QUEEN'S UNIVERSITY BELFAST | CCRCB CENTRE FOR CANCER RESEARCH AND CELL BIOLOGY

Bulletin

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CCRCB WELCOMES NEW ACTING DIRECTOR PROFESSOR CHRIS SCOTT

Professor Chris Scott

The CCRCB has welcomed the appointment of Chris Scott as their new acting Director from the 1st August. Chris comes to the post with over 20 years' experience in both academia and industry. A biochemist by training, Chris started his scientific career in the laboratory of Professor Brian Walker here at Queen's, studying proteases involved in cancer.

In 2001, with Professor Jim Johnston, Chris then became a founding member of the Queen's spinout company Fusion Antibodies Plc., which has now become a world leader in the development of antibodies in preparation for clinical evaluation.

In 2003, he took up a lecturer position in the School of Pharmacy and was a founding member of the CCRCB in 2004. He has since developed a highly multi-disciplinary research team of chemists, molecular biologists and pharmacists developing novel therapies, most recently in the field of antibodies and nanomedicine targeted at colorectal and pancreatic cancers.

He held a Royal Society Industrial Fellowship with GSK, is a Fellow of the Royal Society of Biology and a Trustee of the British Society of Nanomedicine. His team won the Vice Chancellor's Research Prize for Innovation for the development of a novel nanomedicine in 2015.

Speaking on announcement of his appointment Chris said "I am delighted and privileged to be given the opportunity to lead the CCRCB into its next phase of development. The quality of the science here in the CCRCB is world-renowned. I look forward to working with my colleagues in the Centre and other partners to ensure we build on Professor Paddy Johnston's legacy to improve outcomes for cancer patients in Northern Ireland and across the world. I would also like to take the opportunity to thank the outgoing Director Professor David Waugh for his leadership and support to me as I take on this job. We all wish him well in his new adventure and challenge in Brisbane".

CCRCB SUMMER RESEARCH PROGRAMME

The CCRCB Summer Research Programme provides an excellent opportunity for promising young students to undertake a short research project for eight weeks over the summer period.

This year, 23 students were successful out of 65 applicants. Alongside several QUB students, there are students from Italy, France, UK, Netherlands, Argentina and Indonesia. These students have backgrounds in medicine, biomedical science, genetics and human biology.

CCRCB Principal Investigators offered the summer students a range of projects on blood, ovarian, lung, GI and prostate cancer, as well as, molecular pathology and medicinal chemistry.

The continued success of the programme relies not only on those Principal Investigators who offer projects but also the funding streams from the School of Medicine, Dentistry and Biomedical Sciences; Centre for Dental Education; Centre for Biomedical Sciences Education; Leukaemia & Lymphoma NI and the Marguerite Dympna Gullery Studentship, all of which combine to help create a vibrant postgraduate and postdoctoral community.

Students enjoying a social outing in Belfast

QUEEN'S PROFESSOR HIGHLIGHTS THE IRISH CONNECTION TO THE DISCOVERY OF THE SECRET OF LIFE

Queens professor highlights the irish connection

On 25 April 2018, exactly 65 years since James Watson and Francis Crick published their seminal paper on the discovery of the structure of Deoxyribonucleic Acid (DNA) in the premier scientific journal *Nature*, Queen's Professor Mark Lawler, highlighted the Irish contribution to the discovery of what Francis Crick called "The Secret of Life". As part of the School of Medicine, Dentistry and Biomedical Sciences Athena Swan programme, Prof Lawler delivered the Inaugural Rosalind Franklin Lecture entitled *"Rosalind Franklin, Barack Obama and the Irish Twists in the DNA Tale"*.

The Athena SWAN Charter, now part of Advance HE, was established in 2005 to encourage and recognise the commitment of Institutions and their Schools / Departments to advancing the careers of women in STEMM higher education and research. The Charter now address Gender Equality more broadly, not just the barriers to progression that affect women. The School of Medicine, Dentistry and Biomedical Sciences received a Silver Athena SWAN Award in 2012, with a renewal in 2016, for its Gender Equality work which includes maintaining a supportive and positive culture, fostering collegiality and enabling staff and students to progress in their careers. Professor Karen McCloskey, Director of the School's Gender Equality Office said, *'I am delighted that we have been able to mark Rosalind Franklin's work within our Athena SWAN programme, highlighting her as an inspirational role model and learning about the inequalities that contributed to her work not being fully recognised in her lifetime.'*

Rosalind Franklin died in April 1958 at the tender age of 37, but packed at least two lifetime's worth of high quality science into a career that saw her gain global recognition in a number of domains, for her precise research concerning coal/coke and graphite, for her critical X ray crystallography work on the molecular structure of nucleic acids, which expertise she later also applied in groundbreaking research on the structure of viruses.

Professor Lawler's research highlighted the numerous Irish connections to the race to discover the structure of DNA, as well as highlighting how Rosalind Franklin's precise X ray crystallography work, culminating in the iconic Photograph 51 X Ray diffraction image which she produced with her graduate student Raymond Gosling, was a key piece of evidence in unravelling the structure of DNA.

Professor Lawler published an article in the Irish Times on the numerous Irish connections to what is widely regarded as the greatest scientific discovery of the 20th century (https://www.irishtimes.com/news/science/an-irish-twist-on-the-secret-of-life-1.3459738). He also attempted to restore Rosalind Franklin to the pantheon of great scientists where she undoubtedly deserved to be, in an article in The Conversation that has attracted over 51,000 "reads" (https://theconversation.com/rosalind-franklin-still-doesnt-get-the-recognition-she-deserves-for-her-dna-discovery-95536). A recent podcast with Prof Lawler on Talking Biotech (https://geneticliteracyproject.org/2018/06/26/talking-biotech-why-irish-scientist-rosalind-franklin-didnt-get-the-credit-she-deserved-for-the-discovery-of-the-structure-of-dna/) has also proved extremely popular, emphasising the continued interest in Rosalind Franklin on the 60th anniversary of her death.

Athena SWAN Silver Award

MINISTER VARA MEETS CANCER RESEARCHERS AT CCRCB

Ailar Hashemzadeh, Public Affairs Officer, Breast Cancer Now; Dr Niamh Buckley; Minister Shailesh Vara; Professor David Waugh, Director of CCRCB; and Dr Paul Mullan

Mr Shailesh Vara, MP, Parliamentary Under Secretary of State for Northern Ireland, was introduced to the cutting edge research undertaken by Queen's University's Dr Niamh Buckley and Dr Paul Mullan, who receive funding from Breast Cancer Now.

Breast Cancer Now is the UK's largest breast cancer research charity, funding 90 research grants and supporting around 450 researchers across the UK and Ireland, including Dr Buckley and Dr Mullan in the Centre for Cancer Research and Cell Biology (CCRCB).

Dr Mullan and Dr Buckley outlined the team's research involving patient tissue samples from the Breast Cancer Now Tissue Bank – the UK's largest unique collection of high-quality breast tissue, breast cells and blood samples from breast cancer patients.

Among other things the team are developing new biomarkers and treatment targets for 'triple negative' breast cancer, a form of the disease for which there are currently limited treatments.

Following a tour of the labs, Mr Vara, who has long been passionate about improving outcomes for women diagnosed with breast cancer, said: "It was fantastic to find out first-hand about the pioneering research that Breast Cancer Now is funding at Queen's University Belfast, and to hear from the scientists about how their research is tackling the disease head-on".

Dr Buckley also spread the word about the team's research to another audience of decision-makers on Wednesday 4 July, when she took part in a major exhibition in Westminster.

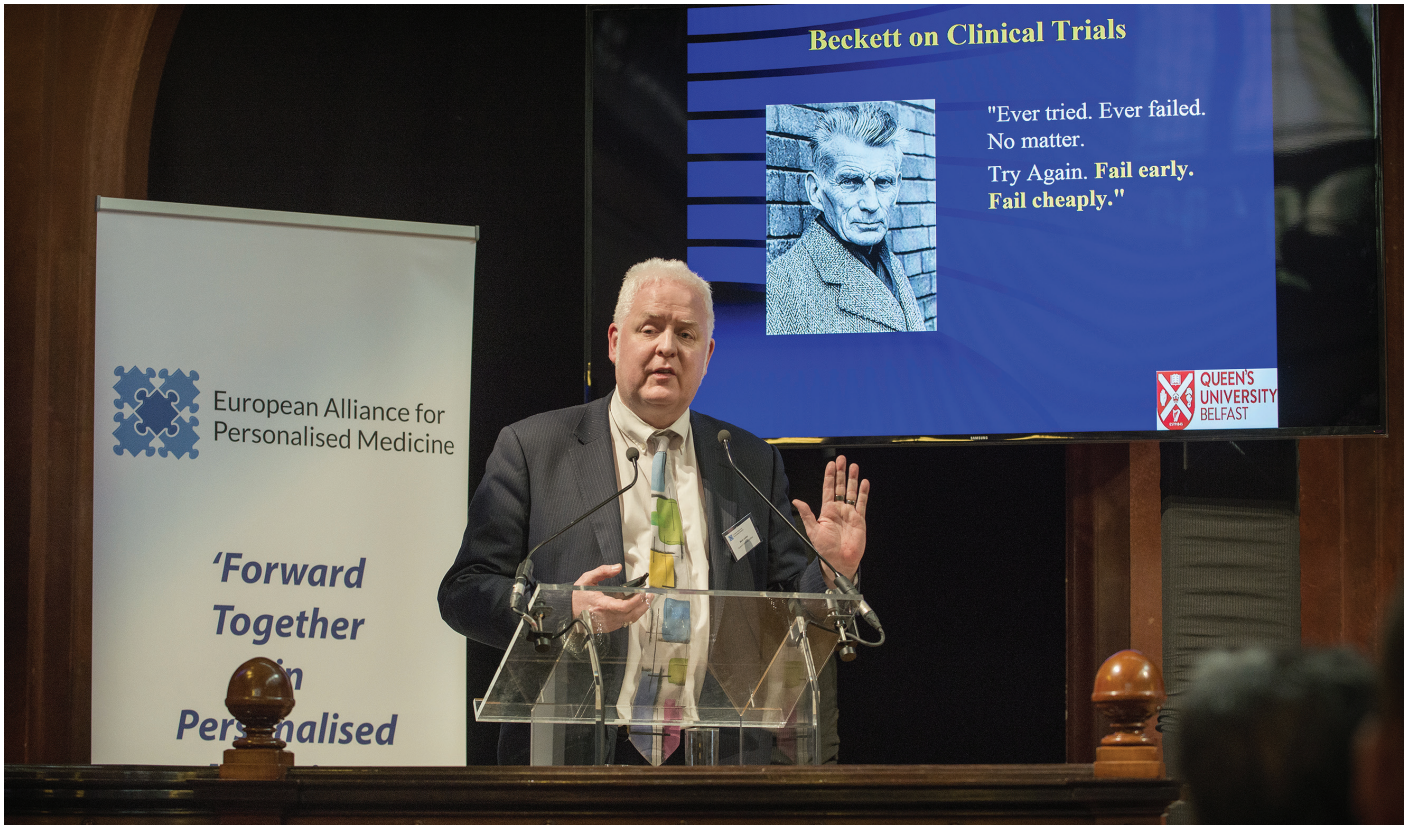
QUEEN'S UNIVERSITY BELFAST HOSTS UK/IRELAND PREMIER RADIATION RESEARCH MEETING

Dr Karl Butterworth (CCRCB) and Dr Jonathan Coulter (School of Pharmacy) hosted the joint annual meeting of the Irish Radiation Research Society (IRRS) and the UK Association for Radiation Research (ARR). The meeting, which took place 25–27 June 2018 in Riddel Hall, welcomed over 90 delegates from around the world to discuss the latest health and environmental implications of multidisciplinary radiation research. The meeting evidences the strong international leadership that Queen's currently has in radiation research with Professor Kevin Prise serving as President of the US Radiation Research Society (RRS), Dr Suneil Jain as Chair of the Irish Radiation Research Society (IRRS) and Dr Coulter as Chair of the UK Association for Radiation Research (ARR).

Dr Karl Butterworth, Dr Jonathan Coulter, Professor Kevin Prise and Dr Suneil Jain

ARR QUEEN'S UNIVERSITY BELFAST IRISH RADIATION RESEARCH SOCIETY

QUEEN'S PROFESSOR HIGHLIGHTS HOW BIG DATA AND VALUE BASED CARE MUST UNDERPIN THE PERSONALISED MEDICINE REVOLUTION



Professor Mark Lawler at the 6th Annual Presidency Conference of the European Alliance for Personalised Medicine in Brussels

Speaking at the 6th Annual Presidency Conference of the European Alliance for Personalised Medicine (EAPM) in Brussels whose theme was "Personalised Medicine and the Big Data Challenge", EAPM Board Member Professor Mark Lawler (CCRCB) highlighted how Big Data and Artificial Intelligence (AI) must play a significant role in underpinning value-based care solutions for European citizens.

Professor Lawler highlighted the need to develop solutions that can be shared and employed across the research community to maximise the value of the data, much of which are currently housed in unlinked "data silos". "In the discipline that I work in – cancer – surely it is more important to compete against that common enemy, rather than competing against each other. Last year we issued a Call to Action in the New England Journal of Medicine, emphasising the need for global solutions in data sharing, in order to ensure a data-enabled cancer community cooperative. So let's exchange the "Selfish Silo" and "No Can Do" mentality for one of a "Collaborative Culture" and a "Yes We Can" optimism, said Professor Lawler.

"It is increasingly important as we move towards the implementation of the General Data Protection Regulation in Europe that we use Big Data and AI responsibly and effectively, in order to provide data-driven evidence based solutions for EU Citizens," said Denis Horgan, Executive Director of EAPM. "Work by Professor Lawler and his team is showing the way forward, emphasising the need for us all to work together to realise an EU wide personalised medicine agenda", he added.

In his speech, Professor Lawler also stressed that we need to use big data to underpin value-based cancer care. "We must find a solution that ensures access to innovative healthcare for all, not just for the rich in our society" he added.

ANNUAL MEETING OF THE TRACT

Training in Cancer Mechanisms & Therapeutics (TRACT) researchers and students at the Annual meeting presenting ongoing work in oral and oesophageal cancers

In April of this year CCRCB hosted the Annual Meeting of the TRACT (Training in Cancer Mechanisms & Therapeutics) consortium. TRACT is an international, inter-sectoral, multi-disciplinary project providing Marie Skłodowska-Curie PhD Fellowships to early stage researchers (ESRs) with the potential to become the leaders of tomorrow in cancer research. Eleven ESRs across five countries have been recruited to complete research projects in Biomarker Discovery, Molecular Resistance and Metabolic Transformation Mechanisms in oral and oesophageal cancer.

The annual general meeting of the TRACT consortium marks the end of the TRACT researchers' first year and was hosted by Dr Richard Turkington and the Upper GI Research team. The meeting brought together researchers from Ireland, Austria, Italy and Spain to highlight ongoing work in oral and oesophageal cancers. Dr Daniela Zisterer from Trinity College Dublin, as project coordinator, gave a synopsis of the work carried out by the TRACT consortium in its first year and highlighted the exciting events ahead. Each ESR presented the work they have carried out throughout their first year with the high standard of research on show highlighting the success of the programme's ongoing skills and training element.

Colleagues from QUB's Centre for Experimental Medicine and QUB's CCRCB attended the poster session, along with members of the Oesophageal Patients' Association Northern Ireland (OPANI). Thank you to all who attended, especially those from the OPANI whose words of encouragement were valued by all of the researchers present.

The rest of the week provided a number of excellent training opportunities for the ESRs. An excellent 'Computational Biology' training session in 'R' and data analysis was hosted by Dr Jaine Blayney followed by a 'Communicating Science' workshop. This training session was led by renowned journalists Mr Alan Morton and Mr Malachi O'Doherty who emphasised the importance of tailoring our research presentations and articles for the audience at hand. Each ESR practised presenting their cutting-edge research to different audiences and the critiques from everyone present were extremely useful for future dissemination and communication opportunities.

Finally the ESRs had the opportunity to learn from the experts in imaging at Andor in their facilities in West Belfast. As leading developers in the field of imaging software and camera technology Andor provided training in microscopy and image analysis.

The week was a fantastic opportunity to network with colleagues based in other centres throughout the TRACT consortium and to further the training of the ESRs. The TRACT program will continue for a further two years and will provide a platform for furthering oral and oesophageal cancer research across Europe.

Keep up-to-date on all TRACT news on our website:

https://www.qub.ac.uk/sites/TraininginCancerMechanismsandTherapeutics/

AWARDS AND PRIZES

Professor Terrence Lappin has been appointed as an Associate Editor for Experimental Hematology.

Dr Francesca Amoroso received an AACR-Takeda Oncology Scholar-in-Training Award to attend this year's AACR meeting in Chicago.

The **CCRCB Green Impact Team** received the following Green Impact Awards:

Gold for Labs
Silver for General

Angelina Madden and Gervase McGivern at the Green Impact Awards Ceremony

Miss Rebecca Steele has been awarded an EACR Travel Award to fund a placement visit to the School of Medicine at the University of Adelaide.

Mr Charles Haughey is the recipient of the Helen Ramsey Turtle Scholarship for 2018 and awarded £1,575 to enhance his PhD research.

Congratulations to the following students for their presentations at this years' Annual Symposium (March – June 2018), each receiving a £50 Amazon voucher.
1st Year - Miss Harmony Black
2nd Year - Miss Judith Manley
3rd Year - Mr Craig Davison

Congratulations to **Dr Stephen McMahon** who is this year's recipient of the Jack Fowler Award from the US Radiation Research Society. The Jack Fowler Award is provided by the University of Wisconsin to honour the achievements of Professor Jack Fowler. The award recognizes an outstanding junior investigator for exceptional work in radiation oncology, medical physics, and/or radiobiology. Dr McMahon received his MSci in Physics from Queen's University Belfast, after which he undertook a PhD at Queen's, studying the potential radiosensitising effects of gold nanoparticles in radiotherapy. This work investigated their effects on macroscopic dose as well as their nanoscale and biological effects. Following completion of his PhD, he took up a postdoctoral research position with Kevin Prise in the Centre for Cancer Research and Cell Biology at Queen's, focusing on applying mathematical and computational techniques to better understand radiation responses in a range of systems, with a particular focus on intercellular signalling. In 2014, he was awarded a Marie Curie International Outgoing Fellowship to work with the radiation physics group in Massachusetts General Hospital to develop mechanistic models of intrinsic radiation sensitivity, to seek to better understand and predict radiation responses in different systems. In 2017, he took up a position as a Queen's University Research Fellow at QUB, continuing his work on developing new predictive models of radiation sensitivity and applying them to better understand and optimise radiation therapy.

Dr Stephen McMahon

Congratulations to **Dr Karl Butterworth** who has been awarded an Early Career Investigator award and **Dr Mihaela Ghita** who has been awarded a Scholar in Training Award to attend the Radiation Research Society Annual Meeting being held in Chicago in September 2018.

Professor Kevin Prise, commented that these awards were "testament to the visionary leadership of Professor Paddy Johnston in setting up a translational radiation research program in Belfast as part of the development of CCRCB. None of our achievements would have been possible without the exceptional talent within our Advanced Radiotherapy Group which integrates the Radiation Biology Group (and my colleagues Karl Butterworth and Stephen McMahon), the Clinical Oncology team led by Professor Joe O'Sullivan and the Radiotherapy Physics team led by Professor Alan Hounsell".

Margaret Grayson, Chair of the NI Cancer Research Consumer Forum (NICRCF), has been awarded an MBE for services to Cancer Research in the Queen's Birthday Honours.

Margaret is a trailblazer in Personal and Public Involvement (PPI) in cancer research. NICRCF Chairperson since it was established in 2011, her exemplary leadership and passionate advocacy for PPI in cancer research has been instrumental is creating a culture change of partnership working. She works enthusiastically with healthcare professionals and scientists in cancer research and influences PPI at local and national levels. A frequent guest speaker, PPI workshop facilitator and member of many committees and research steering groups, Margaret's energetic and constructive approach always brings fresh insight and maximises patient benefit.

In April 2018 Margaret received the Iris Colvin Lifetime Achievement Award for Health, presented by the Women's Forum NI, again acknowledging her exemplary leadership and care for cancer patients. During her career as a Therapy Radiographer, Margaret developed the role of Information and Support Radiographer and won UK Radiographer of Year in 2004. Following a breast cancer diagnosis in 2004, and retirement in 2010, Margaret then continued to be an excellent advocate for patients through her PPI roles. Margaret is a most deserving recipient of these awards and all who know her are delighted she has received recognition for her work and services to cancer research. Her friends and colleagues in the NI Cancer Research Consumer Forum, the NI Cancer Trials Network, NI Cancer Centre, CCRCB, HSC R&D Division, Cancer Research UK and beyond warmly congratulated her.

Margaret receiving the Iris Colvin Lifetime Achievement Award for Health, Belfast City Hall, 21 April 2018

A WINNING YEAR FOR EILEEN

In her first year as an academic clinical lecturer at the Centre for Cancer Research and Cell Biology, Dr Eileen Parkes has been awarded three prestigious external awards. Her research focuses on the role of the cGAS-STING pathway in cancer and response to treatment, in breast, ovarian and prostate cancer.

As well as receiving an award from the Academy of Medical Sciences (Starter Grant for Clinical Lecturers), she has since been the first researcher in Northern Ireland to receive the Conquer Cancer Foundation of the American Society of Clinical Oncology (ASCO) Young Investigator Award (YIA), and also a Young Investigator Award from the Prostate Cancer Foundation (PCF). She is the only European awardee receiving a YIA from ASCO, and has also been invited to join the ASCO Trainee Council, a measure of esteem rarely granted outside North America. Dr Parkes is also the first person to receive a PCF YIA in Northern Ireland, and one of only two granted to the UK this year. As part of this, she is now joint-leader of the PCF Tumour immunology and microenvironment working group, organising webinars delivered by global experts.

These awards recognise Dr Parkes' significant discovery during her PhD of the role of DNA damage in activating the STING immune pathway, and the implications of this pathway in the treatment of cancer. Her biology-based approach has identified a number of clinically-relevant research questions related to this pathway. She has driven these applications forward, taking a collaborative approach working with worldwide experts in their field.

Her oral presentation at the annual meeting of ASCO and the Society for Immunotherapy of Cancer at San Francisco in January, on the identification of a novel immune-driven poor prognosis subgroup in early prostate cancer, was covered in the ASCO Post, receiving global interest.

As well as her remarkable progress in obtaining research funding, Eileen has been successful in communicating her passion for science elsewhere, winning both the Naturejobs Journalism Competition and the Royal College of Physicians Teale Essay Prize in the past number of months. She continues to contribute regularly to the Naturejobs blog, with her pieces read by thousands of researchers worldwide, on subjects including science communication, work-life balance and mentorship.

Dr Eileen Parkes receiving the ASCO Young Investigator Award

HELLO GEORGIE, GOODNIGHT BEST

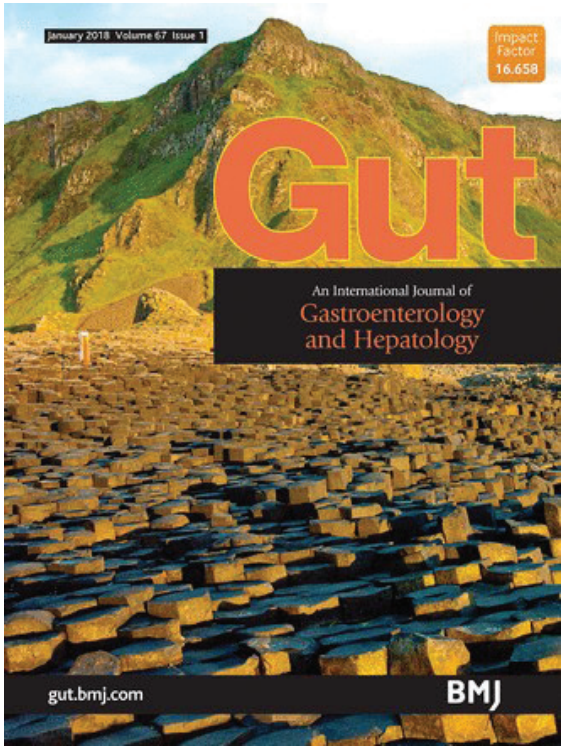
Professor Chris Scott, Sharon Martin, Robbie Martin and Rafaela Elliston at the opening night of the play

Hello Georgie, Goodnight Best is a new play that focuses on a legendary episode in 1971 when football legend Georgie Best went 'AWOL' for the weekend with his friend, the aspiring actress Sinead Cusack. It tells the story of how he was duly dropped from Man Utd and depicts what might or might not have happened as he hid from the world in her flat in Islington, London for 48 hours. The play is the creation of local actor Robbie Martin and his girlfriend Rafaela Elliston, who co-wrote and co-star together in the production. The play premiered in Soho London in March, before coming to Belfast in May for three nights at the Strand Theatre, in preparation for a three week run at the Edinburgh Fringe festival in August.

Proceeds totalling over £1500 from the opening night at the Strand were gifted to the pancreatic cancer research team through the Queen's Foundation in memory of Robbie's father John. The Martin family have been stalwarts of the pancreatic cancer research programme at the CCRCB over the last number of years, keen to help support our efforts to develop new strategies for the treatment of this devastating disease.

The Scott team attended the opening night of the play and thoroughly enjoyed the one hour play and would recommend it wholeheartedly to anyone attending the Fringe Festival in Edinburgh this year. Hopefully it will return home for a further run later this year and we are sure that this will mark the start of exciting acting careers for Robbie and Rafaela!

QUEEN'S PROFESSOR LEADS LANDMARK STUDY THAT COULD STOP BOWEL CANCER IN ITS TRACKS



Almost 332,000 people living in the UK will needlessly lose their lives to bowel cancer, a preventable, treatable and curable disease, between now and 2035 unless urgent action is taken to fill critical research gaps identified in a Queen's University-led Bowel Cancer UK study. The research led by Professor Mark Lawler, CCRCB was published in the leading international academic journal, GUT (Impact factor 17.016 in the recently released listing). Professor Richard Wilson, CCRCB was a co-author on the study.

If ignored, the scale of the issue will only grow larger.

Bowel cancer is the UK's second biggest cancer killer with 16,000 people dying from the disease, and the fourth most common cancer with over 41,200 people diagnosed each year. Globally, 694,000 people die from bowel cancer and 1.4 million people are diagnosed every year.

To accelerate progress, the charity brought together 100 leading scientists, healthcare professionals and people affected by the disease to identify the key research gaps and priorities in bowel cancer research. If these are addressed, they could transform survival rates and ultimately benefit thousands of people in the future.

The report reveals fifteen key research questions together with vital recommendations to address these gaps, which include:

1. How do our genes, lifestyles and the environment we live in affect risk of bowel cancer?
2. How can we improve the bowel cancer screening programme?
3. Can we develop new treatment options with the potential to cure people of bowel cancer?
4. How can we improve quality-of-life for people living with and beyond bowel cancer?
5. What's the best way to improve communication between healthcare professionals and patients?

Professor Mark Lawler, Lead author and Chair in Translational Cancer Genomics, Centre for Cancer Research and Cell Biology, Queen's University Belfast, said: "This study provides us with a unique road map for bowel cancer research to make an impact, informing and influencing future research ideas, underpinning appropriate research strategies and directing funding allocation to where it is most clearly needed. We have identified the key research priorities that have the greatest potential to benefit patients over the next five years and beyond."

"This landmark report is the step change needed to energise the research community to stop this deadly disease in its tracks."

Deborah Alsina MBE, Chief Executive of Bowel Cancer UK, said: "The harsh reality is that every year 16,000 people lose their lives to the disease, and if left unchecked, this number will only increase in the future. The need for speed prompted us to take action to identify a plan to accelerate bowel cancer research.

"This report will act as a catalyst to encourage much needed collaboration, build research capacity and help shape the future of bowel cancer research. Through strategic investment in targeted research, we will deliver improvements for bowel cancer patients.

Professor Lawler added, "By 2028 we want to see the number of people surviving for at least five years to increase from 60% to 75%, this means thousands more people surviving bowel cancer each year. This will take us one step closer to a long term goal that we share with Bowel Cancer UK, that by 2050 no one dies of bowel cancer."

"Research is the key to finding the cures to bowel cancer."

The article (http://gut.bmj.com/content/67/1/179) was Editor's choice from GUT's Editor-in-Chief, Emad-El-Omar, and made the front page of the journal with a particularly Northern Ireland flavour.

A Podcast with Professor Lawler (414141432-bmjgroup-colorectal-cancer-needs-research-prioritisation.mp3) has had over 7,400 "hits" on the GUT website, making it the most popular GUT podcast ever.

ADVANCED RADIOTHERAPY GROUP AT CCRCB RECEIVES INTERNATIONAL RECOGNITION

Professor Kevin Prise is this year's recipient of the European Radiation Research Society's Bacq and Alexander Award. This is awarded in recognition of outstanding achievement in the fields of radiation research and is the top European Radiation Research Award. Previous recipients have included Professor Catharine West (2017), Professor Marco Durante (2013) and Professor Penny Jeggo (2011). Professor Prise will receive his award and deliver his lecture, entitled "*From Radiation Tracks to Immune Signalling, a Bystander Perspective*" at the Annual Meeting of the European Radiation Research Society being held in Hungary in August.

Professor Prise has also been announced as this year's recipient of the Douglas Lea Award from the Institute of Physics in Engineering in Medicine (IPEM). Douglas Lea was a pioneer in Radiation Biology and previous recipients of the award include Hal Gray, after whom the International unit of radiation dose the gray (Gy), is named, Sir Richard Doll, Professor Eric Hall, Professor Soren Bentzen and Professor Rock Mackie. Professor Prise delivered his lecture entitled "*The Radiobiology of Advanced Radiotherapy: A Journey through Space and Time*" at the UK Radiological and Radiation Oncology Congress held in Liverpool in July 2018. Kevin is a Professor of Radiation Biology and previously Deputy Director at the Centre for Cancer Research and Cell Biology, Queen's University Belfast, where he has been since 2007. Prior to this, he was Head of the Cell and Molecular Radiation Biology Group at the Gray Cancer Institute in Northwood, London. A Biochemistry graduate of Aberdeen University, he received his PhD in Cell Biology and Biochemistry, from the University of Aberdeen, on the mechanisms of action of the chemotherapeutic methotrexate. He joined the Gray Laboratory in 1985 working with Barry Michael, Melvyn Folkard and Boris Vojnovic, under the directorships of Jack Fowler, Julie Denekamp and Ged Adams.

He has developed wide-ranging interests in radiation biology including research on low dose radiation risk, radiation quality, cell and tissue signalling mechanisms. He has played a major role in the application of microbeam technologies for delineating the response of cells to targeted single tracks of radiation. His recent work, at Queen's has involved the development of an Advanced Radiotherapy Group integrating Radiation Oncology, under the leadership of Professor Joe O'Sullivan, and Clinical Radiotherapy Physics, under the leadership of Professor Alan Hounsell, with translational radiation biology. Together they are developing new biological based models for optimising advanced radiotherapies such as Intensity Modulated Radiotherapy and particle therapies. A current focus is the application of radionuclide approaches in advanced prostate cancer.

Professor Kevin Prise

He is currently President of the US Radiation Research Society, a previous RRS Michael Fry award recipient and Friedrich Dessauer Awardee of the German Radiation Research Societies. He serves on the UK Government Expert Committee on Medical Aspects of Radiation in the Environment (COMARE), is Editor in Chief (Scientific) of the British Journal of Radiology, an Honorary member of the Royal College of Radiologists and has published over 290 papers (h=51).

PATRICK JOHNSTON MEMORIAL EVENT

A memorial dinner for Professor Patrick Johnston was held on 15 May 2018 in the Great Hall, followed by an all-day symposium on 16 May 2018 at Riddel Hall, involving a number of invited speakers who reflected on Professor Johnston's contribution to cancer research, to education and training and to leadership and innovation.

Professor Pascal McKeown, Acting Dean of Medicine, Queen's University Belfast and Professor David Waugh, CCRCB Director with the external speakers.

Dr Bruce Chabner, Professor David Waugh, Professor Paul Harkin and Professor Pascal McKeown present a bound copy of Professor Johnston's top research publications to his wife Iseult

WORLD LEADING CANCER RESEARCHER RECEIVES HONORARY DEGREE FROM QUEEN'S

Professor Charles Sawyers from Memorial Sloan Kettering Cancer Centre in New York, recently described in the "*Conversations with Giants in Medicine*" series in the prestigious *Journal of Clinical Investigation* as "*the greatest cancer researcher of our time*," received an Honorary Degree of Doctor in Medical Sciences from Queen's University Belfast in the Summer 2018 Graduation. An abridged version of the Honorary Degree Citation, delivered by Professor Mark Lawler, CCRCB is provided below.

Professor Sawyers grew up in Nashville, Tennessee, the son of two physicians, his father was chairman of surgery at Vanderbilt, his mother a well-known anaesthesiologist. All three of Charles's uncles were physicians, as was one of his grandfathers, so medicine was definitely in the genes of the Sawyers family. But by his own admission, Charles tried a bit to resist becoming a physician and indeed enrolled for a liberal arts degree, majoring in history at Princeton in New York. However, a visit to China in 1980 sparked an interest in public health and how medicine is organised, prompting him to enrol in Graduate School in Medicine at Johns Hopkins in Baltimore. Charles had excelled in science and maths in high school and it was not long before the science bug really bit him. He spent a year in a pharmacology lab in 4th year and then undertook his residency in UCSF where such notaries (and future Nobel Prize winners) as Harold Varmus and Mike Bishop were based. With the agreement of his attending physician Joel Ernst, Charles worked in Joel's lab during the day and covered ICU at night in San Francisco General Hospital. A very tough schedule, but in Charles's own words, he was able to "have his cake and eat it".

Charles then went on to the leukaemia service at Moffit at UCSF and began the journey that would lead to his central role in developing the first (and still most successful) personalised/precision medicine approach for cancer. Chronic Myeloid Leukaemia (CML) was the first cancer in which an acquired genetic abnormality was implicated in the disease. Charles read the literature around CML voraciously and a paper by Owen Witte on the cloning of the leukaemia specific gene in CML (bcr-abl) sparked his interest. Owen invited Charles to spend some time in his lab and to continue to work with him when Charles started his clinical work, in what we would now call a translational medicine approach.

Charles would represent Owen's lab at meetings/conferences. At one of these conferences, he met Brian Drucker. Brian and Charles were at similar stages of their career and immediately clicked and kept in touch as their careers developed. In the early 90's Brian, who was now at Oregon Health Sciences University, invited Charles to give a talk and while he was there showed him some data that he had generated with a compound (then called STI-571) that Brian had received from Ciba Geigy (now Novartis). This meeting started a long and fruitful collaboration that led to the development of Gleevec (also known as Imatinib Mesylate) a game-changer in the treatment of CML.

This translational collaboration between Charles and Brian led to the first series of clinical trials of the drug. One of Charles's patients was the first to show a complete response to Imatinib Mesylate – Charles can still remember his fax machine whirring as the critical laboratory results came in to show that the treatment seemed to have worked – the patient, who was from Santa Barbara, is alive and well some 25 years later after that first clinical trial. The results of the trial were published in the New England Journal of Medicine, the world's best medical journal.

Charles's group also did pioneering work on understanding resistance mechanisms to Imatinib mesylate, leading to the development of a 2nd generation drug called dasatinib. Charles shared the 2009 Lasker-DeBakey Clinical Medical Research Award for his work on Imatinib and dasatinib. Imatinib is the poster child of personalised medicine and has changed cancer treatment world-wide. Thanks to Charles and colleagues, hundreds of thousands of lives have been saved worldwide.

Not content with breakthroughs in leukaemia, Charles then switched his attention to prostate cancer. He was fascinated by how prostate cancers became resistant to treatment and set about understanding this in a series of animal models that his group developed. This led to the co-discovery of the anti-androgen drug enzalutamide, which has significantly advanced the treatment of prostate cancer. He received the highly prestigious BBVA Foundation Frontiers of Knowledge Award in 2014 for this work.

Charles publishes regularly in the top tier of scientific / medical journals (*N Engl J Med*, *Science*, *Nature*, *Cell* etc). He is a member of the National Academy of Sciences and the Institute of Medicine. Charles is the recent past president of the American Association for Cancer Research. He was appointed to the US National Cancer Advisory Board by former President Obama and is a key figure in the Cancer Moonshot initiative of former US Vice President Joe Biden.

Charles delivered the 2016 George Mitchell Lecture in honour of our former Chancellor Senator George Mitchell. It has been my absolute privilege to work with Charles on an exciting international initiative to promote responsible and effective sharing of scientific and clinical data for the benefit of patients. We co-chaired the Clinical Cancer Genome Task Team of the Global Alliance for Genomics and Health (GA4GH), producing papers in high impact journals including Cancer Discovery, Nature Medicine and co-authoring a Call to Action on data sharing in the *New Engl J of Med.* Charles's encyclopaedic knowledge, his ability to write scientifically and the huge respect in which he is held in both the scientific and clinical communities were an inspiration to me as we worked together to drive this initiative forward.

As I indicated earlier, Charles had to work hard to combine both clinical and academic medicine in his career. However, for those aspiring clinician-scientists among you, I would encourage you, in the words of our sadly departed Vice Chancellor and my friend, colleague and mentor Paddy Johnston, to "dream no little dreams." Yes, it is a tough road to follow but the rewards, personally, professionally and from a patient perspective are great and I would encourage you to hold up Charles as an inspiring figure as you move forward in your careers as graduates of this wonderful university.

DONATIONS

GIVING IN CELEBRATION

Thank you to Patrick and Fiona who celebrated their wedding day in April 2018 by donating to cancer research. Many congratulations.

If you would like to support cancer research on your wedding day please contact Rachel Ketola, Development Manager for Health in the Development and Alumni Relations Office on 028 9097 5073. We can provide you with bespoke cards (pictured) for you to leave on the tables.

NI CANCER TRIALS NETWORK Q RADIOTHON BIG BRUNCH FUNDRAISER

Staff from the NI Cancer Trials Network displayed their baking talent for charity during a 'Q Radiothon Big Brunch' at the NI Cancer Centre, 30 May 2018. A total of £566 was raised towards Friends of the Cancer Centre, Action Cancer, Marie Curie and the Cancer Fund for Children. Adding to the fun atmosphere there was a live Q Radio broadcast by presenter Errol Doherty. A big thank you to all who supported the event, including several local businesses.

THANK YOU TO DOLANS CENTRA ENNISKILLEN

Thanks to all those involved locally with this generous donation of £5,200 for blood cancer research in memory of Gerry Dolan.

Pictured at the cheque presentation in June are Mr Niall Dolan, Dr Lisa Crawford (Centre for Cancer Research and Cell Biology), Mrs Irene Dolan.

RUNNING A HALF MARATHON IN THE SWISS ALPS

Helen Swain has raised over £800 by running the Aletsch Half Marathon in June 2018. This is no ordinary half marathon taking place high up in the Swiss Alps in a UNESCO World Heritage Site starting at 2,000m! Funds will go to lung cancer research in memory of her Uncle Ernie.

CONCERT FOR BOWEL CANCER

Thank you to Barbara Savage and family who raised over £2,000 for bowel cancer research. Barbara organised a successful musical evening with Counterpoint Choir & Accordion Sounds in Lurgan Town Hall in January 2018.

Pictured at the cheque presentation in May are Dr Simon McDade (Centre for Cancer Research and Cell Biology), Mrs Barbara Savage and her sons Noel and David.

FINAGHY CANCER GROUP COFFEE MORNING

The Finaghy Cancer group presented a cheque for £3,000 to Dr Richard Turkington's research in pancreatic cancer. Dr Turkington attended the coffee morning and updated the group on his ongoing research.

RECENT PUBLICATIONS

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FAREWELL TO DAVID WAUGH

David with family and colleagues at a farewell dinner in Riddel Hall, Queen's University Belfast on 28 June 2018

Professor David Waugh is stepping down as the Director of CCRCB after six successful years at the helm to take up the position as Head of School in the School of Biomedical Sciences at Queensland University of Technology. This brings to a close a 27 year association with Queen's University for David, who studied for a degree here in Biochemistry, graduating in 1991, before heading to the US for his post-graduate studies. David did his PhD and first post-doc in Creighton University School of Medicine in Omaha, Nebraska before taking up a postdoctoral position as an NIH-funded Fellow in the Department of Molecular Cardiology at the Lerner Research Institute, part of The Cleveland Clinic in Ohio. As a result of his outstanding work in Cleveland, David was headhunted by Professor Patrick Johnston and persuaded to return to Queen's to take up a position in 2000 as an Ulster Cancer Foundation (now Cancer Focus NI) funded Lecturer in the Department of Oncology, which would eventually become CCRCB.

Having worked as a Molecular Pharmacologist in the US, David had the challenging task of establishing himself as a cancer researcher. To his immense credit, he is now recognized as a World-leading expert in Prostate Cancer, leading a number of successful translational research programmes, most notably the £5M Movember PCUK Centre of Excellence FASTMAN Programme in partnership with CRUK Manchester Institute. Since 2011 alone, David has secured an additional £5M for prostate cancer research in Belfast. As well as establishing his own successful research group, David occupied a number of leadership positions in Queen's before he became Director, including leading roles in the REF2014 and REF2020 exercises, Associate Director for Postgraduate Research, and Academic Lead of the Prostate Focus Group; indeed, it was David who first established the concept of Disease Focus groups at CCRCB.

Under David's leadership, CCRCB has re-established its close ties with the Northern Ireland Cancer Centre, with increasing numbers of Clinical Academics becoming embedded in CCRCB. This has been an integral part of David's vision of "Born in Belfast/Led by Belfast" translational research designed to accelerate the impact on patients of basic scientific and clinical discoveries made in CCRCB. Moreover, his leadership has led to Belfast playing a leading role in a number of clinical trials in prostate cancer, including the £1.65M STRATOSPHERE precision medicine platform trial. During his time as Director, David has led a number of large programmes involving local Biotech and Government agencies; collectively, the amount of funding secured for these initiatives exceeds £23M since 2011.

During his time in CCRCB, David has also held numerous external positions, such as Honorary Secretary of the Irish Association for Cancer Research from 2008-12, for which he organised several highly successful annual conferences. While Director, David has been a panel member on a number of influential grant funding boards and scientific advisory groups (for both the academic and pharmaceutical sectors). David has also been one of the main academic advisors during phase 2 of the Science Park development in the Titanic Quarter as part of £200M Innovative City Bid by Belfast City Council to the UK Government (total bid of £1Bn). A passionate believer in outreach, David has embedded local and national cancer charities in CCRCB and was awarded a Cancer Research UK Commendation for Leadership and Excellence in Research Engagement in 2015.

A CELEBRATION OF INTERNATIONAL CLINICAL TRIALS DAY

To celebrate International Clinical Trials Day (ICTD) staff from the NI Cancer Trials Network (NICTN), Mrs Margaret Grayson and Dr Ed Goodall, members of the NI Cancer Research Consumer Forum and Ms Caroline Crothers, Cancer Research UK Research Engagement Manager, joined forces to promote cancer clinical trials at the NI Cancer Centre on 18 May 2018. Patients, visitors, funders and researchers from the NI Cancer Centre and CCRCB showed unreserved support for clinical trials. This year, to coincide with ICTD the HSC R&D Division distributed the 'I Am Research' campaign leaflet 'to shout about how fantastic research is to raise awareness of the benefits of research and the positive impact it has on people's lives.' The range of support in the Cancer Centre illustrated the tapestry of involvement in clinical research.

RECENT GRANTS AWARDED

Investigator(s)	Sponsor	Title	Amount	Start Date	End Date
Alderdice, Matthew	Medical Research Council	UKRI Innovation Fellowship at HDR UK	£279,159	14/02/18	13/02/21
Kerr, Emma	Cancer Research UK	Career Development Fellowship – Defining Metabolic Mechanisms of Drug Resistance in Colorectal Cancer	£1,825,966	01/06/18	31/05/24
Mills, Ken	Children's Cancer and Leukemia Group - Little Princess Trust	Facing the Music - Identification of synergistic repurposed drug combinations as novel therapies in paediatric acute myeloid leukaemia	£98,712	01/10/18	31/03/20
Parkes, Eileen	Prostate Cancer Foundation	The role of the cGAS-STING immune pathway in metastasis and response to immune checkpoint therapy	£160,608	01/10/18	30/09/21
Salto-Tellez, Manuel	HSC R&D	Precision Medicine Centre of Excellence	£499,316	01/09/18	31/08/23
Turkington, Richard	Royal College of Surgeons of England	The Saven RCS Fellowship - Andrew McGuigan	£54,303	01/08/18	31/07/19

NEW APPOINTMENT PROFILES

DR EMMA ALLOTT

Dr Emma Allott

Dr Emma Allott joins CCRCB as a Lecturer in Molecular Cancer Epidemiology in August 2018. Her research integrates epidemiologic methods and design with molecular tumour profiling to identify mechanisms linking dietary and lifestyle factors with cancer risk and progression. She directs omics and immunohistochemistry analyses of archival tissue specimens to generate molecular epidemiology resources, and leads a research program focused on the role of statin use, high serum cholesterol and dysregulated tumour lipid metabolism in prostate cancer progression. In addition, she collaborates with a number of existing studies, both in the US and Ireland, integrating immunohistochemistry and genome wide expression profiling with clinical and epidemiologic data in large cohorts of breast and prostate cancer.

Dr Allott completed her Ph.D. in molecular cancer biology at Trinity College Dublin, using in vitro co-culture systems to study adipose tissue-tumour cell interactions in oesophageal adenocarcinoma. She went on to do a Cancer Prevention, Detection and Control Fellowship at Duke University, using mouse models of prostate cancer to study the effect of obesity and high serum cholesterol on prostate tumour growth alongside examining associations between serum lipids, statin use and prostate cancer aggressiveness and progression in epidemiologic studies. She continued her epidemiology training as a postdoc in the Department of Epidemiology at the University of North Carolina Chapel Hill where she had a leadership role in tumour subtyping efforts in the Carolina Breast Cancer Study and AMBER breast cancer consortium.

In 2015, Dr Allott joined the UNC faculty as an Assistant Professor in the Department of Nutrition, supported by the American Institute for Cancer Research Marilyn Gentry fellowship. In 2017, she was awarded the first Irish Cancer Society John Fitzpatrick Research Fellowship, a partnership between Trinity College Dublin, the Harvard T.H. Chan School of Public Health and the Dana-Farber Cancer Institute, to study the role of lipids in treatment response and prostate cancer outcomes. Earlier this year, she spent six months as a Visiting Professor at the UNC Nutrition Research Institute where her research focused on incorporating genetic information into studies of diet and cancer to understand how intra-individual variation in nutrient metabolism could affect these associations. In addition to ongoing active collaborations with UNC and Trinity College Dublin, Dr. Allott maintains a role as Visiting Scientist in the Department of Epidemiology at the Harvard T.H. Chan School of Public Health.

DR CRISTINA BRANCO

Dr Cristina Branco

Dr Cristina Branco started her appointment as a Lecturer in Metastasis at the CCRCB from July 2018. Her research interests concern the contribution of somatic components of tumor and metastatic microenvironments to tumor dissemination to distant organs. Most of her work, from her PhD to date, has involved the study of responses to hypoxia and the metabolic shifts underlying the response and adaptation to oscillating levels of oxygen in the environment, and how those affect organ function and vulnerability to malignancy. Dr Branco's work in the field of Cancer Metastasis has dissected the role of endothelial cells and the microvasculature in metastatic potential and organ predisposition for secondary tumor invasion.

Upon completing her PhD in Biology from Universidade Nova de Lisboa (ITQB) in 2008, and from 2009 held a postdoctoral position at the University of California, San Diego, funded by the NIH (Growth Regulation and Oncogenesis Training Grant), which she continued at the University of Cambridge from 2012. In 2014, she was awarded a Breast Cancer Now career development fellowship, and was promoted to Principal Investigator, to further develop her studies in microvascular physiology and cancer metastasis.

Dr Branco has extensive experience in mouse models of tumorigenesis, and expertise in cancer, vascular and endothelial physiology, as well as local control of blood flow and organ performance in response to vascular challenges. She also has teaching, tutoring and supervising experience and has organised, lectured and examined courses in general Physiology, Systems Biology and Cancer Pathophysiology for Medical, Veterinary and Biological Sciences students.

Dr Branco will bring all of the above skills to her new post at CCRCB, with a research focus on models of metastasis, and molecular signatures of cell and organ function during cancer progression, in order to identify mechanistic targets to treat or pre-empt metastatic tumour growth.

DR DONNA SMALL

Dr Donna Small

Dr Donna Small was appointed as a Lecturer in Cell Signalling and Tumour Immunology in August 2018. Dr Small obtained her PhD in 2012 from the School of Pharmacy in Queen's University Belfast. Her PhD studies investigated the functionality of a cysteine cathepsin in tumour biology.

Dr Small then conducted her post-doctoral research in the Centre of Experimental Medicine where she assessed the immunobiological properties of various proteases and antiproteases in respiratory diseases such as Cystic Fibrosis (CF) and acute lung injury.

In March 2016, Dr Small was awarded a fellowship from the Medical Research Foundation (MRF) to consider how a particular antiprotease, SLPI, is involved in T-cell mediated inflammation and angiogenic development in malignant pleural mesothelioma (MPM). This research evaluates how SLPI can regulate and modify the adaptive immune system and signalling pathways in MPM, thus altering the tumour micro-environment to be more suited to enhanced vascularisation, tumour cell growth and diminish immune cell activation. Dr Small aims to expand her research niche into other respiratory cancers and beyond.

NEW APPOINTMENTS

Welcome to the following staff recently appointed to the Centre:

Academic Staff
Dr Emma Allott
Dr Cristina Branco
Dr Donna Small

Research Staff
Mr David Campbell
Miss Fiammetta Falcone
Dr Emma Kerr
Miss Ethna McFerran
Mr James Smith
Mr Steven Thompson

Technical Staff
Mr Darren Conway
Mr Ronan Cunning

Administrative Staff
Miss Collette McMorrow

Visiting Researchers
Dr Maria Berberian
Miss Amber De Lange
Mr Pietro Pisciotta
Mr Moritz Reiterer

NORTHERN IRELAND BIOBANK

The Northern Ireland Biobank (NIB) are pleased to announce that Mrs Bronagh Coulter and Miss Amy Graham have been appointed to the post of Senior Biobank Technician. These innovative posts, new to NIB, will help establish a high quality collection of tissues and bloods from consented patients being treated within the NI health and social care system. The main duties are to gather informed consent from patients and to undertake laboratory-based work including collection and processing of tissue, blood and bodily fluid samples for release to NIB approved studies.

Bronagh Coulter and Amy Graham

EVENTS

23rd World Congress on Advances in Oncology and 22nd International Symposium on Molecular Medicine
Athens, Greece
20–22 September 2018
For further information see:
https://www.spandidos-publications.com/pages/conference

2nd International Congress on Personalized Health Care (ICPHC)
Montréal, Canada
23–26 September 2018
For further information see:
http://www.icphc.org/

The Early Detection of Cancer Conference
Portland, USA
2–4 October 2018
For further information see:
http://earlydetectionresearch.com/

2018 NCRI Cancer Conference
Glasgow, UK
4–6 November 2018
For further information see:
https://conference.ncri.org.uk/

FACULTY TECHNICAL EVENT

On 19 June 2018 The Faculty held a Technical Event, which brought our Faculty technicians together to outline some key developments in how we engage with technicians and address technician-specific issues. The event focused on our Faculty's response to the Technician Commitment Initiative (TCI) which is supported by HEFCE, Gatsby Charitable Foundation through Technicians Make it Happen (TMiH) campaign, Science Council, Medical Research Council.

The University is a signatory to TCI and has pledged to improve visibility, recognition and career development of the technical workforce. Current signatories total around 70 organisations and include Russell Group universities, post-92 universities and research Institutes.

- By becoming a signatory, HEI are making a promise or pledge that they will commit to taking action to address each of the five areas, which they are encouraged to make public and to appoint a named lead within the institution.
- The Technician Commitment is overseen by a Steering Group with representation from across the sector.
- There is an annual conference for TC signatories to share good practice.
- A self-assessment report must be prepared within 1 year of becoming a signatory, to highlight what actions are being taken and how it will be measured to achieve the TCI.
- HEaTED is a resource partner to the TCI, which provides facilitation and advisory services support to help achieve the TCI.

The event was extremely successful with approximately 110 technical staff attending, and invited speakers presenting were:

Jane Banks – Business development officer, Science Council

Suhel Miah – Programme manager HEaTED

John-Paul Ashton – Institute of Science and Technology

Mel Leitch – Technical manager, University of Newcastle.