### Description of ACF Programme:

**Title:** Medical Oncology  
**Duration:** 3 years

### Lead NHS Hospital/Trust and contact details:

University Hospitals Southampton Trust  
Department of Medical Oncology  
Southampton General Hospital  
Southampton  
SO16 6YD  

Professor Andrew DAVIES  
Cancer Sciences Unit  
Faculty of Medicine, University of Southampton  
Somers Cancer Research Building  
Southampton General Hospital  
Southampton  
023 8079 6186  
[a.davies@southampton.ac.uk](mailto:a.davies@southampton.ac.uk)

### Research Institution in which training will take place:

Name: University of Southampton  
Address: Cancer Sciences Unit, Faculty of Medicine, University of Southampton  
Somers Cancer Building  
Mailpoint 824  
Southampton General Hospital  
Southampton  
SO16 6YD  

And  

Wessex Medical Oncology Rotation  
University Hospitals Southampton  
Southampton  

Possible rotations to The Royal Bournemouth Hospital, Bournemouth and Queen Alexandra Hospital, Portsmouth

### Arrangements for protected research time:

The post will cover 2 years and 3 months of clinical training, at the end of which 9 months of protected research time will be used to learn research methodology and prepare for a Clinical Research Fellowship application and preparation for a higher degree. Clinical duties will be
The objectives of the training programme are for the trainee, over three years:

1. To undertake the equivalent of 27 months of full-time specialist training in medical oncology in accredited hospital posts and a total of 9 months within an appropriate Research Division in the University of Southampton Faculty of Medicine over a 3 year period.

2. To undertake generic research methods training through a programme run by the Faculty of Medicine's NIHR Postgraduate School.

3. To develop a research proposal for an externally funded research training fellowship

4. To obtain relevant training in research design, methods and systematic review.

5. To submit applications for research training fellowships in national competition such as MRC, Wellcome Trust, National Institute of Health Research & Cancer Research UK.

The research component of this post will be conducted in the Cancer Sciences Unit (CSU) of the University of Southampton, Faculty of Medicine. The bulk of the CSU is housed in modern well equipped laboratories in the Somers Building on the Southampton General Hospital Site. A new £25m Cancer Immunology Centre opened in the Summer of 2018 and brings together a wealth of expertise in the field in one space. (http://www.southampton.ac.uk/youreit#new-centre). The Southampton Cancer Immunology Centre is the first in Europe, and is world leading in bringing together multidisciplinary research themes to help understand responses and improve outcomes to immunotherapy in cancer. The ACF will be able to interact with basic scientists, translational clinical academics and the Clinical Trials Unit who will be able to deliver these outputs to patients.

The Southampton Clinical Trials Unit was established in 2006 with core funding from Cancer Research UK and NIHR, providing clinical trial development and management (http://www.southampton.ac.uk/ctu/index.page). Southampton is a Cancer Research UK Clinical Centre (http://www.southampton.ac.uk/cruk/index.page). Core funding to the division also comes from programme grants from Bloodwise, Cancer Research UK, and other funding streams, with major infrastructure support from the Department of Health via the Experimental Cancer Medicine Centre (http://www.ecmcnetwork.org.uk/network-centres/southampton/). The Wessex Investigation Science Hub provides infrastructure support for clinical trials translational endpoints (http://www.southampton.ac.uk/medicine/research/WISH%20Lab/wishlab.page). It is a Bloodwise Research Centre of Excellence and member of the charity’s Therapies Acceleration Programme. The mission of the Unit focuses on the synergy of excellence in clinical and basic research, delivering high quality translational programmes to improve cancer treatment. Southampton in a Genomics England Genomic Medicine Centre with a track record
in excellence of delivery of the Cancer Team. Current research strengths focus on cancer immunology and immunotherapy and the molecular mechanisms of malignancy. All groups within the division have strong collaborative links with basic medical scientist as well as to the well-organised multidisciplinary teams in clinical practice in the Southampton Cancer Centre. More can be learnt of the breadth of our research interests at: http://www.southampton.ac.uk/medicine/academic_units/academic_units/cancer_sciences.page

The CSU has extensive experience of matching students to projects, both full-time and part-time, clinical and non-clinical. Career tracking is a priority of the Units Executive Group and the track record of Clinical Trainees passing through the Unit is one of excellence. The ACF will spend 9 months embedded within a group with in CSU. It is anticipated that they will remain within this group and apply for a Clinical Research Fellowship, having acquired basic laboratory skills, critical evaluation and preliminary data. During the first 2 years, the ACF will have an opportunity to interact with Group Leaders in order to plan their period of research and to refine their interests. The trainee will work closely with their academic supervisor to assess and direct their learning needs. They will have the opportunity to attend a variety of courses to gain core research skills.

Key learning themes:

**Genomics:** They will have the opportunity join the Wessex Genomics Medicine Centre and actively participate in the cancer theme of 100,000 Genomes project [Copson Lead for cancer]. They will learn about facilitation of sample delivery and patient consent, sample processing and QA, data interpretation and validation. They will become a core member of Genomics MDT and interact with the National Genomics England Clinical Interpretation Partnerships, of which many personnel in Cancer Science are members [Davies, Lymphoma Chair] to translate findings into functional outputs.

**Immunological mutanome:** In the Cancer Immunology Centre, Cancer Research UK funding has been awarded [Johnson CI] to develop and validate microscaled methods to analyse the tumour mutanome and the transcriptome of tumour infiltrating immune cells; to characterise the antigens being recognised and how these are related to immune responses, as a guide to the rational design and outcome evaluation of clinical immunotherapy. The ACF will be able to join a multi-disciplinary immunotherapy collaborative with leading expertise in immunology, oncology, genomics, molecular pathology, immunoproteomics, bioinformatics and drug development that are characterising the evolving tumour antigenic landscape utilising mutanome, proteome and immunopeptidomime analysis (combining ex vivo and in silico methods) pre and post treatment. The team are also determining the phenotype and transcriptional profile of tumour infiltrating immune cells at population and single cell levels utilising multidimensional flow cytometry and RNA seq, linked to immunohistochemistry. Along with this, TCR repertoire depth by targeted mapping analysis of single-cell RNA-Seq data from tumour infiltrating T cells, and link it to tumour mutanome profiling to identify antigens, TCRs and/or T cell clonotypes that are likely to provide robust antitumour immune responses following vaccination or adoptive T cell therapy. This will provide an excellent foundation in understanding of multi-platformomics.

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

The ACF will gain broad experience of non surgical cancer management during the first two years and 3 months. This will include experience in administration of both outpatient and inpatient chemotherapy, including high dose treatments with haemopoietic progenitor cell
rescue. Training will be provided in all aspects of administration of chemotherapy and biological therapies and will include assessment of response to treatment, the management of toxicities of treatment and the presentations and complications of malignant disease. In addition, the ACF will gain experience of both radiotherapy and palliative medicine. During the first two years the post will rotate in order to give a broad general experience. They will gain both inpatient and outpatient experience and will be expected to assist in the supervision of junior medical staff and be responsible for day to day management of inpatients. Skills already learned and practical procedures such as chest drains, lumbar puncture etc will be reinforced during this period. There are weekly multidisciplinary meetings for most tumour sites which trainees are expected to attend as part of their clinical attachment.

During their training they will have the opportunity to attend Clinical Oncology clinics and gain experience of the appropriate use of radiotherapy in the treatment of malignant disease, its effects and complications.

They will be required to attend the taught course in Oncology at The Institute of Cancer Research, a day-release modular programme leading to a Postgraduate Certificate, Postgraduate Diploma or MSc in Oncology. The overall aim of the course is to encourage proactive problem solving and reflective approaches to medical or clinical practice, producing graduates who are well equipped with the highly refined intellectual, scientific and clinical skills necessary for leadership careers in twenty-first century oncology. This course will fulfill many of the aims of the Medical Oncology Core Curriculum. At the end of the initial clinical training it is expected that they will have acquired a sound knowledge of basic cancer science, the aetiology and prevention of cancer, its clinical features and treatment and aspects of supportive care and palliative medicine.

Experience will be gained in the care of patients in phase I, II and III trials and it is anticipated that the ACF will be involved in the initial development of clinical trial protocols, and the coordination of trials, recording and reporting of results. A dedicated and fully-staffed NIHR Clinical Research Facility is also located in the hospital immediately adjacent to the Medical Oncology ward, for the conduct of early phase clinical trials work (http://www.uhs.nhs.uk/ClinicalResearchinSouthampton/Research/Facilities/NIHR-Southampton-Clinical-Research-Facility/NIHR-Southampton-Clinical-Research-Facility.aspx)

The trainee will also be expected to develop a clear understanding of the regulatory process of clinical trials and participate in the peer review of clinical trials. For multi-centre trials they will be expected to attend investigator meetings in order to discuss the trials with participants from other centres. The trainee will be expected to work closely with the clinical research team of research nurses and clinical trials associates. With increasing experience they will be expected to take full responsibility for conduct of the studies and planning new ones. In addition, they will be expected to present the results of clinical research projects both locally and at national and international meetings as appropriate. Publication of the results in peer reviewed journals is expected. The Cancer Research UK Clinical Centre includes a Clinical Trials Unit, a Data Office and a team of research nurses. These members of staff along with senior medical staff will provide appropriate support and supervision.

The ACF post holder will be encouraged to develop an area of site specialist interest. The Unit treats a large number of patients with most major tumour sub types and will therefore offer the opportunity to specialize in one of a number of tumours including breast cancer, lymphoma, urologic malignancy, germ cell tumours, gynaecological cancer, gastrointestinal cancer, melanoma and lung cancer. They will be able to sub specialise in one or more of these areas and will be given an active role in the development of Unit protocols and of the clinical trials activity.
The ACF will be expected to attend certain management courses during their period of employment. These will provide education in various aspects of management, including hospital management, financial management and contracting, information technology, interviewing and selection, and dealing with litigation and other complaints.

They will be encouraged to attend Directorate meetings and will be required to participate in clinical governance procedures including audit and the development of clinical guidelines.

Many medical students spend their 5th year module attached to the Unit. The ACF will be required to undertake some ward teaching of medical students and training of junior medical staff in preparation for the MRCP examination. In addition, the Unit has responsibility for 4th year studies in depth, the scientific basis of medicine course and the 3rd year oncology module. They will be expected to assist in these teaching activities. A course in Oncology for qualified nurses is conducted two yearly and they will be involved in the programme of lectures for this course. Frequent postgraduate meetings and medical grand rounds take place to which the Unit regularly contributes and they will be expected to participate in these.

Throughout the period of clinical training there will be a commitment to out of hours cover. This will be voluntary during the research period.

**Specific support provided to trainee**

- 30 days study leave in years 1 and 2 to attend the ICR MSc in Oncology.
- Bimonthly off-site regional educational days (when not attending the ICR course)
- Experience in a Consultant led clinical service exposing to a wide variety of tumour types.
- Excellent Clinical, Educational and Academic Supervision
- Training in clinical trials set-up, governance and management. Exposure to many novel agent studies.
- Interaction with World class researcher in the Cancer Sciences Unit and ability to choose project to their best fit
- Ability to attend a range of courses applicable to research methodology
- Academic meetings held in Cancer Sciences Unit and weekly oncology journal clubs

**Milestones and timing of achievement of academic and clinical competencies**

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<th>Year 1</th>
<th>Year 2</th>
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<td>1 Full time clinical duties: achieve clinical competances required for stage of training in Medical Oncology</td>
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<tr>
<td>2 Complete year 1 of MSc Oncology course</td>
<td>2 Complete year 2 of MSc Oncology course (optional)</td>
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<tr>
<td>3 Identification of topic of interest for research project and initial literature review.</td>
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<td>4 Identification of specific learning needs for the project and appropriate courses.</td>
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<td>5 Attendance at appropriate NIHR Training Programme courses and meeting</td>
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<td>Year 3</td>
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<tr>
<td>1</td>
<td>3 months of clinical duties: Pro rata attainment of clinical competencies as deemed appropriated by ARCP panel</td>
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<td>2</td>
<td>9 months: Full time research. Core skills in research methodology and project specific competencies.</td>
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<td>3</td>
<td>Application for Clinical Research Fellowship</td>
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**How post links in to the NIHR approved Research Training Programme at your locality:**

Mandated attendance at NIHR training programme courses provided by the Faculty covering aspects such as trial design, GCP, statistics, grant and paper/abstract writing, time management etc. Attendance and presentation at host Academic Trainees meetings.

**Trainee centeredness:**

The trainee will have a personalised academic training plan that articulates with the clinical training plan. The last 9 months of the programme will be protected full time research with no clinical commitments. The trainee will meet regularly with their Academic Supervisor to ensure that goals are being met in addition to regular Educational Supervisors meetings.

**Quality assurance of the programme:**

- Regular review from Academic Supervisor, reporting in the Head of the Unit and Academic Training Lead for University.
- Feedback from Clinical and Educational supervisors along with structured feedback provided by the MSc Oncology course Tutors and Director provided by the Institute of Cancer Research.
- Successful transition at ARCP and feedback from Programme Training Director.
- Required completion of NIHR courses and course work through accredited modules.
- Academic outputs of trainee including presentations, papers and successful completion of application for Clinical Research Fellowship.

**Mentoring Arrangements:**

The trainee will be at liberty to choose an appropriate academic mentor with the approval of the Academic Supervisor. This would typically be from an individual within the CSU but may be provided by an alternative individual from the Faculty under the governance of arrangements for postgraduate research at the University of Southampton’s Faculty of...
Medicine. This will include mentorship through supervision of emerging PhD programmes, and senior authorship of research fellowship applications to major funding agencies.

**Academic Lead (University) for the IAT Programme:**

Prof Elaine Dennison  
Director of Clinical Academic Training  
Faculty of Medicine  
University of Southampton  
Southampton General Hospital  
Southampton SO16 6YD  
Tel 023 80777 222  
eml@mrc.soton.ac.uk

**Academic Supervisor (University) Details:**

Name: Professor Andrew Davies  
Address: Cancer Sciences Unit  
University of Southampton, School of Medicine  
Somers Cancer Building  
Mailpoint 824  
Southampton General Hospital  
Southampton  
SO16 6YD  
Telephone: 023 8079 6186  
Email: a.davies@southampton.ac.uk

**Education Supervisor (Trust) Details:**

Name: Dr Judith Cave  
Consultant Medical Oncologist  
Associate Director of Medical Education  
Department of Medical Oncology  
Level D  
East Wing  
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Tremona Road  
Southampton  
SO16 6YD  
Judith.cave@uhs.nhs.uk  
023 8120 8639

**Clinical Supervisor(s) Details:**

Clinical supervision will be provided by the Consultant Medical Oncologists through which the ACF will rotate through during clinical training. Exposure to a broad range of tumour types will be provided during their 2 year 3 month rotation.

Consultants in Medical Oncology:
Dr J. Bradbury, MB BS MRCP, NHS Consultant
Dr E Brown, MB BS, MD, MRCP, NHS Consultant,
Dr J Cave MD FRCP, NHS Consultant
Dr E Copson, MB BS PhD FRCP, Cancer Research UK Associate Professor/ Honorary Consultant
Dr S Crabb MB BS PhD, Cancer Research UK Associate Professor/ Honorary Consultant
Professor A Davies PhD FRCP, PhD
Dr Akis Dimopoulos, NHS Consultant
Dr C Green BSc MB BS MRCP, NHS Consultant
Dr T Iveson MD FRCP, MacMillan NHS Consultant, Honorary Associate Professor
Professor P W M Johnson MA MD FRCP, Professor of Medical Oncology
Dr Ioannis Karydis, Associate Professor and Honorary Consultant
Dr Chern Lee MRCP, Consultant
Dr. N. Keay, MB BS, MD, MRCP, NHS Consultant
Dr Luke Nolan, MB BS MRCP PhD, Consultant Oncologist
Professor C Ottensmeier PhD, FRCP, CR UK Professor of Experimental Oncology
Dr C Rees MD MRCP, NHS Consultant
Dr Alaaeldin Shablak, NHS Consultant
Dr P Simmonds MB BS FRACP, NHS Consultant, Honorary Senior Lecturer
Dr Matthew Wheater, MB BS MRCP PhD, Consultant Oncologist

Deanery Programme Training Director Details:

Name: Dr Nicola Keay
Position: Consultant Medical Oncologist
Wessex Medical Oncology Programme Director
Address: Department of Medical Oncology
   University Hospitals Southampton Trust
   Level D, East Wing
   Mailpoint 307
   Southampton General Hospital
   Southampton
   SO16 6YD

Telephone: 02381 203463
Email: Nicola.Keay@uhs.nhs.uk

Deanery Programme Manager Details:

Mrs Ysabel Hensford
Training Programme Manager for Medicine
Wessex Deanery
Sparrowgrove
Otterbourne
SO21 2RU
Tel: 01962 71821
Fax: 01962 718401
Email: Ysabel.hensford@hee.nhs.uk
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