

**THE ROYAL MARSDEN NHS FOUNDATION TRUST/THE INSTITUTE OF CANCER RESEARCH
CHELSEA AND SUTTON**

JOB DESCRIPTION

**DEPARTMENT OF NUCLEAR MEDICINE & PET/CT
NIHR Clinical Research Facility**

**Clinical Research Fellow in PET/CT Imaging with dedicated Early Experimental Functional
Imaging Research
(2 years)**

The Royal Marsden NHS Foundation Trust

The Royal Marsden is recognised worldwide for the quality of its cancer services. The Royal Marsden NHS Foundation Trust's strategic aim is to achieve excellence in cancer treatment and diagnosis, through partnership and collaboration. The Royal Marsden with its associated Institute of Cancer Research constitutes a centre of excellence for research and development, education, treatment and care in cancer. It is acknowledged to be one of the largest comprehensive Cancer Centres in the world.

The prime purposes of the Trust are the provision of state-of-the-art cancer service; as well as enabling research into the development of improved methods of prevention, diagnosis and treatment of cancer, and the dissemination of knowledge both nationally and internationally. In 1991 it became the first NHS hospital to be awarded the Queen's Award for Technology for its work on drug development. The hospital achieved the international quality standard ISO 9001 for radiotherapy in 1996 and for chemotherapy in 2003. It was recognised as one of six centres of excellence in the Government's NHS Plan and has achieved four national Charter Marks for all its services, the most recent awarded in 2005. The Royal Marsden has consistently been awarded three stars in the NHS performance indicators, rating it among the nation's best in terms of clinical quality and patient care.

As a leading Cancer Centre the Trust has close working relationships with many Cancer Units and other Cancer Centres. Predominantly the Trust's workload is from within the South West and West London Cancer Networks but the Trust is unique in having a high out-of-area referral rate for rare cancers, recurrent disease and treatment-related problems. The Trust forms a joint cancer centre with St. George's Healthcare NHS Trust.

The Royal Marsden NHS Foundation Trust comprises two units (169 beds at Chelsea, and 184 beds at Sutton). Over 40,000 patients attend the Royal Marsden each year. The Trust employs 2,300 staff, including 300 medical staff. As a specialist cancer centre, the Trust serves local populations within the London Boroughs of Merton, Sutton, Wandsworth, Kensington & Chelsea and Westminster, as well as receiving referrals both nationally and internationally.

The Royal Marsden supports a number of junior doctor training programmes, and provides core training across a wide range of tumours in Clinical and Medical Oncology and Surgical Oncology (including gynaecological cancer, gastro-intestinal, breast cancer and sarcoma and melanoma). The Trust also participates in rotations for the training of junior doctors in a number of other specialties.

NIHR Clinical Research Facility (CRF)

The CRF was established by the NIHR to help speed up the translation of scientific advances for the benefit of patients. The CRF share use of a purpose-built, cutting-edge PET/CT facility, with specialist clinical, research and support staff, where The Royal Marsden Hospital NHS Foundation Trust and the Institute of Cancer Research work collaboratively on dedicated programmes of patient-orientated experimental medicine research.

Organisation

The Trust Board comprises an independent chair, Mr Ian Molson, executive directors, and five non-executive directors from outside the NHS.

At The Royal Marsden NHS Foundation Trust the hospital management structure is organised into two Divisions; Cancer Services and Clinical Services. Each Division is led by a Divisional Director, reporting to the Chief Operating Officer, and supported by a Divisional Medical Director. The consultant heading up each Clinical Unit or specialty is a member of the Medical Advisory Committee. This is chaired by the Medical Director, Professor Martin Gore, who together with the other directors (i.e. Chief Nurse, Finance, IT, Strategy & Service Development, HR, Private Practice and Estates) and the General Managers form the Management Executive. The Management Executive is chaired by the Chief Executive, Miss Cally Palmer.

The Divisional Director for Clinical Services is Mr. Jonathan Spencer and the Divisional Medical Director is Dr Timothy Wigmore. The Consultant heads of each clinical unit or specialty formally meet as the Divisional Management Team on a bi-monthly basis.

Clinical Services Division:

Diagnostic Imaging, Pathology, Pharmacy, Theatres, Day Surgery, Palliative Care, Physics, Radiotherapy, Critical Care, Cancer Genetics, Medical Records & Patient Transport, Outpatients, Anaesthetics, Rehabilitation, Transitional Care Unit, Academic Biochemistry, SSD, Pain Services, Nuclear Medicine, Minor Procedure Suite, Endoscopy, Minor Procedure Suite, Central Referrals, Equipment Library.

Cancer Services Division:

Breast, Lung, GI, Neurology, Gynaecology, Urology, Day Care including IV team and Medical Day Unit, Breast Diagnostic Unit including Rapid Diagnostic & Treatment Centre (RDAC), Sarcoma, Head & Neck, Thyroid, Neuro-oncology, Leukaemia & Myeloma, Clinical Pharmacology, Lymphoma, Paediatrics, Drug Development Unit, Cell Bank, Academic Haematology.

The Divisions are supported by the following corporate directorates:

Nursing, Rehabilitation and Quality Assurance Directorate:

Rehabilitation, Pastoral Care, Lymphoedema, Volunteer Services, Community Liaison, Social Services, Quality Assurance, Research, Practice and Professional Development

Finance, Human Resources, Computing and Information, Estates and Private Practice.

The terms and conditions of service are in accordance with the NHS Whitley Council terms and conditions of service for hospital medical and dental staff.

The Institute of Cancer Research

The Institute of Cancer Research is a College of the University of London. It was established in 1909 to investigate the causes of cancer and develop new strategies for its prevention, diagnosis, treatment and cure and is now a centre of excellence employing some of the world's leading scientists working on cutting edge research.

The Institute is on two sites located adjacent to both the Chelsea and Sutton sites of the Royal Marsden and is closely integrated with clinical NHS provision. The Paediatric Oncology Laboratories are located in the new Brookes Lawley Building on the Sutton campus.

Research

The joint research interests of the Institute and the Trust are extensive and complementary, with an increasing emphasis on translational research. Research is carried out in a number of research divisions encompassing, Academic Departments and Clinical Units. The research in the joint institution can be grouped into 9 distinct themes: breast cancer, cancer diagnosis and imaging research, cancer genetics, cancer therapeutics, haematological cancers, healthcare research and screening, molecular pathology, paediatric oncology, radiotherapy and oncology. The majority of research funding comes from external sources and the grant success rate for the Institute is outstanding, at 84% of all applications from peer-reviewed grants to medical charities and government funding agencies.

The Institute is particularly indebted to its major sponsoring partners – Cancer Research UK, Breakthrough Breast Cancer, the Leukaemia Research Fund, the Kay Kendall Leukaemia Fund, the Wellcome Trust and the Bob Champion Cancer Trust, and to many other medical research charities. In addition, commercial partners collaborating in drug development at The Institute and supporting clinical trials at The Royal Marsden include: AstraZeneca Pharmaceuticals, Cyclacel, Vion Pharmaceuticals and Yamanouchi Pharmaceuticals.

The Post

This is a new full-time post for a Clinical Research Fellow in PET/CT Imaging to include dedicated Early Experimental Functional Imaging Research. The post is funded through the NIHR CRF (Clinical Research Facility) RMNHSFT/ICR to support early experimental clinical and nuclear medicine research. The job will be based at the Sutton branch of the Royal Marsden Hospital. The post-holder will be an integral member of the Nuclear Medicine and PET/CT Department, providing a key resource for PET/CT assessment of early experimental functional imaging research. The post is for 2 years with an opportunity to extend the contract further (subject to satisfactory annual review).

The major part of this post is to undertake early experimental PET/CT research and there will be an opportunity to undertake routine service PET/CT imaging work within the Nuclear Medicine and PET Department at Sutton (3 sessions per week). The post holder will also be expected to liaise with the Nuclear Medicine and PET Consultants to co-ordinate and supervise relevant multidisciplinary meetings with respect to nuclear medicine and PET/CT.

The post holder will be directly responsible to Consultant Nuclear Medicine Physicians. The post holder will be accountable to the Directors of NIHR CRF, Professor Martin Leach and Professor of Nandita De Souza.

The post holder will also work closely with ICR to and other Clinical Units to facilitate translational research and support the development of the use of PET/CT Imaging techniques in early experimental work. This will include participation in regular MDT, imaging review and oncological research meetings. The post holder will be strongly encouraged to pursue a higher research degree (MD Res).

The close proximity of all imaging equipment on the Sutton site permits easy access of patients for comparative studies to combine data from both morphological and functional investigations. The PET/CT, Nuclear Medicine and Radiology research with the CRUK Imaging Centre is focused on supporting the translation of functional imaging into the oncological population, to provide surrogate endpoints for measuring early functional response to therapy before morphological changes. Commercial solutions are available for the evaluation of PET-CT and nuclear medicine data and sophisticated software for the analysis of dynamic contrast agent studies and diffusion-weighted MR imaging have been written.

There is also an opportunity for the post holder to engage with pre-clinical imaging, if there is an interest to do so, to better understand the translation of functional imaging techniques into the clinical arena. There is also a strong interest at the RMNHSFT/ICR to integrate functional PET data with other functional data, providing the post holder with a chance to learn how to best utilize these varied information sources.

Nuclear Medicine Department

The Royal Marsden Hospital Department of Nuclear Medicine and PET/CT has bases in both RMH Sutton and RMH Chelsea. In addition to providing imaging, in vitro and therapy services to RMNHSFT patients, investigations and treatments are also provided for both in-patients and outpatients from other NHS Trusts. A clinical PET/CT service is provided to the local cancer network as well as individual trusts in the UK. There is an on-site cyclotron and radiochemistry facility operated by a commercial company, Erigal Ltd.

The Royal Marsden NHS Foundation Trust (RMNHST) together with The Institute of Cancer Research has made major new investments in PET/CT in the Sutton branch. At the end of January 2013, two new PET/CT scanners were installed at the Sutton branch, a new facility developed within the hospital adjacent to the cyclotron facility. This will allow dedicated research time on these new PET/CT scanners for all the funded and early experimental medicine PET/CT research studies. The development of generic or specific markers of drug action will play a major role in Phase I/II trials held in the Trust, with an expectation of translation from pre-clinical

developments. There will be substantial access to the new PET/CT systems for these studies in collaboration with the Nuclear Medicine Department, the Joint Department of Physics, the hospital Radiopharmacy, the Drug Development Unit and disease oriented Clinical Units.

At Chelsea, a new full Nuclear Medicine service for RMNHST patients has been in full operation since the beginning of December 2011, following the service repatriation from the Department of Nuclear Medicine at the adjacent Royal Brompton Hospital. SpRs are shared with the Department of Nuclear Medicine, Royal Brompton Hospital.

The Department of Nuclear Medicine and PET/CT is closely linked with Imaging Services and is part of the Clinical Services Division. There are also close links with the Thyroid and Isotope Therapy Unit and the isotopes section of the Joint Department of Physics of ICR and RMNHSFT. A fully equipped Radiopharmacy is present on the Sutton site.

Nuclear Medicine Medical Staff

Dr Sue Chua (Consultant Radiologist & Nuclear Medicine Physician, 1WTE)
 Dr Yong Du (Consultant Nuclear Medicine Physician, 1WTE)
 Dr Daniel Levine (Consultant Radiologist & Nuclear Medicine Physician, 1WTE)
 Dr Imene Zerizer (Consultant Radiologist & Nuclear Medicine Physician, 1WTE)
 Dr Bhuey Sharma (Consultant Radiologist, 0.2 WTE)
 1 x SpR (Shared with Royal Brompton Hospital)

Nuclear Medicine Technical and other staff

Mr. David Fitzgerald (Radioisotopes Services Manager)- Job to commence on 27th January 2014
 Mr. A Oxer & Ms Catherine Murtagh (Deputy Lead Technologists for Nuclear Medicine and PET/CT, full time)
 Sr. L Causer (Clinical Nurse Specialist, 0.6 WTE)
 8.0 WTE band 7 Nuclear Medicine Radiographers/Technologists
 3.0 WTE band 6 Nuclear Medicine Radiographers/Technologists
 0.3 WTE band 7 nurse
 1.5 WTE band 6 nurse
 5.0 WTE admin and clerical support
 2.0 WTE clinical trials coordinator
 2 posts 0.5WTE NIHR CRF research radiographers
 1.0 WTE CR UK DDO research associate for I124 mIBG PET/CT clinical trial
 3.0 WTE Physicists (Imaging/Therapy)
 3.0 WTE Physicists (Radiation Protection/Therapy)

2.0 WTE Physicists (PET/CT)

1.0 WTE NIHR CRF research physicists

1.0 WTE CR UK DDO research physicist for I124 mIBG PET/CT clinical trial

Additional Radiopharmacy and Physics staff, who are part of the Joint Department of Physics, contribute towards aspects of the Nuclear Medicine service

Other key staff related to Nuclear Medicine and Radiology

Dr G Flux Head of Radioisotope Physics

Dr A Hall Head of Radiopharmacy

Mr J Thurston Radiation Protection Advisor

Professor Martin Leach Professor of Physics as Applied to Medicine, The Institute of Cancer Research.

Dr. Elly Castellano Head of Diagnostic Physics Radiology

Consultant Staff in the Department of Diagnostic Radiology:

Dr D MacVicar (Clinical Head of Department) (Sutton / Fulham Road)

Dr D M King (Fulham Road / Chelsea & Westminster)

Dr E Moskvic (Fulham Road)

Dr G Brown (Sutton / Fulham Road)

Dr A Sohaib (Fulham Road / Sutton)

Dr B Sharma (Fulham Road / Sutton / Nuclear Medicine)

Dr S Allen (Sutton / Fulham Road / St. George's)

Dr R Pope (Fulham Road / Chelsea & Westminster)

Professor N De Souza (ICR)

Dr Christina Messiou (Sutton / Fulham Road)

Dr DM Koh (Sutton)

Dr A Riddell (Fulham Road / Sutton)

Dr R Wilson (Sutton / Fulham Road)

Dr N Fotiadis (Fulham Road / Chelsea & Westminster)

Dr J McCall (Fulham Road / Chelsea & Westminster)

Dr N Khan (Fulham Road / Chelsea & Westminster)

Dr N Tunariu (Associate Specialist in Radiology)

Dr E O'Flynn (Clinical Lecturer)

Nuclear Medicine and PET/CT Equipment

Sutton

1 GE VG Millennium dual headed gamma camera (+ SPECT) – due for replacement with SPECT/CT in 2014

1 ADAC Forte dual headed gamma camera (+ SPECT) – due for replacement with SPECT/CT in 2014

1 Philips SkyLight dual headed gamma camera (+ SPECT)

1 Siemens Biograph mCT time of flight 128 slice PET/CT scanner

1 Siemens Biograph mCT time of flight 64 slice PET/CT scanner

Pegasys (Philips), Hermes (NUD) and Xeleris (GE) work stations

PACS system across all imaging

1 GE Lunar Prodigy DXA bone densitometer

2 multigamma counters, 2 liquid scintillation counters

Therapy suite ratemeters, 1 whole body counter

Chelsea

1 Philips Gemini time of flight 16 slice PET/CT scanner

1 Philips Brightview XCT SPECT/CT scanner

Nuclear Medicine and PET/CT Activity**Sutton (data from 2012/13)**

~ 6000 Nuclear Medicine imaging studies (~ $\frac{2}{3}$ RMH and $\frac{1}{3}$ outside referrals. ~ $\frac{3}{4}$ oncology, $\frac{1}{4}$ non-oncology, ~ 600 paediatric)

~ 2000 PET/CT scans

~ 1800 in vitro studies

~ 220 radionuclide therapies (3 adult and 1 paediatric in patient therapy beds)

~ 900 DXA scans

Chelsea (data from 2012/13)

~ 2000 Nuclear Medicine imaging studies

~ 1600 PET/CT scans

~ 60 in vitro studies (analysed at Sutton)

Cyclotron/radiochemistry facilities:

A radiopharmaceutical production facility, operated by Erigal, has been established on the RMH site at Sutton. The ICR operates one floor of this building, including one GMP facilities, to produce additional research radiopharmaceuticals suitable for clinical use. Discussions are currently in progress to define arrangements with Erigal regarding the services they will provide,

the use of the GMP facilities, QA laboratory and the provision of experimental hot cell facilities for developmental and preclinical research.

Other Radiological Equipments:

- CT: Sutton -16 slice Multislice GE Lightspeed; Dual energy CT Chelsea – 32 slice Multislice GE Lightspeed.
- MR: Sutton – Philips, Intera 1.5T, Siemens Avanto 1.5T and a 3T Philips Achieva; Chelsea - Siemens 1.5T, Siemens 3T
- Fluoroscopy: Sutton: GE Precision RXI – digital. Fulham: Siemens – digital.
- Interventional room: Fulham: Siemens - digital.
- Mammography: Sutton: 2 GE Senographe 2000D digital units both in the RDAC. Fulham: 3 x2 GE Senographe 2000D digital units; 2 of them in RDAC and 1 in the main department.
- Departmental Ultrasound: Sutton: 1x GE Logic E9 real time scanner. Fulham: 1x GE Logic E9 real time scanner.
- RDAC US: Sutton: 1x Philips Logic E9 in the main US room and 3x GE Logic P5 in the consultant rooms.
- RDAC US Fulham: 1x Philips Logic E9 and 1x Siemens Sequoia in the two main US rooms and 5x GE Logic P5 in the consultant rooms.
- General Rooms: Sutton: 2x general rooms – digital and CR. Fulham: 2x general rooms - digital and CR.
- All imaging is archived using Philips PACS.

Management

Consultant radiologists are managerially accountable to the Medical Director through the Divisional Medical Director for Clinical Services, which includes Nuclear Medicine and Pathology services.

The Medical Advisory Committee is chaired by the Medical Director, presently Professor Martin Gore who, with other directors, form the Management Executive. The Management Executive is chaired by the Chief Executive (Ms. Cally Palmer). Clinical Radiology Lead for both sites is Dr. David MacVicar.

NIHR CRF Management Group:

The performance of the CRF is overseen by the JRB but in addition a CRF Management Group has been established to provide management of strategy, budget and activities. This is led by Professor Martin Leach, and includes the academic and clinical leads for Radiology and Nuclear

Medicine, the Directors of the CR-UK and EPSRC Cancer Imaging Centre Professor Leach (CRF Director) and Professor deSouza (CRF Manager), the BRC leads for Cancer Therapeutics and Imaging, lead physicists, radiographers and service managers from Magnetic Resonance and Nuclear Medicine, lead radiopharmacist, representatives from the Clinical R&D Department and the RMH Finance Departments. The Management group will review and prioritise all projects requesting CRF resource, all of which will form part of externally peer reviewed projects and/or have been reviewed by the Committee for Clinical Research. The group will also review progress on studies,

Academic Facilities

The RMNHST and the ICR enjoy a close relationship. Facilities are accommodated at two sites (Chelsea and Sutton). The RMNHST is a Specialist Oncology Centre, recognised as a cancer centre under the Terms of the Calman Hine report. The RMNHST and ICR combine to meet the increasing research and clinical demands in the field of oncology.

The Cancer Research UK and EPSRC Cancer Imaging Centre is funded on a 5 yearly programme grant. The centre hosts a multi-disciplinary team under the co-direction of Professor Martin Leach and Professor Nandita de Souza, and forms part of the Division of Radiotherapy and Imaging.

The ICR is a College Institute of the University of London in which consultant staff at the Hospital are eligible for consideration as recognised teachers and consequently as Honorary Faculty

Facilities

The post-holder will have access to office and secretarial facilities. The Trust has excellent physics, medical illustration, statistics and IT support.

Job plan

Contracted Hours

Standard hours 40.

On-Call

No on-call is included with this post, although it may be negotiable in future.

Proposed job schedule

This consists of 3 Programmed Activities (P.A.) of direct clinical care and relevant MDM's, 6 clinical research PA.s, and 1 Supporting Professional Activity (SPA), including Academic responsibilities. An opportunity will be available to undertake general oncological work and subspecialty oncology work in a clinical setting.

This is a proposal and the final work commitments will be agreed between the post-holder, the Royal Marsden and the institute through the Job Planning process prior to commencement. Thereafter, this will be reviewed annually with the Imaging Clinical lead (Dr. David MacVicar), the supervising nuclear medicine physician and Prof M Leach. Any changes can be discussed and agreed at this annual review.

A provisional specimen timetable is included below:

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Sutton	Sutton	Sutton	Sutton	Sutton
SPA	PET-CT Research	Nuclear Medicine /PET-CT Reporting	PET-CT Research	Nuclear Medicine/PET- CT Reporting
PET-CT Research	PET-CT Research/DDO Phase I meeting	PET-CT Research	PET-CT Research	Nuclear Medicine/PET- CT Reporting

Cross cover

These timetables are necessarily flexible. In a small department the rota may change to accommodate absences. Leave must be planned and coordinated in a responsible manner.

Other facilities:

Clubs

A recreation centre known as the "Ups Club" is situated at the Sutton branch of the Hospital and is available to all members of the Hospital and Institute staff. Its facilities include squash and badminton courts. A swimming pool and a bar are also available.

Car parking:

Limited permit-restricted car parking is available on the Sutton site.

Transportation:

The Sutton site is situated 15 minutes from Sutton mainline station and a number of regular buses pass the hospital. Hospital shuttle buses run a frequent service between the train station and the hospital site available to staff in the morning and evening free of charge. The Fulham Road branch is well served by public transport.

Inter-hospital transport:

A free minibus service runs regularly between the Fulham Road and Sutton sites within the Trust.

General Information:**Confidentiality**

All information concerning patients and staff must be held in the strictest confidence and may not be divulged to any unauthorised person at any time unless to do so is in the best interest of the individual. In this instance, the post-holder will be appropriately advised. A breach of confidentiality will result in disciplinary action being taken in accordance with the Authorities' disciplinary procedures and may lead to dismissal. The post-holder's attention is drawn to the Data Protection Act 1984.

Safety

The post-holder has personal responsibility for safety as outlined in the Trust's Health and Safety Policies and the Health and Safety Work Act 1974.

Smoking

The Hospital has implemented a non-smoking policy and this applies to all staff.

Dress Code

All staff are expected to abide by the Trust's dress code.

Visiting the Department:

For an informal discussion and/or to arrange an informal visit please contact Dr. Sue Chua (sue.chua@rmh.nhs.uk) or Dr. Yong Du (yong.du@rmh.nhs.uk) and arrangements can be made by contacting Mrs Caroline Dale/Elizabeth Hill (Departmental PAs), telephone 020 8661 3798 or email caroline.dale@rmh.nhs.uk or elizabeth.hill@rmh.nhs.uk. Applicants are invited and encouraged to visit the department informally by arrangement. Royal Marsden NHS Foundation

Trust/ICR is not empowered to pay travelling expenses or a subsistence allowance in connection with any such visits.