This issue of our Newsletter highlights the progress over the summer months to establish a truly comprehensive Cancer Institute in the heart of London, promoting fundamental research, education and clinical trials. This issue also features the research of three scientists from the newly formed Cancer Domain, a cross-faculty initiative bringing together all cancer-related activities at UCL, ranging from nanoengineering and physics through to applied clinical research. The scientists featured are Professor Sir Salvador Moncada (Wolfson Institute for Biomedical Research), Professor Clare Futter (Institute of Ophthalmology) and Professor Usha Menon (Institute of Women’s Health).

UCL is located within one of the most culturally diverse cities in the world. On page 12, we show our ongoing efforts at the Institute to promote diversity in our workforce.

ECMC Awarded £2.5 million
UCL Experimental Cancer Medicine Centre (ECMC) has been awarded £2.5 million over five years from Cancer Research UK and NIHR to continue its program of Experimental Cancer Medicine. The award will fund thirteen posts providing key infrastructure to support the following themes:

1. Early drug development for solid tumours,
2. Radiation therapy, molecular imaging and targeting,
3. Immunotherapy, cellular and gene therapy,

The co-Leads for the UCL ECMC are Professor John Hartley and Dr Tim Meyer.
Professor Tariq Enver and his group joined the UCL Cancer Institute earlier this year. The group is one of the foremost leukaemia and stem cell laboratories in the world. It is supported by Cancer Research UK, Children with Cancer (CwC), and Leukaemia and Lymphoma Research (LLR). Professor Enver’s laboratory has also been selected by the ‘Mothers & Daughters Committee’ for their annual fund raising activities this year.

One of the group’s laboratories at the Cancer Institute was recently opened and named after John Barrington MBE.

John Barrington MBE, who died in 2010, founded the Richmond and Twickenham Branch of Leukaemia & Lymphoma Research 30 years ago, after his son died of leukaemia. The Branch has raised over £1.6 million and John took part in fundraising activities up until his death last year. He was also Vice Chairman of this national blood cancer charity for more than 20 years.

In tribute to his dedication to funding research into blood cancers, the newly-named ‘Barrington Laboratory’ was unveiled at the UCL Cancer Institute in the Paul O’Gorman Building. The ceremony was attended by John’s widow, Pat, and their three children and grandchildren.

Cathy Gilman, Chief Executive of Leukaemia & Lymphoma Research, said: “John’s dedication to fundraising inspired everyone he met and it’s a testament to his character that he made something so positive out of tragedy. John was passionate about research and the huge strides forward in leukaemia survival rates that the charity had helped to achieve. It’s really fitting that a laboratory which is striving to increase survival rates further still will bear his name.”

LLR opens the Barrington Laboratory
Personalised Cancer Medicine Initiative

The UCL Cancer Institute has recently recruited a Professor of Personalised Cancer Medicine, Professor Charles Swanton, to lead its new initiative in cancer treatment. New and future treatments for cancer may only be beneficial to a percentage of patients for each tumour type. Therefore, this initiative will analyse each patient’s tumour at the genetic level to decide which is the most appropriate treatment for that specific individual. Such genetic analyses will include whole genome sequencing and other technologies including protein analyses to determine which treatment is the best for that patient (i.e. individualised or personalised cancer care).

Professor Swanton has a laboratory at the CR-UK London Research Institute, studying multi-drug sensitivity mechanisms through RNA interference screening approaches, associated with paclitaxel and other common chemotheraphy agents used in oncological practice. These screening datasets resulted in the observation that molecules that mediate chromosomal stability appeared to be significantly associated with those mediating taxane sensitivity and led to the first phase II clinical trial in colorectal cancer to attempt to define prospectively whether tumour chromosomal instability status alters response to a taxane-like drug.

The UCL Cancer Institute Personalised Cancer Medicine Initiative and the Cancer Clinical Trial Facility will instigate whole genome sequencing and genetic profiling of solid tumours, stored within a biobanking facility. All patients will have had their disease treated at one of our affiliated hospitals and a molecular electronic patient record system will be developed in order to identify the most appropriate trial for individual patients. Such a process will optimise patient care and clinical outcome. The Institute will also utilise developments in laboratory approaches to understand how cancer drugs work, through RNA interference screening. The laboratory work will be complemented by cancer imaging and detection technologies to monitor the response of tumours to drug treatment in more intricate ways (e.g. tumour blood flow and uptake of nutrients such as sugars or fats by tumours). This major initiative will bring together parallel datasets to identify new drug targets to improve patient outcome and methods to predict which patient will benefit from which drug treatment. Initial tumour types studied will include lung and renal cancer.

Professor Charles Swanton’s research is supported by Cancer Research UK, the MRC and the EU.


The UCL / UCLH Cancer Clinical Research Facility (CCRF)

The CCRF is located on the ground floor of the Elizabeth Garret Anderson wing of the new UCH and is a state of the art facility for cancer drug development. Funding has been provided by the NIHR, Wellcome Trust, Wolfson Foundation and Cancer Institute Research Trust to develop the Unit which provides twenty treatment spaces, clinic rooms, a pharmacy dispensary and a GCLP sample handling laboratory. The main GCLP lab, directed by Professor John Hartley, is located in the Cancer Institute providing onsite capability for pharmacokinetic and pharmacodynamic studies including access to HPLC, mass spectrometry and circulating tumour cell analysis.

The Unit is fully staffed with 8 Nurses, 4 Data Managers, a Trial Coordinator, a QA Manager, a Laboratory Technician and a Pharmacist. Dr Tim Meyer was appointed as the CCRF Director and three new Senior Lecturers, Drs Martin Forster, Rebecca Kristeleit and Sandra Strauss have been appointed to develop and expand the portfolio. Professor Hilary Calvert, an international authority in drug development, provides additional mentorship and expertise. Both Martin and Rebecca have recently received funding from Cancer Research UK to lead trials of the PARP inhibitor olaparib in head and neck, and endometrial cancer, respectively. Examples of innovative trials include those that are first in man such as the novel HDAC inhibitor JNJ26481585. The trial was led by Rebecca Kristeleit and recruited 17 patients with a variety of solid tumours. The results will be presented at the forthcoming AACR-NCI-EORTC Molecular Targets and Cancer Therapeutics conference in San Francisco. Having defined the maximum tolerated dose, this drug will be taken forward in malignant myeloma in combination with bortezomib. Other trials focus on specific tumour types such as BIBF1120 for hepatocellular carcinoma (liver cancer). This Phase I dose escalation study was lead by Tim Meyer at UCL and Dan Palmer in Birmingham. The drug was confirmed to be active in this hard to treat disease (see Figure below) and the results will be presented at the International Liver Cancer Association conference in Hong Kong in September. An international Randomised Phase II trial based on these results will open shortly.
Cancer Clinical Trials at the UCL Cancer Institute

The Cancer Research UK and UCL Cancer Trials Centre (CTC) is one of the largest academic Cancer Trials Units in the UK, with over 80 staff working on more than 75 trials. The ideas for many studies (run through the NCRI/NCRN) originate either from local investigators at UCL or our affiliated hospitals, or are developed by collaborating with national investigators. Recent key results presented at international meetings include:

Jonathan Ledermann, CTC Director, presented the results of a trial in high-grade serous ovarian cancer, using Olaparib (a PARP inhibitor) at ASCO 2011. Olaparib had mainly been tested in patients with BRCA gene mutations. There was a 65% reduction in the risk of progression with maintenance olaparib given following the completion of chemotherapy for relapsed ovarian cancer. It is too early to know the effect on survival, but when the trial was presented 50% of patients in the olaparib arm remained on therapy as compared to only 16% in the placebo arm.

Two large lymphoma trials were presented at ASH 2011, the Lugano Lymphoma Conference, and ASCO 2011. The first, led by Kirit Ardeshna (UCLH and UCL), compared ‘watch and wait’ - a standard approach in low-grade lymphoma to immediate treatment with rituximab, a monoclonal antibody targeting CD20. Rituximab significantly delayed disease progression at 3 years, and the need to start chemotherapy. In the second study, David Cunningham (Royal Marsden Hospital) presented the final results of two schedules of RCHOP (14 versus 21 day) in diffuse large cell lymphoma, showing that dose-intensification gave no additional benefit.

The first ever UK national trial in thyroid cancer (HiLo) was presented at the International Thyroid Congress in Paris by Ujjal Mallick (Freeman Hospital, Newcastle). It was also the first factorial trial in this cancer, showing that low-dose radioiodine (1.1GBq) is as effective as the standard high dose (3.7GBq) in treating patients with differentiated thyroid cancer; and that patients can be given Thyrogen before radioiodine ablation without affecting ablation success rates. These findings will change international clinical practice, whereby 1.1GBq and Thyrogen will become the new standard, with major benefits to both patients (e.g. less time in hospital isolation and fewer side effects) and health service providers (e.g. more outpatient treatment).

The CTC has continued to publish long-term follow up results of its trials that finished many years ago. One large trial, the ‘Over 50s’ (by Hackshaw and colleagues, J Clin Onc, 2011) showed that women who took tamoxifen for 5 years had lower rates of breast cancer recurrence, mortality and cardiovascular disease 10-15 years later, than those who only took 2-years of tamoxifen. These findings were presented in the media in the UK and abroad, and will hopefully encourage more women to complete their 5-year course of tamoxifen, because many currently discontinue treatment early.

Allan Hackshaw (CTC Deputy Director and member of the Royal College of Physicians Tobacco Advisory Group) published the first ever systematic review on maternal smoking and birth defects, showing which specific defects were caused by women who smoked during pregnancy (e.g. missing/deformed limbs, and facial and gastrointestinal defects). The findings were presented across the media internationally, and should be used to further influence public health education.

Sarah Cannon Research UK

UCL/UCLH have established an important partnership with the Sarah Cannon Research Institute (SCRI) and their newly established Early Drug Development Unit, in 93 Harley Street, directed by Dr Tobi Arkenau. The aim of this partnership is to collaboratively initiate and conduct early clinical trials at both research facilities and allow the CCRF to access the SCRI portfolio providing great opportunities for academic collaborations between both parties. The first three collaborative trials exploring cMet inhibition in gastric, head and neck and hepatocellular cancer are in set up and a dedicated Trials Portfolio Manager has just been appointed to manage the growing joint portfolio.

The joint Sarah Cannon Research UK/UCL research programme has appointed its first Research Fellow to undertake a higher degree at UCL and opens an excellent opportunity for training the next generation of physicians in drug development. This programme is in addition to the already existing UCL research programme which currently hosts three oncology trainees. Links with laboratories in the Cancer Institute provide opportunities for novel translational projects associated with drug development.

Sarah Cannon Research Institute in Harley Street.
During their lifetime most of the cells in the body divide and replicate themselves either to substitute for cells dying following their normal life span or in bursts of activity, for example during repair reactions following injury or in response to an immunological challenge. In these situations, cell division, and thus proliferation, generally occurs in a well-coordinated and orderly manner, terminating either when the new cell has replaced the old one or at the end of the injurious stimulus. The mechanisms involved in cell division have been largely elucidated due to the outstanding contributions of modern cell and molecular biology. In spite of this, the way in which the cell harnesses nutrients for the purpose of duplicating itself has remained, until recently, a mystery. The amount of carbon, nitrogen and energy required to make a new cell is considerable and thus the supply of nutrients has to increase greatly in dividing cells. The two main substrates in cell proliferation are glucose and glutamine, and mechanisms involved in their increased utilization, such as Akt and c-Myc, have been identified; however, the connection between their activation and the actual needs of proliferating cells has not been addressed. Furthermore, although these steps are known to be activated in normal proliferating cells, they have mainly been studied in cancer.

The group of Professor Moncada has recently made a discovery that directly connects the process of cell division with the provision of nutrients necessary for its successful completion. They have found that anaphase-promoting complex/cyclosome (APC/C)-Cdh1 – the ubiquitin ligase that controls G1- to S-phase transition by targeting specific degradation motifs (KEN box and D-box) in cell cycle proteins – also regulates the glycolysis-promoting enzyme 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase isoform 3 (PFKFB3) and glutaminase 1 (GLS1), a critical enzyme in glutaminolysis. The activity of these two enzymes is known to be greatly enhanced in proliferating normal and cancer cells.

The group’s experiments have shown that reduction in the activity of APC/C-Cdh1 at a nutrient-sensitive restriction point in mid-to-late G1 is the step that co-ordinates glycolysis and glutaminolysis to cell proliferation (see figures 1 and 2). Under normal circumstances, in cells that have completed a replication cycle, the ubiquitin ligase increases towards the end of cell division and maintains the two new cells in a non-proliferative state by ensuring that a number of proteins involved in cell cycle progression are removed through proteasomal degradation. This situation is maintained until the cell is activated to initiate another cell replication cycle, at which stage the activity of APC/C-Cdh1 is decreased due to phosphorylation of the adaptor protein Cdh1. This results in the release of a number of proteins, including S-phase cyclins which then orchestrate the progression of the cell into the biosynthetic S phase.

The group has established that both PFKFB3 and GLS1, in common with S-phase cyclins and certain other proteins, contain recognition sites for APC/C-Cdh1 (figure 3) and are therefore metabolised by the ubiquitin ligase until its activity decreases in mid-to-late G1 (figure 1). Professor Moncada has suggested that this is the mechanism that coordinates cell cycle progression with the provision of metabolic supplies and explains the nutrient-sensitive point that has been identified in mammalian cells during their division. Thus, enzymes responsible for implementing metabolic changes “cycle” in a way akin to the cyclins, and their cycling determines the metabolic behaviour of the cell at different stages of division. Studies in cells whose division is synchronized are already providing more accurate information about the metabolism of proliferating cells.
EGFR Signalling and Cancer

Professor Clare Futter leads a group studying membrane traffic in cancer cells and retinal pigment epithelial cells. Epidermal Growth Factor (EGF) receptors are overexpressed or mutated in many cancers and are targets for cancer therapies. Small molecules and antibodies directed against EGF receptors are some of the most successful targeted cancer treatments recently introduced, but the factors predicting clinical response to EGFR therapies remain unclear.

When the EGF receptor is activated at the cell surface it signals to the cell to divide or move or differentiate, depending upon the cellular context. Upon activation the receptor is taken up (endocytosed) into the cell in a process that allows the receptor to interact with proteins inaccessible from the cell surface and also can lead to receptor degradation in the lysosome and termination of signalling. When this trafficking system breaks down dysregulated signalling can result.

The last decade has seen an explosion in our understanding of the molecular mechanisms regulating transport of EGF receptors in the endocytic pathway. Professor Futter’s Group takes advantage of high resolution techniques, particularly electron microscopy, to determine the effects of inhibition of this molecular machinery on the traffic of EGF receptors. They have recently identified a novel way for the EGF receptor to interact with proteins on a different organelle, through the formation of membrane contacts between endosomes and the endoplasmic reticulum.

Much of the Group’s previous work focussed on identifying and characterising the fundamental molecular mechanisms that regulate traffic of EGF receptor following activation by ligand. Now, in collaboration with Professors Daniel Hochhauser and John Hartley from the UCL Cancer Institute, they are determining how those mechanisms regulate the traffic of mutant receptors that are expressed in human cancers and the role the trafficking machinery plays in regulating the response to cancer therapies.

**Key reference:**

Cancer Institute NEWSLETTER

Cutting Edge Cancer Immunology at UCL

The idea of re-programming our immune system to fight cancer as effectively as it fights infections has been pursued for many years with promising but variable results. Recent clinical trials have re-invigorated optimism around tumour immunotherapy as approaches incorporating either vaccination, adoptive cellular therapies or blockade of immune-modulatory pathways have increased survival in patients with melanoma, lung and prostate cancer.

Despite substantial progress in cancer immunology, there are a number of important questions that remain unanswered. UCL’s Cancer Domain brings together a multidisciplinary team of basic scientist, clinicians and clinician-scientists who are addressing these questions. The areas of work and expertise are broad and complementary, ranging from mechanistic studies in animal models of cancer to trials involving vaccinations, cellular therapeutics and gene therapy.

Understanding how the immune response to cancer is regulated is key for the development of novel therapies. Dr. Clare Bennett and her group study the biology of a subset of immune cells (dendritic cells) responsible of the initiation of T cell (T-Lymphocytes) mediated responses to cancer. Groups led by Dr. Sergio Quezada and Dr. Karl Peggs study the immune-regulatory pathways controlling the interplay between cancer and immune cells. Their research has been instrumental in understanding how antibodies that block the function of the immune-inhibitory receptor CTLA-4 can enhance anti-tumour responses. In addition to CTLA-4-mediated regulation, it is thought that the continual interaction with cancer renders immune cells hypo-responsive or “exhausted” thus incapable of sustaining anti-tumour responses. Dr. Ron Chakraverty’s group study these responses and their relation to another key immune-regulatory receptor (PD-1). Recent data from his laboratory has revealed that PD-1 blockade can restore the function of exhausted effector T cells in vivo thus underscoring the relevance of this pathway as a potential target for novel immunotherapeutics.

Translating basic findings into the clinic is one of the biggest challenges in biomedicine. Research groups at the Institute of Child Health led by Dr. John Anderson are using cellular vaccination strategies (dendritic cell vaccines) to awaken the immune response to brain cancer (neuroblastoma). His work is now being tested in a phase I/II clinical trial in children.

The immune system of many cancer patients is too damaged or exhausted making it difficult to mount an immune response. To bypass this hurdle, adoptive cellular therapy regimes have been developed to stimulate and expand tumour-reactive T cells ex vivo for their later re-infusion into patients. For haematological malignancies, clinicians (Prof Steve Mackinnon, Dr Karl Peggs and colleagues) have greatly optimized stem cell transplantation and adoptive cellular protocols to maximize anti-leukaemia and lymphoma responses whilst minimising treatment-associated toxicities.

Other UCL research groups (led by Prof Hans Stauss, Dr Emma Morris, Prof Persis Amrolia, Prof Mary Collins and Dr Martin Pule) are also developing gene therapy strategies to combat cancer. Gene transfer technologies now provide an opportunity to develop designer T cells for particular disease settings. Genetic tools have been developed to render T cells resistant to immunosuppressive drugs such as cyclosporine.

In summary, UCL is a world leading centre in cancer immunology research and its translation into new therapy options for patients. The combination of immune modulatory antibodies with innovative cell and gene therapy platforms puts UCL in a strong position to develop the next generation of targeted immunotherapy protocols for cancer.

Key references:
Focus on Gynaecological Cancer Research Centre

Ovarian cancer (OC) remains the most lethal of all gynaecological cancers, with 5-year survival rates below 40%. Majority of cases are diagnosed in women over 50 years of age and in many instances the cancer is detected at an advanced stage due to an absence of specific symptoms during early disease. At present there is no programme of screening for ovarian cancer in the UK.

The Gynaecological Cancer Research Centre (GCRC), headed by Professor Usha Menon, comprises an internationally renowned, multidisciplinary team whose primary research focus is risk prediction and early detection of OC. The GCRC co-ordinates the National Cancer Research Network (NCRN) screening trials in OC. The trial, ‘UK Collaborative Trial Ovarian Cancer Screening’ (UKCTOCS), is one of the largest randomised control trials in the world and is designed to assess whether there should be a screening programme for OC similar to breast and cervical cancer. The trial design is shown in Figure 1. The UK Familial Ovarian Cancer Screening Study (UKFOCSS) has recruited over 5,700 women at risk of familial ovarian cancer. Screening this population poses additional challenges as some of the women are in their childbearing years and face difficult life choices, which include undertaking preventative surgery. Results from this Study should be available in 2013.

Genetic Cancer Prediction through Population Screening (GCaPPS) is a randomised controlled trial assessing the feasibility of population genetic testing for known high-risk dominant gene mutations to identify individuals at increased risk of developing cancer. The initial pilot phase has recruited over a 1,000 individuals from the Ashkenazi Jewish population, who have a higher incidence of BRCA 1 and 2 gene mutations, predisposing to breast and ovarian cancer. There are plans for an international, multicentre trial which will recruit 10,000 volunteers.

The multicentre, case control UK Ovarian Cancer Population Study (UKOPS), investigates the genetic basis of ovarian cancer, symptoms and novel biomarkers. Over 40 papers have resulted from this work on single nucleotide polymorphisms in OC in collaboration with the international OC Association Consortium.

During the course of these trials a unique collection of samples including serial serum and plasma samples and DNA has accumulated (over 500,000 serum samples from UKCTOCS alone to date). This is a valuable and unique resource for investigating not only gynaecological malignancies but also other cancers and conditions such as diabetes, heart disease and rheumatic disorders amongst others. The trials samples are received and processed by the Tumour Marker Laboratory located in the Paul O’Gorman Building and stored in an offsite cryorepository. There are numerous collaborations with academic and commercial partners using the biobank specimens and associated data. This includes a new 5-yr CR-UK/EVE Appeal funded Programme ‘PROMISE 2016’ which is led by Professor Ian Jacobs. The programme will use GCRC data and sample collections to develop integrated genetic and biomarker algorithms, for OC risk prediction and screening. The collaboration involves Universities of Cambridge, Manchester, Southern California and Harvard Medical School.

Current projects in relation to other cancers include endometrial cancer screening/risk prediction and improving risk prediction for breast cancer.

Key Publications:

Recruitment to multicentre trials–lessons from UKCTOCS: descriptive study.

Sensitivity and specificity of multimodal and ultrasound screening for ovarian cancer, and stage distribution of detected cancers: results of the prevalence screen of the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS).

Sensitivity of transvaginal ultrasound screening for endometrial cancer in postmenopausal women: a case-control study within the UKCTOCS cohort.

The sine qua non of discovering novel biomarkers for early detection of ovarian cancer: carefully selected preclinical samples.

Figure 1 Trial design of the UKCTOCS
Moving Brain Cancer Research Forward

The recent integration of brain cancer services between The Royal Free Hospital and UCLH, provides a huge opportunity for translational and clinical studies in a large population of patients with these rare tumour types. The new combined clinical service, with that at Great Ormond Street Hospital for Children, provides one of the largest brain tumour services in the UK. A major focus of the clinical research programme is on the application of new agents, combined with new radiotherapy technologies for these patients. This service was one of the original centres in the UK to routinely introduce intensity modulated radiotherapy (IMRT) and other image guided radiotherapy technologies for this patient group.

The current trial portfolio includes a prospective study for patients with inoperable meningioma, which allows the investigators to collect detailed clinical and radiological data on a good prognosis group treated with IMRT. They are also conducting a translational study linked to this trial, to assess the utility of a biological assay to measure whole body doses in patients treated with different radiotherapy techniques, which has not been applied in this way before. The service runs a broad portfolio of studies investigating new agents in brain tumour patients including mTOR, VEGF and EGFR inhibitors. With the Department of Nuclear Medicine at UCH they are also piloting a unique approach to treating malignant and recurrent meningioma using the radio-nuclide $^{177}$Lutetium Dotatate, that can be targeted specifically to these tumours.

The clinical programme benefits from close liaison with the laboratory groups at the Cancer Institute undertaking research to investigate new approaches to sensitizing glioma cells to radiotherapy and chemotherapy treatment. The radiobiology group of Dr Susan Short is investigating targeting DNA repair proteins, particularly the homologous recombination protein Rad51 to sensitise glioma stem cells to radiation and in collaboration with Professor Paolo Salomoni’s group, exploiting tumour specific survival signalling through the autophagy pathway. This programme has been strengthened by expertise in brain cancer stem cell biology in Dr Steve Pollard’s team funded through the Samantha Dickson Brain Tumour Trust. The work also links with new experimental models for glioma developed by Professor Sebastian Brandner’s laboratory at the Institute of Neurology. The UCL Neuro-Oncology Research Group meets 6-weekly and provides a forum for the large scientific community across UCL with an interest in brain cancer to interact.

The profile of the brain tumour service will be enhanced further with the planned UCH Proton Treatment Centre.

New SPECT Camera

The UCL Cancer Institute Trust awarded £1.2 million towards a SPECT clinical camera, which will be installed at University College Hospital. The new image equipment will be hosted in the ‘David Skeggs Suite’, named after the previous Chairperson of the Trust. The SPECT camera will be exclusively used for cancer clinical research, including the assessment of responses after targeted forms of radio-labelled antibody therapies.

Joint-UCL Health Research Centres receive £165 million

Medical Research Centres run by UCL in partnership with three NHS trusts have received preliminary government funding worth a total of approximately £165 million over five years.

UCLH/UCL Biomedical Research Centre received an award of £98 million. Cancer is a major theme and this should enable us to continue turning innovations in cancer research into therapies that have a direct impact on clinical care.
Sandra Strauss returns from Vancouver

Bone sarcoma (osteosarcoma) is one of the most devastating cancers occurring in teenagers. UCH has one of the largest clinical bone tumour practices in Europe and a dedicated unit designed specifically for management of teenagers. Dr Sandra Strauss is a medical oncologist who works with the London Sarcoma Service at UCH managing patients with primary bone tumours. Outcome for patients with osteosarcoma has changed little in the past twenty years. Sandra has recently returned from a research fellowship funded by a Career Development Award from the Sarcoma Alliance for Research through Collaboration (SARC) at the British Columbia Cancer Research Centre (BCCRC) in Vancouver, Canada. There, she was collaborating with Professor Poul Sorensen, an internationally renowned childhood cancer biologist, performing genetic small interfering RNA (siRNA) screens to identify new targets to treat micrometastatic disease and reduce chemoresistance in osteosarcoma. The targets identified are now being validated in the Cancer Institute and through ongoing collaboration with the BCCRC.

Elspeth Payne opens her laboratory to study myelodysplasia

Elspeth Payne joins the Cancer Institute from the Dana-Farber Cancer Institute in Boston as a Wellcome Trust Intermediate Clinical Fellow. Her work in Boston used zebrafish as a tool to study developmental haematopoiesis and cancer biology. Her laboratory will generate novel zebrafish models to study the mechanism of anaemia in Diamond-Blackfan anaemia and also in myelodysplastic syndromes. Elspeth will employ state-of-the-art whole genome ribosome foot-printing sequencing technologies, and small molecule screens in zebrafish to identify new therapeutics for these conditions.
### Total Active Grant Funding

- **NATIONAL INSTITUTES FOR HEALTH RESEARCH**
- **UCL CANCER INSTITUTE RESEARCH TRUST**
- **WOLSON FOUNDATION**
- **CHILDREN WITH CANCER**
- **DEPARTMENT OF HEALTH**
- **NIHkeh DJUletransplant**
- **ANTHONY NOJAN BONE MARROW TRUST**
- **LYMPHOMA RESEARCH TRUST**
- **KAY KENDALL LEUKAEMIA FUND**
- **SARAH CANNON RESEARCH UK LIMITED**
- **KATHERINE DOBRZANSKI TRUST**
- **BRITISH SOCIETY FOR HAEMATOLOGY**
- **ROYAL FREE HOSPITAL SPECIAL TRUSTEES**
- **RAYMOND AND BEVERLY SACKLER FOUNDATION**
- **BRITISH HEART FOUNDATION**
- **BREAST CANCER CAMPAIGN**
- **SKELETAL CANCER ACTION TRUST PLC**
- **SARC SARCOMA ALLIANCE**
- **ASSOCIATION FOR INTERNATIONAL CANCER RESEARCH**
- **SUE HARRIS BONE MARROW TRUST**
- **OVARIAN CANCER ACTION**
- **MIDDLESEX HOSPITAL SPECIAL TRUSTEES**
- **MARC FISHER TRUST**
- **CLEMENT WHEELER BENNETT TRUST**

**Total Active Grant Funding 2010-11**

- **85m**
- **15.2m**

### UCL Cancer Institute Promoting Diversity

**Ethnic diversity of Cancer Institute staff**

- **Asian 16.28%**
- **Black 3.2%**
- **Chinese 3.2%**
- **Mixed race 3.49%**
- **Other 2.62%**
- **Unknown 3.78%**
- **White 66.86%**
- **Withheld 0.58%**

### Selected Funding Awarded in the last 6 months

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<td>GLOBAL CHROMATIN INTERACTIONS IN POST-MITOTIC NEURONS</td>
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<td>The Wolfson Foundation</td>
<td>CANCER CENTRE - RESEARCH FACILITY 3T MRI SCANNER</td>
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<td>EU FP7</td>
<td>IMAGINT -HER IMAGING AND MOLECULAR INTERACTION MAPPING IN BREAST</td>
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<td>RECURRENT MUTATIONS IN ACUTE MYELOID LEUKAEMIA AND THEIR FUNCTIONAL CONSEQUENCES</td>
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<td>NOTCH AND APRIL-MEDIATED DRUG RESISTANCE IN DISTINCT MOLECULAR SUBGROUPS OF MULTIPLE MYELOMA</td>
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<td>HIDDEN ROLE OF THE MEIOTIC CHROMOSOMAL BOUQUET</td>
<td>£1,125,000</td>
<td>Dr K Tomita</td>
</tr>
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<td>British Society of Haematology</td>
<td>FISHIP: TADBIR BARIANA - MODERNISING THE DIAGNOSIS OF MUCOCUTANEOUS BLEEDING DISORDERS:</td>
<td>£227,810</td>
<td>Dr R Bariana</td>
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