collection, training in a specific technique, or data analysis, proposed by and under the supervision of a clinical or academic supervisor. The department has a strong focus on Parkinson's disease but other areas of neurology include epilepsy, multiple sclerosis, stroke, neuromuscular disorders, dementia, neuroimmunology and others.

Clinical commitments during academic placement

Optional: Participation in clinical neurology training, including ward patient management, lumbar punctures, outpatient clinics
Departmental academic teaching programme (if applicable) There is a range of different teaching activities available to the trainee, including clinical teaching sessions, seminars, grand rounds and post-graduate lectures as well as seminars on specific research skills relating to the chosen topic and generic research skills.
Academic Lead: Prof Anette Schrag PhD FRCP a.schrag@ucl.ac.uk Professor of Clinical Neurosciences Royal Free London NHS Foundation Trust (Royal Free Hospital)

Programme 14 – Nuclear Medicine – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/14

Type of programme

Research

Employing trust:	*Academic placement based at:*
Royal Free London NHS Foundation Trust (Royal Free Hospital)	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

Nuclear medicine is a fast-growing functional imaging specialty that uses unsealed radioisotopes for diagnostic and therapeutic purposes. There is a lot of investment in nuclear medicine research and development currently. Recent developments include long-axis-field-of-view PET-CT (revolutionary new technology with increase in 10-20x increase in sensitivity) and Lu-PSMA (targeted radiotherapy to prostate cancer metastases).

The Royal Free hospital has a large nuclear medicine department with 2 PET-CTs, 2 SPECT-CT, 1 SPECT, 1 DEXA and the largest nuclear medicine therapy service in the UK.

The Royal Free was the first department in the UK to have a Quadra PET-CT, a long-axis-field-of-view PET-CT (also called Total Body PET). This new development is the latest revolution in PET technology and results in much higher sensitivity with great potential for research for drug development, new tracers and using parametric imaging.

The department has very strong clinical and research links with areas of specialist expertise at the Royal Free such as the Neuroendocrine Tumour Unit, the Kidney centre and the National Amyloidosis Unit. There are also links with the Centre for Medical Imaging, part of the Department of Imaging, UCL.

This rotation is ideal for any foundation doctor interested in medical imaging. In addition, due to Nuclear Medicine's provision of diagnostic imaging to a wide range of medical and surgical specialties, the department can provide research projects relevant to the career aims of most academic FY2s.

Recent publications/submissions from SFP Trainees (FY name underlined):

The utility of [(18)F]FDG PET in discriminating between local recurrence and inflammatory changes following SABR in primary lung cancer patients.
Fala M, Josephides E, Shah S, Ariyaratne H, Patel A, Cook GJR, Chicklore S, Wagner T.
Eur J Nucl Med Mol Imaging. 2025 Jun 11. doi: 10.1007/s00259-025-07400-1. Online ahead of print.
PMID: 40498157

Rabinowicz S, Nathan M, Pencharz D, Wagner T. Ventilation perfusion reporting: the utility of a prior chest radiograph in interpreting ventilation perfusion scans. Nucl Med

Commun. 2022 Oct 1;43(10):1107-1108. doi: 10.1097/MNM.0000000000001606. Epub 2022 Aug 17.

Miller J, Campain N, Boydell AR, Warren H, Vito I, Neves J, Mumtaz F, Bex A, El-Shiekh S, Wagner T, Tran MGB. 'Case of the Month' from the Specialist Centre for Kidney Cancer, Royal Free London Hospital, UK: 99m Tc-sestamibi SPECT-CT to differentiate renal cell carcinoma from benign oncocytoma. BJU Int. 2022 Jan;129(1):28-31. doi: 10.1111/bju.15652.

Pencharz D, Modi S, Bandyopadhyay S, Alhun U, Marchbank N, Patel A, Wagner T. Absence of clinical benefit of FDG PET-CT in staging T1 part-solid lung adenocarcinoma. Clin Radiol. 2022 Mar;77(3):195-202. doi: 10.1016/j.crad.2021.11.013. Epub 2021 Dec 23. PMID: 34953570

Audi S, Pencharz D, Wagner T. Behind the hedges: how to convey uncertainty in imaging reports. Clin Radiol. 2020 Aug 31:S0009-9260(20)30323-8. doi: 10.1016/j.crad.2020.08.003.

Yang DD, Mirvis E, Goldring J, Patel ARC, Wagner T. Improving diagnostic performance of 18F-FDG-PET/CT for assessment of regional nodal involvement in non-small cell lung cancer. Clin Radiol. 2019 Oct;74(10):818.e17-818.e23. doi: 10.1016/j.crad.2019.07.009. Epub 2019 Aug 13.

Structure of academic project/what expected

Most research projects have focused on the F2's choice of career, making use of nuclear medicine databases and correlating imaging findings with clinical outcomes.

Current themes focus on the use of new tracers or technological developments to increase diagnostic accuracy and research on effectiveness and safety of radionuclide therapy.

The nuclear medicine department has strong clinical and research links and collaborations with many clinical and research department in the Royal Free London NHS Trust, allowing for access to a wide range of data and projects.

We have a strong record of projects being presented at academic conferences and accepted in international peer-reviewed journals. Previous projects have also led to a change of practice.

Clinical commitments during academic placement

One morning a week, the F2 will be helping run a myocardial perfusion scan pharmacological stressing clinic. Initially done under direct supervision and with training from consultants and technologists. Once confident and competent, the F2 and supervision will be leading the clinic under indirect supervision.
Previous F2s have enjoyed running the clinic, the responsibilities and the break from academic work.

Departmental academic teaching programme (if applicable) There is monthly departmental teaching, which the F2 is expected to participate in and present their main project. There are two half-day audit meetings per year, which the F2 is expected to participate in and present their audits. There is radiology and medical student teaching that the F2 will be invited to join. The F2 will have the opportunity to observe how nuclear medicine technologists scan patients, access expertise from the physics and radiopharmacy teams, sit in on reporting sessions, attend MDTs and observe radionuclide therapy being administered.
Academic Lead: Dr Thomas Wagner thomas.wagner@ucl.ac.uk Consultant in Nuclear Medicine, Royal Free London Trust, Honorary Associate Professor, UCL

Programme 15 – Paediatrics – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/15

Type of programme

Research

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	Great Ormond Street Institute of Child Health

Brief outline of department

Paediatrics is a rewarding specialty with major innovations driven in part by clinician scientists under the auspices of the NIHR and other funding bodies. Academic paediatrics encompasses a vast area ranging from the genetics and molecular biology of congenital diseases, through improved understanding and management of prematurity, chronic childhood conditions such as cancer, kidney failure and cystic fibrosis, and environmental, social and educational influences on the developing child. Our programme gives an opportunity for a short 4-month research project supervised at UCL Great Ormond Street Institute of Child Health, which has an international reputation for excellence in clinical and basic science academic research. The purpose of the protected time for the 4-month project out of your 24-month SFP is to help you decide whether you are excited by research and wish to pursue an ambition to combine both clinical practice and academic research in your future career.

Structure of academic project/what expected

The SFP is a fully integrated two-year research-focused training programme which will provide you with unique experience with a protected 4-month placement tailored to your specific areas of academic interest in F2, the second year of the SFP. The other 20 months are spent in clinical rotations determined by the Deanery and not UCL Great Ormond Street Institute of Child Health.

The application process and interviews for the SFP is a national process and not organised or conducted by UCL Great Ormond Street Institute of Child Health.

To help to identify a potential SFP supervisor, as soon as the award of your SFP post is confirmed, please contact Professor Sir Terence Stephenson, the Co-Director Education for Clinical Academic Training, UCL Great Ormond Street Institute of Child Health: t.stephenson@ucl.ac.uk

Our academic placements are trainee-centred, and we will help you to seek out a research supervisor, ideally a clinical academic researcher, who is conducting research in the area that you are interested in. Professor Sir Terence Stephenson is responsible for our Specialised Foundation Programme in paediatrics at UCL.

Once a supervisor is agreed, please make contact with that person as soon as possible in FY1 to plan how to optimise your protected 4-month block in FY2 and to explore what opportunities might be available before then. This named Clinical Academic will act as your research supervisor throughout your Specialised Foundation Programme.

Our programme aims to nurture future Academic Paediatricians. Almost all of the talented individuals appointed to this post have moved on to Academic Clinical Fellow (ACF) posts after FY2 with a view to obtaining funding to undertake a PhD during 3 years out of later postgraduate training in paediatrics. UCL Great Ormond Street Institute of Child Health is one of the best research clusters in the world for child health research and if you start with us, we hope that it will set you on a path to a successful career in academic paediatrics.

Clinical commitments during academic placement

This is in essence a 4-month research placement and it will be most productive if you do not have clinical commitments during the 4 months so that you can focus exclusively on your research and decide if, in the future, that is something you want to build into your future career. It is more fun to have a block of time to read, think, collect and analyse data, and hopefully write up or present your work – all away temporarily for 4 months from busy clinical placements with emergencies and competing calls on your time.

Departmental academic teaching programme (if applicable)

UCL Great Ormond Street Institute of Child Health has a huge postgraduate programme.

Academic Lead:

Professor Sir Terence Stephenson (he/him)
DM, FRCPCH, SFFMLM
t.stephenson@ucl.ac.uk

Nuffield Professor of Child Health, UCL Great Ormond Street Institute of Child Health

Honorary Consultant Paediatrician University College Hospital & Great Ormond Street Hospital

UCL GOS Institute of Child Health, 30 Guilford Street, London WC1N 1EH

Programme 16 – Psychiatry – based at North London Foundation Trust (linked to University College London Hospitals NHS Foundation Trust)

Reference: 2627/UCL/16

Type of programme

Research

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	UCL Division of Psychiatry/ North London Foundation Trust

Brief outline of department

The academic component will take place at the UCL Division of Psychiatry, located at the Bloomsbury Campus. UCL is ranked first in the UK for research power in Psychology, Psychiatry and Neuroscience (REF 2021) and is internationally recognised for its strength in mental health research across disciplines.

The Head of the Division is Prof Elvira Bramon.

Structure of academic project/what expected

The academic FY2 post will provide a mixture of research and clinical experience depending on individual needs of the trainee. The goal is to give trainees the opportunity to experience and develop research techniques and gain an understanding of the requirements of research in psychiatry. They will learn skills such as formulating a research question, critically appraising a paper, undertaking a systematic literature review, undertaking a research project, and writing up for publication/presentation. There may be involvement in undergraduate teaching.

Clinical commitments during academic placement

Where appropriate, the trainee will learn how to take a history, mental state examination, produce a psychiatric formulation and initial management plan and undertake risk assessments.

Departmental academic teaching programme (if applicable)

There will be opportunities to participate in a range of educational programmes in the academic department and mental health trust.

Academic Lead:

Prof Sergi Costafreda Gonzalez
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Professor of Psychiatry of Ageing, UCL

Programme 17 – Renal Medicine – based at Royal Free London NHS Foundation Trust (Royal Free Hospital)

Reference: 2627/UCL/17

Type of programme

Research

Employing trust:	*Academic placement based at:*
Royal Free London NHS Foundation Trust (Royal Free Hospital)	Royal Free London NHS Foundation Trust (Royal Free Hospital)

Brief outline of department

We are a busy renal unit with a broad interest in many research areas related to chronic kidney disease, genetics, inflammatory kidney diseases, tubular diseases and transplantation. We have a number of different PIs who have ongoing projects in these areas. Nephrology is a diverse speciality with a chronic population of patients (with chronic kidney disease on dialysis or with a transplant) or those that presently acutely unwell with acute kidney injury due to various conditions including rarer systemic conditions like lupus or vasculitis. Our research mirrors the clinical work trying to prevent or better manage kidney damage and restore people's quality of life. In addition, through transplantation patients can restore kidney function but are at risk of the impact of immunosuppression. As a result, there are fascinating and different patients that we deal with all the time.

An academic foundation doctor will choose to carry out a specific project in one area that could be related to any of the above-mentioned fields. Once in the department we would aim to introduce you to various clinical academics who could describe certain projects they are interested in, to the allow you to make an informed decision of what to do in the months you have available.

We want you to develop a sense of what problem the research is trying to address and how it may be solved. We will propose a project that can be completed in the time frame available.

Structure of academic project/what expected

There are a range of possible projects which can be adapted to the individual and these are a mixture of laboratory based or database investigations- looking at specific conditions or patient populations.

Clinical commitments during academic placement

Will be dependent on the project but generally on call commitments will be maintained while the research time will be dedicated to research.

Departmental academic teaching programme (if applicable)

We have regular clinical teaching once a week dedicated for the FYs/SHOs as well as an academic afternoon once a week for the whole department. In addition, there are clinical opportunities in subspeciality clinics which could boost the academic research experience.

Academic Lead: Prof Alan Salama a.salama@ucl.ac.uk Professor of Nephrology

Programme 18 – Respiratory Medicine – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/18

Type of programme

Research

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	UCL Respiratory, Division of Medicine

Brief outline of department

UCL Respiratory is part of the Division of Medicine, University College London. Respiratory diseases are one of the commonest causes of ill health and mortality both globally and within the UK. UCL Respiratory is an internationally recognised centre of excellence for respiratory science (ranked #2 in Europe) that consist of ~13 groups and ~85 people working on diverse aspects of lung diseases - including interstitial lung disease, respiratory infection (including tuberculosis), acute lung injury, chronic obstructive pulmonary disease, pulmonary oncology, lung development, imaging and sleep medicine. Research techniques within UCL Respiratory cover the full range from basic science and computational biology through to clinical cohorts, interventional studies and large-scale data science projects. The diversity of disease areas and research approaches ensures UCL Respiratory can accommodate a wide range of research interests among academic foundation trainees. Our research is funded by an extensive portfolio of external grant funding (including multiple Wellcome, MRC and NIHR awards). It involves close collaborations within UCL, across the UK, and internationally, with centres in Africa, North and South America, Asia, Australasia, and Europe.

Structure of academic project/what expected

SFP trainees will be allocated an academic supervisor for the post. The supervisor will encourage them to explore project options and identify an area of interest among the wide portfolio of research at UCL Respiratory, while ensuring that the project is feasible within the timeframe available. Support will be provided beyond the academic placement to pursue ongoing research activity and subsequent applications to the academic clinical fellowship programme and PhD Fellowships.

Clinical commitments during academic placement

None

Departmental academic teaching programme (if applicable)

SFP trainees will be encouraged to attend a weekly Divisional Seminar Series, showcasing work across the Division of Medicine, along with a bi-weekly Respiratory Research Meeting, where the breadth of work across UCL Respiratory is presented. In addition, trainees will attend weekly research meetings within their chosen research

group and a weekly departmental teaching programme covering recent advances in respiratory research, hosted by the UCLH Respiratory department.
Academic Lead: Dr Rishi K Gupta r.gupta@ucl.ac.uk Respiratory Physician

Programme 19 – Rheumatology – based at University College London NHS Foundation Trust (University College London Hospital)

Reference: 2627/UCL/19

Type of programme

Rheumatology

Employing trust:	*Academic placement based at:*
University College London NHS Foundation Trust (University College London Hospital)	Department of Ageing, Regenerative Medicine and Rheumatology, UCL Division of Medicine

Brief outline of department

UCL Centre for Rheumatology and Centre for Adolescent Rheumatology provide a thriving research environment to support and mentor SFP post-holders, with research facilities located in the UCL Division of Medicine at the Rayne building. The SFP will join the high-quality rheumatology training programme in the Department of Rheumatology at UCLH that regularly obtains the highest number green flags locally/regionally/nationally in the GMC survey. It values teaching and training, with consistently high feedback from trainees, and has an excellent track record for furthering clinical and research careers in rheumatology.

Structure of academic project/what expected

Research themes & environment:

Obstetric rheumatology – *Prof Ian Giles*

Inflammatory rheumatic diseases (IRD) affect people of child-bearing age and adversely affect pregnancy and post-partum disease activity. The SFP can join Versus Arthritis funded work examining whether immunologic changes in IRD pregnancy associate with adverse outcomes, are affected by previous pregnancy, persist post-partum and affect disease activity. Access to biobank samples from disease/control cohorts before/during/after pregnancy will allow them to define unique pregnancy-associated immune profiles to stratify current and future risk in IRD pregnancies.

Experimental medicine – Systemic lupus erythematosus – Prof Mike Ehrenstein

Systemic lupus erythematosus (SLE) is an heterogenous autoimmune disease with wide variations in response to treatment. There is a clear unmet need for biomarkers of response to improve patient outcome. The SPF will work as part of a Versus Arthritis programme to identify biomarkers of response to targeted therapies to improve patient outcomes and understand disease pathogenesis. Multi-omic analyses using machine learning will be applied to samples from SLE patients including those recruited to trials of B cell targeting therapies.

Spondyloartrhitis and myositis research - Prof Pedro Machado

Spondyloarthritis, including axial spondyloarthritis (axSpA), is characterised by inflammation of the spine, sacroiliac joints and peripheral joints, often accompanied by extra-articular manifestations such as uveitis, psoriasis and inflammatory bowel disease. Myositis encompasses a group of autoimmune conditions characterised by muscle inflammation, weakness, and potential systemic involvement, requiring comprehensive approaches integrating clinical, laboratory, and imaging assessments for optimal management. The SFP can join various myositis and spondylarthritis clinical trials and observational studies examining new therapeutic strategies and

outcome measures, including assessment of quantitative MRI biomarkers. Access to trial and observational datasets will allow them to contribute to epidemiological and outcome measures research.

Adolescent and young adult rheumatology research – Prof Coziana Ciurtin

Project: Investigate the impact of sex-determinants on immune functions relevant to autoimmune diseases using a cis- and trans-gender cohort of adolescents and young people.

Background: Historical shortcomings in reporting scientific findings in a sex-disaggregated manner have led not only to limited discovery of the impact of sex determinants on the immune system functions/other biological processes, but also led to potential inaccuracies in the estimation of the effect of various health-related exposures on females and gender-diverse groups. Adolescence is a key developmental period with critical impact on the future health of an individual; despite this, there are no gender-diverse partnerships available between paediatric and adult clinical services and academic centres in the UK or world-wide to support the much-needed high quality multi-disciplinary research in this age group. This project aims to investigate the impact of sex chromosome and sex hormones on immune responses using a cis and trans-gender cohort of adolescents and young people.

Techniques: Identification of immune cell populations frequencies in cis (pre- and post-puberty) and trans-gender (post-puberty) using spectral flow cytometry and investigation of impact of sex and cross-sex hormones on immune cell transcriptome (RNA Seq).

Environment: The post will be hosted by Prof Coziana Ciurtin, PI of the UCL Centre for Adolescent Rheumatology, a unique research centre, collaborating with leaders in gender-inclusive research (Prof Petter Brodin, Imperial and Prof Vinuesa, the Crick Institute) using novel research approaches including the first adolescent trans-gender cohort immune characterisation, multi-omics stratification supported by individual projects, machine learning pipelines for Spectral FACS analysis and metabolomic/transcriptomics which are already well established.

Ongoing clinical trials – All research groups

We have a very active clinical trials team, and listed below are the seven current clinical trials open to recruitment, which a successful SFP post-holder would be able to get involved with at all levels. We are likely to have a further six interventional studies open next year, including a further CAR-T study for IIM and Sjogren's syndrome.

Clinical commitments during academic placement

None

Departmental academic teaching programme (if applicable)

Departmental teaching includes weekly laboratory meetings, musculoskeletal radiology meetings, small group tutorials, as well as regular audit, clinical governance

and weekly departmental educational meetings with clinical and research presentations from local, national and international speakers.
Academic Lead: Prof Ian Giles i.giles@ucl.ac.uk Professor of Rheumatology

Programme 20 – Obstetrics & Gynaecology – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/20

Type of programme

Obstetrics & Gynaecology

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	University College London Hospitals NHS Foundation Trust

Brief outline of department

EGA Institute for Women's Health at UCL

The SFP will be hosted by the EGA Institute for Women's Health at UCL, which is one of the largest academic women's health departments in the United Kingdom and has an outstanding track record in education, training, and research. The Institute has achieved an Athena SWAN Gold Award. The Institute takes a broad life course approach to women's health research including reproductive health, maternal fetal medicine, and gynaecological oncology. Research is undertaken across the research pipeline, including fundamental science, clinical trials, and population-based studies.

The Institute has secured over **£24m** in grant funding over the last five years, including funding from the National Institute for Health Research, Wellcome Trust, Medical Research Council, European Research Council, and Horizon 2020. 80% of the research outputs submitted to the REF2014 were rated as internationally excellent or world leading. The Institute has academic partnerships across UCL including the Institute of Healthcare Engineering, Institute of Health Informatics, and UCL Medical School. The Institute works closely with patient and public partners, including the partner charity the Eve Appeal, and this work has been recognised by a UCL Provost's Award for Public Engagement. The Institute has a number of successful industrial collaborations, consultancies, and a close relationship with UCL Business.

The Institute takes a broad view of women's health and encourages investigation into all its major aspects. World class laboratory facilities within the Institute are further strengthened by collaborations within UCL, one of the UK's leaders in biomedical research. This provides an unusual breadth of research opportunities at the highest level. The UCL EGA Institute for Women's Health, formed in 2004, brought together a number of UCL academic departments into a single group in a close collaboration with the Division of Women's Health at University College London Hospital (UCLH). From the start, the objective of the Institute has been to make a real and sustainable difference to the health of women, babies and their families in the UK and internationally by delivering excellence and innovation in research, clinical practice, education and training https://www.ucl.ac.uk/womens-health/

Structure of academic project/what expected

The post is flexible, and the focus will be agreed with the successful candidate.

Potential areas of study include:

- **Preterm birth/foetal medicine:** The SFP will undertake research into preterm birth taking a holistic approach to better understand the mechanisms of preterm birth due to fetoplacental pathology as well as cervical weakness.
- **Operative birth:** The SFP will join a vibrant team revolutionalising operative birth and obstetric surgery training methods in collaboration with engineers and platforms at the Wellcome/EPSRC centre for Surgical and Interventional Sciences (WEISS) – particularly nanosensors and nanoengineered coatings (Prof Tishwari), micro-imaging (Prod Desjardins), artificial intelligence and virtual reality (Prof Stoyanov). There is also close collaboration with a novel integrated physical and virtual patient/public involvement (PPI) panel, and ample grant support. Other potential topics include perinatal consent, and experience in large NIHR-funded RCTs.
- **Stillbirth and miscarriage** are devastating problems that affect 1-2% of women of reproductive age. In the maternal medicine group at The UCL EGA Institute for Women's Health, we are researching the cause and best treatment for recurrent pregnancy loss due to placental inflammation (RPI).
- **Clinical education:**
  Global Operative Birth Training: We developed the national Operative Birth course (ROBUST). The course has been disseminated across the UK, Australia, Nigeria, India, Dubai. We have also developed an advanced course (ART&CRAFT) where we introduced novel training tools including a surgical glove with integrated nanosensors detecting anatomy, injury, and applied force.
  Human Factors/Linguistics: There is strong collaboration with the department of Linguistics at the University of Warwick. A jointly supervised PhD has completed a thesis on advanced teamwork. The next focus is on eye tracking and gazing in collaboration with engineers. The Human Factors group at UCL/WEISS are supporting mixed-method evaluation of the glove and the training including Virtual Reality.
- **Urogynaecology:** Chronic Pelvic pain (CPP), a common symptom in women, was redefined as 'disease state' in 2016 by ICD-11 based on updated IASP Taxonomy. Well known multi-morbid conditions like endometriosis and dysmenorrhoea have been well studied, but in the last decade a new condition was defined - *mesh associated pain syndrome*. Increasing evidence had shown that CPP as a consequence of continence/prolapse mesh insertion, was a major contributing factor in women seeking surgery for its removal. The SFP will undertake research into pelvic and urogenital pain syndromes in Women. This will be jointly with our industrial partner Prof. Marc Brown at MedPharm Ltd, a contract research organisation specialising in the development of topical and transdermal medicines and the Eastman Dental Institute, Microbial Diseases.

Within UCLH we host the London Complex Mesh Centre (LCMC) and Elneil and members of the MDT currently undertake research in imaging of mesh/mesh complications, surgical innovation in mesh removal, pelvic floor remodelling/contractility, quality of life assessment, analysis of the largest UK surgical database of women with mesh, and development of *Lived Experience* tools. Meta analysis and systematic review of the use of different imaging modality to investigate mesh/mesh complications (Salman) is a new arena of study commencing in April 2023.

Grant income in support:

- The Department has been awarded a £2.2m UCL-led NIHR HTA grant (ICAT lead is CI) for a trial of rotational operative birth with embedded research into consent and joint decision making. There will be opportunity for research into training interventions.
- We are co-investigators in the £5m NIHR Policy Research Unit into Maternal and Child Health with active UCL involvement and funding opportunities in projects focussing on perinatal mental health and bereavement, pre-conception health, service improvements, guidelines and training.
- We jointly lead the Tommy's Preterm Birth Centre with KCL. There are several funded studies on preterm birth, from prevention to aftercare.
- The multimillion MiBirth programme (MRC) focusses on MRI to predict birth outcome
- The multimillion Wellcome LEAP programme focusses on near-infrared spectroscopy to monitor fetal wellbeing and prevent stillbirth
- We are funded Cis, co-leads, or co-investigators in several other NIHR and Research Council grants.
- We receive income and research support from UCL for our joint clinical-engineering projects
- Perinatal Mental Health was identified as a priority topic for funding in a recent study by RAND Europe commissioned by NIHR. The SFP could be co-applicant in bids relevant to education/training. We have applied to NIHR for a funded trial of counselling for bereaved parents. There is a PhD on sleep and mental health.
- Through supervision of iBSc and MSc students NIHR trainees get access to discretionary funds to support small projects, often with national impact

Innovative & interdisciplinary research approaches:

We have track record of complex (e.g. stepped-wedge) trials of interprofessional interventions to evaluate impact on hard patient outcomes, and to understand contextual factors that affect uptake and implementation. It is envisaged that the SFP will assist the development of proposals for similar **complex trials and mixed-methods studies** to optimise **global impact** of the co-designed interventions akin to all our previous initiatives.

We have expertise in designing training that spans professions and levels, undergraduate and post-graduate, junior and senior, doctors as well as nurses,

midwives and allied health professions. We have been leading the production of evidence as to how to make such training effective in improving **patient outcome**, including through national and global reports, guidelines, and safety programmes.

As is evident from previous sections, the collaboration with UCL **Engineers** is one of the strongest aspects of our innovative approach to Medical Education.

Clinical commitments during academic placement

None

Departmental academic teaching programme (if applicable)

Trainees are encouraged and supported to attend UCL courses relevant to their project(s).

Academic Lead:

Prof Dimitrios Siassakos
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Institute for Women's Health, UCLH
UCL Department: Population Health

Programme 21 – Urology – based at University College London Hospitals NHS Foundation Trust

Reference: 2627/UCL/21

Type of programme

Urology

Employing trust:	*Academic placement based at:*
University College London Hospitals NHS Foundation Trust	University College London (Bloomsbury Campus or Royal Free Campus)

Brief outline of department

The UCL Division of Surgery benefits from affiliation with UCL partners hospitals across North London (including UCLH and RFH) which ensures outstanding linkage and access to patients for research, with the combination of the Trusts forming the biggest Urological centre in the UK. There are 12 academic UCL-affiliated academic consultant associate or full professors in our Division. We specialise in clinical and lab-based research across benign and malignant urological conditions, including renal, bladder, prostate and penile cancer.

Our Bloomsbury base, Charles Bell House, where trainees can be placed, is a building which has been fully refurbished at a cost of £15M to deliver a new centre for world-class scientific research. It is a space where engineers, researchers and clinicians from UCL School of Life and Medical Science, the Centre for Medical Imaging, Institute of Healthcare Engineering, the RREAL qualitative research team will be working together under one roof on ground-breaking collaborative research projects.

Previous clinical academic trainees - ACFs and CLs in the unit have become independent research leaders. Their direct achievements in the past 5 years, which demonstrate that academic trainees in Urology at UCL are given the best opportunities for development, include:

- First Female Professor of Urology in the UK
- 1 NIHR Professorship, 2 NIHR Doctoral Fellowships, 1 MRC Doctoral Fellowship, 1 RCS fellowship, 1 NIHR pan-London cancer Alliance fellowship, 2 Urology Foundation fellowships
- European Association of Urology Crystal Matula Award for top young academic Urologist in Europe
- Publications in top tier, high impact factor journals such as NEJM, Eur Urology and BJUI.

Recent publications/submissions from SFP Trainees:
This will be our first SFP trainee rotation, though here is what our previous foundation year doctors (in bold and underlined) have achieved:

1. **Asif A***, Nathan A*, **Ng A**, Khetrapal P, **Wai-Shun Chan V**, Giganti F, et al. Comparing biparametric to multiparametric MRI in the diagnosis of clinically significant prostate cancer in biopsy-naive men (PRIME): a prospective, international, multicentre, non-inferiority within-patient, diagnostic yield trial protocol. BMJ Open 2023;13:e070280. https://doi.org/10.1136/BMJOPEN-2022-070280.
2. **Ng A***, **Asif A***, Keane K, Ippoliti S, Nathan A, Kasivisvanathan V. The ARTS (Avoiding Risks of Thrombosis and Bleeding in Surgery) Trial: Lessons Learnt in Setting Up an International Multicentre Clinical Trial of an Investigational Medicinal Product in the UK. Eur Urol Focus 2023. https://doi.org/10.1016/J.EUF.2023.10.005.
3. Rossiter M, Khetrapal P, **Ng A**, **Asif A**, Nathan A, Kasivisvanathan V. It is PRIME time to streamline the prostate cancer MRI diagnostic pathway. Trends Urol Men's Heal 2023;14:27–30. https://doi.org/10.1002/TRE.942.
4. Giganti F*, **Ng A***, **Asif A**, **Chan VW-S**, Rossiter M, Nathan A, et al. Global Variation in Magnetic Resonance Imaging Quality of the Prostate. Radiology 2023;309:e231130. https://doi.org/10.1148/radiol.231130.
5. Kasivisvanathan V, **Chan VW-S**, Clement KD, Levis B, Haider M, Agarwal R, et al. A protocol for the VISION study: An indiVidual patient data meta-analysis of randomised trials comparing MRI-targeted biopsy to standard transrectal ultraSound guided bIopsy in the detection of prOstate cancer. PLoS One 2022;17:e0263345. https://doi.org/10.1371/JOURNAL.PONE.0263345.
6. **Ng A**, Asif A, Kasivisvanathan V. Re: Juan Gómez Rivas, Bhaskar Somani, Moises Rodriguez Socarrás, et al. Shaping the Undergraduate Curriculum in Europe: Consensus Statement from the European School of Urology. Eur Urol. 2022;82:581–83. Eur Urol 2022;0. https://doi.org/10.1016/J.EURURO.2022.11.007.
7. **Ng A**, **Wai-Shun Chan V**, **Asif A**, Light A, Meng Lam C, Jayaraajan K, et al. LEARN: a multicentre, cross-sectional evaluation of Urology teaching in UK medical schools Objective Subjects and Methods. BJU Int 2022. https://doi.org/10.1111/bju.15758.
8. **Ng A**, Khetrapal P, Kasivisvanathan V. Is It PRIME Time for Biparametric Magnetic Resonance Imaging in Prostate Cancer Diagnosis? Eur Urol 2022. https://doi.org/10.1016/J.EURURO.2022.02.021.

List of prizes won by Foundation Year trainees at our unit

1. **Asif A**, Radiological Society of North America, Trainee Research Prize in the Genitourinary Imaging Category (2024)
2. **Ng A**, British Association of Urological Surgeons, Runner-up in national audit/QuIP competition (2024)
3. **Wai-Shun Chan V**, British Society of Interventional Radiology, Best Poster Presentation 2023
4. **Wai-Shun Chan V**, The Society of Radiologists in Training, Best Scientific Poster for Urogenital Radiology 2023

Ng A, European Association of Urology, First Prize for the Best Abstract by a Resident (2023)

Structure of academic project/what expected

Trainees will work as part of a team to deliver a complete project or part of a larger project. Projects will tend to be part of a wider program of work within the Division. Team working will enable the trainee to gain research skills from the group to help their development.

Research Methodology that trainees will have access to:

- Systematic review and meta-analysis
- Randomised controlled trial
- Diagnostic test evaluation
- Medical imaging analysis
- Artificial intelligence
- Medical engineering
- Consensus meeting methodology
- Grant application processes
- Evaluation of novel minimally invasive cancer treatments
- Biomarker discovery and immune-therapeutics lab-based research

Examples of ongoing research projects (subject to change):

1. Prostate cancer: The Watchmen Study: Watchful Waiting with MRI Enhanced Risk Stratification. Establishing whether Precision risk stratification may have a role in helping to avoid or delay the adverse effects of androgen deprivation for men with prostate cancer on watchful waiting. Methods: systematic review, consensus meeting, study design. Supervisor: A/Prof John Withington & Mr Alistair Grey.
2. Prostate cancer. Evaluating the feasibility of a virtual biopsy approach. Exploring the feasibility of avoiding biopsy in prostate cancer by using imaging tests in lieu of this. Exploring patients and clinican's views on this and barriers to implementation. Methods: systematic review, interview studies, consensus meeting. Supervisor: A/Prof Veeru Kasivisvanathan.
3. Prostate Cancer Evaluation of PSMA PET for the diagnosis and treatment of prostate cancer. Establishing the role of this novel imaging technique in identifying prostate cancer and establishing whether it has a role in selection of patients for treatment. Methods: single centre retrospective cohort study, systematic review. Supervisor: A/Prof Veeru Kasivisvanathan
4. Prostate Cancer. Evaluation of the role of artificial intelligence in prostate cancer detection. Exploring the role of AI in prostate cancer detection on MRI. Evaluating AI algorithms on existing data sets. Methods: AI application to imaging datasets, consensus meetings, systematic review. Supervisor: A/Prof Veeru Kasivisvanathan

5. Kidney Cancer. Evaluation of immune priming interventions in kidney cancer. Methods: FACs analysis, TCR sequencing and introduction to bio-informatons. Supervisor: Prof Maxine Tran
6. Kidney Cancer: evaluation of patient derived tumouroids for theranostics. Supervisor: Prof Maxine Tran and Prof Marilena Loizidou.

We will tailor a project to the trainees' requirements across a range of topics in our Division so that they are able to choose a subject area and methodology that they are interested in. We will then train them in this area, getting them to contribute to a meaningful project which they can contribute to within their 4-month block. Wherever possible, opportunities to involve the trainee so that they write a 1st author paper. If this is not possible because the project is part of a larger piece of work, then depending on contribution, the trainee will aim to be recognised as a co-author or PubMed indexed collaborative author.

Clinical commitments during academic placement

No specific commitments unless relevant to conduct of research (e.g. recruiting patients as part of a study)

Departmental academic teaching programme (if applicable)

- Departmental journal club meetings
- Opportunity to attend educational team brainstorming and practice presentation skills
- Statistical support
- Systematic review and meta-analysis training
- Division of Surgery away day for meeting other researchers and learning about research methods
- Associate PI Scheme credentialling: https://www.nihr.ac.uk/health-and-care-professionals/training/associate-principal-investigator-scheme.htm

Academic Lead:

Prof Veeru Kasivisvanathan
veeru.kasi@ucl.ac.uk
Consultant Urologist, UCLH & Associate Professor of Urology, UCL
Based at UCL Bloomsbury / UCLH Campus

4. THE MEDICAL SCHOOL AND PARTNER TRUSTS

UCL Medical School

UCL Medical School is committed to excellence in education and has a strong reputation for teaching informed by cutting-edge research. The School has a distinguished cadre of academic staff who are at the forefront of international research in medical sciences and clinical medicine.

Staff research activities, directed towards patient-centred outcomes, are supported by partnerships with NHS trusts. Several world famous clinical and research institutions are closely associated with the Medical School. The school is one of the largest in the country and is situated in the heart of London at three main campuses; the Bloomsbury campus, the Royal Free campus, and the Whittington campus; all with clinical facilities, teaching laboratories, lecture theatres and libraries.

UCL Medical School has a distinguished history; it emerged from the amalgamation of Middlesex Hospital, University College Hospital and the Royal Free Hospital. These organisations combine a rich past in the history of science and medicine with advanced clinical practice. Among past and present staff are Nobel Prize winners (Huxley, Hill and Katz) and numerous Fellows of the Royal Society and the Academy of Medical Sciences.

The North Central Foundation School has academic training programmes in the following Trusts:

Royal Free Hospital (Royal Free London NHS Foundation Trust)

The Royal Free Hospital has around 900 beds and sees about 700,000 patients a year from all over the world. The Trust employs around 4,600 people and has a turnover of about £450m. The services include a major accident and emergency service, all branches of surgery and medicine, a renal service serving the whole of north London, paediatrics, maternity services, care of elderly people, an adolescent psychiatric service and one of two high security infectious diseases units in the country.

Royal Free is renowned for their specialist services including liver, kidney and bone marrow transplantation, renal, AIDS/HIV, infectious diseases, plastic surgery, immunology, paediatric gastroenterology, ENT surgery and audiological medicine, amyloidosis and scleroderma. The Trust is a leading cancer centre with a range of specialist diagnostic and treatment services in oncology and haematology and a major neuroscience base with a network extending throughout north London and into the Home Counties. There are associated internationally recognised research and training programmes.

The hospitals and associated medical school conduct medical research, much of which is of international status, and constitute a leading site for the training of doctors, nurses, midwives, and professions allied to medicine.

The Whittington Heath

The Whittington Health is an acute general teaching hospital situated in Archway, in the north of Islington. The Trust primarily serves the communities of north Islington and west Haringey, a population of approximately 250,000 people. The hospital also

treats a significant number of patients from Camden, Barnet and Hackney. There are 467 beds and over 2,000 staff. The Whittington is one of the teaching hospitals of the University of London. The Trust provides clinical placements for undergraduates and has a large post-graduate training centre. In addition, it provides training for a wide range of other health professionals including nurses, midwives, radiographers and dieticians.

University College London Hospitals NHS Foundation Trust
University College London Hospitals NHS Foundation Trust (UCLH), situated in the heart of London, is one of the most complex NHS Trusts in the United Kingdom, serving a large and diverse population. UCLH provides academically led acute and specialist services, both locally and to patients from throughout the United Kingdom and abroad. UCLH balances the provision of highly rated specialist services with providing acute services to the local populations of Camden, Islington, Westminster and the City of London.

The Trust has a turnover of £632 million and contracts with more than 150 Primary Care Trusts to provide services. They treat over 500,000 outpatients' appointments and admit 100,000 patients each year. UCLH employs 6,000 staff and is a major teaching centre offering training for nurses, doctors and other health care professionals.

The Trust has an international reputation and a tradition of innovation. Their excellence in research and development was recognised in December 2006 when in partnership with University College London they became one of the country's five comprehensive biomedical research centres. Operational from September 2008, UCL Partners was created, bringing together five of Britain's world-renowned medical research centres and hospitals: UCL (University College London); Great Ormond Street Hospital for Children NHS Trust (GOSH): Moorfields Eye Hospital NHS Foundation Trust; the Royal Free London NHS Foundation Trust; and University College London Hospitals NHS Foundation Trust.