



Bulletin

QUEEN'S UNIVERSITY AWARDED GOVERNMENT FUNDING TO ADVANCE EXCELLENCE IN PRECISION MEDICINE



Professor Manuel Salto-Tellez (left) and Dr Jacqueline James

Queen's has announced they are part of a consortium that will receive a multi-million-pound investment of government/industry funding to advance the use of artificial intelligence (AI) in cancer diagnosis and precision medicine.

The announcement was made by Greg Clark, UK Secretary of State for Business, Energy and Industrial Strategy (BEIS) who confirmed UK Research and Innovation will invest £14 million in PathLAKE (Pathology image data Lake for Analytics, Knowledge and Education) as part of the Industrial Strategy Challenge Fund.

Queen's University's Precision Medicine Centre of Excellence (PMC) will join the PathLAKE consortium, which includes University Hospitals Coventry and Warwickshire NHS Trust; University of Warwick; Universities and University Hospitals in Oxford and Nottingham; and Philips Digital and Computational Pathology.

The project could make the diagnosis of cancer timelier and more accurate, hence positively affecting many thousands of patients suffering the disease in the UK every year.

Queen's University's PMC is an internationally recognised laboratory, focusing on diagnostics which can predict a cancer patient's response to treatment. This will allow potentially costly drugs to be used more effectively by being prescribed only to those that can benefit from them.

Commenting on the announcement, Professor Manuel Salto-Tellez, Chair of Molecular Pathology at Queen's University and Lead of the PMC said:

"Digital Pathology and AI has the potential to drive huge improvements in cancer precision diagnostics and therapeutics. I am very proud that Belfast is the recipient of the largest budget in the consortium to develop new tools to help cancer patients in the future. This is a true recognition of the global leadership from Belfast in Digital Pathology, and a great achievement for the newly created PMC.

"I look forward to working closely with Philips to develop novel algorithms that are easy for pathologists to access and which we

believe will improve targeted therapy and immunotherapy, and allow cancer patients to live longer and better lives."

Dr Jacqueline James, University Clinical Reader in Pathology and Lead Researcher at Queen's University's PMC said:

"A new challenge in personalising clinical medicine is before us. As a result, it is critical that we deliver research and education programmes with relevance, not only in the clinical practice of genomic medicine, but also in the application of novel technologies and artificial intelligence."

Peter Hamilton, Head of Research at Philips Digital and Computational Pathology commented: "Pathology is central to ensuring accurate diagnosis for patients with diseases such as cancer, and in determining the precise course of action. However, our ageing population, with rapidly rising sample requirements and increasing case complexity, are placing ongoing pressures on a workforce, which is itself ageing. This creates challenges to ensuring early diagnosis and precision therapies and requires urgent attention, so we are delighted the UK government recognises the potential that digitisation and AI could bring to pathology.

"We are excited to play a part in helping the UK to take a leading role in the development and delivery of these new technologies that can improve patient outcomes and re-invigorate the workforce. With PathLAKE, our aim is to realise large-scale, AI-driven cancer analysis; we see this as a significant step toward realising the true potential of personalised medicine and supporting the NHS."

Queen's University's Precision Medicine Centre of Excellence (PMC) is a co-investment from Invest Northern Ireland, Queen's University Belfast and the Northern Ireland Department of Health and the Molecular Pathology Programme receives significant competitive funding from Cancer Research UK.

QUEEN'S UNIVERSITY BELFAST AND SWANSEA UNIVERSITY ANNOUNCE £4.6M INNOVATIVE PARTNERSHIP TO TRANSFORM HEALTH THROUGH THE USE OF BIG DATA



L to R; Prof Andrew Morris, Director, HDR-UK; Dr Janice Baille, Deputy Director, Health and Social Care Research and Development, Northern Ireland; Prof Ronan Lyons, Director HDR Wales Northern Ireland, University of Swansea; Prof Ian Greer, Vice Chancellor and President, Queen's University Belfast; Prof Ian Young, Director, Health and Social Care Research and Development, Northern Ireland; Prof Mark Lawler Associate Director HDR Wales Northern Ireland, Queen's University

Queen's University and Swansea University have come together in an innovative partnership that will help transform healthcare for the 5 million citizens of Northern Ireland and Wales.

Launching this £4.6M research partnership, funded through Health Data Research UK (HDR-UK), a newly-formed pioneering national institute set up to make game-changing improvements in people's health by turning data into knowledge, Vice Chancellor and President of Queen's University Prof Ian Greer said:

"This vibrant partnership highlights our commitment to harness and implement the promise of data science. It is an outstanding opportunity to use data to improve the way we are able to prevent, detect and treat diseases such as cancer, heart disease and asthma and allow patients to benefit from scientific breakthroughs much faster. Queen's University has recognised international strengths in health data science, reflected in publications in the highest impact journals including *New England Journal of Medicine*, *Nature Medicine* and *Lancet Oncology*."

"Our Global Research Institute (GRI) in Electronics, Communications and Information Technology (ECIT) is an international leader in the Big Data domain. Forging a partnership with Swansea University, who have world leading expertise in health data science with a specific focus on public health, represents a significant opportunity to coalesce our collective strengths in an innovative partnership to preserve and enhance human health."

Andrew Rhodes, Registrar and Chief Operating Officer, Swansea University said:

"This new partnership with Queen's University and Health Data Research UK will transform the scale, pace, efficiency and impact of data intensive medical research. Swansea has been an international leader in the field of health data science for more than a decade, producing major developments in privacy protecting data analysis and supporting some of the world's largest and most impactful scientific studies. Our new £31M Computational Foundry will also bring together computational scientists from many disciplines.

I also see tremendous benefits in embracing the concept of Team Science UK and integrating inter-disciplinary teams across our universities"

Swansea University and Queen's University, collectively known as HDR Wales – Northern Ireland, represent one of six substantive sites chosen across the UK after a rigorous internationally peer reviewed competition.

Commenting on the partnership, Prof Andrew Morris CBE, Director of HDR-UK said:

"I am delighted that Swansea University and Queen's University have been chosen as a HDR-UK Substantive Site and are bringing together researchers from different domains in an interdisciplinary partnership to transform the health of the population. HDR Wales Northern Ireland will be a key driver of our health-preserving and economy-advancing ambitions across the UK."

"I am incredibly excited to be working with Queen's on this joint initiative", said Prof Ronan Lyons, Prof of Public Health at Swansea and Director of HDR Wales – Northern Ireland.

"Our complementary strengths and competencies will allow us to make meaningful advances in key HDR-UK priority areas including modernising public health and advancing precision medicine. Already, we are working together to make Swansea's world class Secure Anonymised Information Linkage (SAIL) databank available to researchers in Northern Ireland. We are also creating a HDR-UK platform to support federated analysis of data across the UK"

"While Northern Ireland and Wales may be small in size, we punch well above our weight in data science research and its application," said Prof Mark Lawler, Chair in Translational Cancer Genomics at Queen's and Associate Director HDR-UK Wales – Northern Ireland.

"Our work in precision medicine in colorectal cancer is already delivering new insights for this common disease that kills over 16,000 citizens in the UK each year, while our joint HDR-UK Fellowship programme is training the future leaders in health data sciences research. This partnership can also make a pivotal contribution to the UK's ambition to be a global leader in life sciences and underpin national and local economic development"

Prof Lawler is also driving the cancer health data agenda in his role as overall HDR-UK lead for cancer.

Commenting on this unique partnership Prof Ian Young, Director of Health and Social Care Research and Development, Northern Ireland) said.

"This exciting partnership between Queen's University and Swansea University, supported by the PHA, will help implement an innovative health data science agenda across the UK to undertake research on data in a trustworthy, transparent way, ensuring all analyses are in the public interest. At a local level, it will deliver key health and economic benefits for patients and society in Northern Ireland"

For further details, please visit <https://www.hdruk.ac.uk/>



QUEEN'S UNIVERSITY RESEARCHERS DISCOVER NEW WAY TO TARGET BOWEL CANCER



Dr Nicholas Forsythe (left) pictured along with Dr Sandra Schaeysbroeck

Researchers at Queen's University Belfast have discovered a new way to target bowel cancer which may improve survival rates for these patients globally.

The research, which has been published in the prestigious journal of *Molecular Cancer Therapeutics*, is deemed the first of its kind with the discovery of a novel treatment strategy for bowel cancer patients who originally present with an extremely poor survival outcome. The study compared two groups of bowel cancer patients one year post diagnosis. The first group were considered to be doing "well" and the second group had a poorer outcome.

The ground-breaking discovery was led by Dr Nicholas Forsythe, Lead Researcher at the Centre for Cancer Research and Cell Biology (CCRCB) at Queen's, along with Dr Sandra Van Schaeybroeck and the late Professor Patrick Johnston, who was Vice-Chancellor at the University from 2014-2017.

Funded by the late Chancellor of Queen's University Belfast, through The Tom Moran Scholarship, the three year research project looked specifically at "gene signatures" to identify whether the stress-response pathway of a specific bunch of cells, called unfolded

protein response (UPR), could be a potential novel target for the treatment of a group of bowel cancer patients. These were patients with a poor survival outcome and/or those who are resistant to cancer treatments.

The research focused on BRAF, which is a human gene that encodes a protein called B-Raf. It is involved in relaying signals from the surface of the cell resulting in cell growth and survival. When mutated, the gene has the potential to cause normal cells to become cancerous.

Dr Forsythe, Lead Researcher at CCRCB at Queen's said: "This research focused on an aggressive subgroup of colon cancers known as "BRAF mutants". These cancers are not only extremely aggressive, but they do not respond well to conventional cancer treatments. Unfortunately this means patients diagnosed with a BRAF mutant cancer have a very poor prognosis. Our research has identified a cellular process that can be exploited in order to kill these cancer cells. Essentially, we can take advantage of the aggressive biology of these cancers and use it against them.

"The process we identified is known as the Unfolded Protein Response (UPR). In normal

cells the role of the UPR is to help cells survive periods of stress. We observed that our cancer cells were under high levels of stress, due to growing much faster than normal cells, and they had "hijacked" the UPR in order to survive. Using a specific combination of drugs we were able to overload this process and stress these cells to a point where they could no longer survive, dying in a process known as apoptosis; a form of cell suicide."

Dr Sandra Van Schaeybroeck, Lead Researcher at CCRCB at Queen's, said: "This mutated BRAF protein causes a "short circuit" within the cell, continually passing signals for growth even in the absence of signals from the cell surface. This results in uncontrolled cell division and survival.

"This research is good news for bowel cancer patients as further clinical trials investigating the effect of such agents could improve the survival outcome of patients with these BRAFMT colorectal tumours in Northern Ireland and beyond."

The Queen's University researchers say the next step of this research is to explore novel drugs, which can ultimately change the survival outcome for these patients.

QUEEN'S LED RESEARCH WINS THE 2018 EUROPEAN HEALTH AWARD



Prof Mark Lawler (left) pictured along with Günther Leiner, European Health Forum Gastein Honorary President

Researchers from Queen's University Belfast and the University of Leeds, as part of a pan-European partnership called the European Cancer Concord (ECC)®, have won the prestigious 2018 European Health Award. This award honours initiatives that help tackle some of Europe's most pressing health challenges. The award-winning project, entitled 'The European Cancer Patient's Bill of Rights: A Catalyst for Change and an empowerment tool for cancer patients across Europe' involves an equal partnership between cancer patients, healthcare professionals and cancer researchers.

Professor Mark Lawler, Chair in Translational Cancer Genomics CCRCB, Queen's University Belfast and Vice President of ECC received the award on behalf of the partnership during the opening ceremony of the European Health Forum Gastein, the premier European Health Policy Conference and an official event of the Austrian European Council Presidency.

Professor Lawler commented: "Cancer knows no borders, so it is important that we work together to develop solutions that address cancer inequalities in all parts of Europe. I am immensely proud to be accepting this award, not only on behalf of our team who have worked together over the last five years on this initiative, but also on behalf of the millions of European citizens who are living with and beyond cancer, and experiencing cancer inequalities every single day of their lives."

Margaret Grayson, cancer survivor and Chairperson of the Northern Ireland Cancer Research Consumer Forum, said: "The news

that the European Cancer Patient's Bill of Rights has received a top European award is wonderful. This collaborative initiative has patients absolutely at its centre. It is especially pleasing that Professor Lawler will be collecting this award at Gastein, given Northern Ireland's leadership role in the project."

Roisin Foster, Chief Executive of Cancer Focus Northern Ireland (Cancer Focus NI), an ECL member said: "We at Cancer Focus NI are delighted that the European Cancer Patient's Bill of Rights has received a top European award. We worked very closely with the European Cancer Concord and adopted the 2nd article of the Bill of Rights on access to treatment underpinned by research and innovation to help drive our cancer inequalities campaign, which recently resulted in the Department of Health announcement on making innovative treatments available to cancer patients in Northern Ireland."

One of the key outputs from the research has been the development of a 70:35 Vision, 70 per cent long term survival for all cancer patients across Europe by 2035. "Our 70:35 Vision is built upon the pillars of cross border and interdisciplinary cooperation, sharing best practice and ensuring that research and innovation gets translated for the benefit of patients," explained Professor Peter Selby, Professor of Cancer Medicine at the University of Leeds and President of ECC. "This is a superb example of how cooperative European activities that involve sharing best practice can result in top class prize-winning initiatives."

In a joint statement, Professor Ian Greer, President and Vice-Chancellor of Queen's University Belfast and Professor Sir Alan Langlands, Vice-Chancellor of the University of Leeds welcomed the award: "The European Health Award is a prestigious award that recognises the very best of the European collaborative approach, involving over 60 stakeholders from 25 European countries, working together for the benefit of patients. We are immensely proud that an initiative, which was initiated at Queen's University in Northern Ireland, and where Leeds University and Queen's have demonstrated their strong leadership, has been recognised across Europe as a quality exemplar of best practice."

Working in close partnership with European patient organisations and professional societies has been a key part of the initiative.

"We at the European Cancer Patient Coalition (ECPC) are delighted to be part of this joint success," Lydia Makaroff, Director of the European Cancer Patient Coalition, added. "The ECPC has been a crucial partner in the European Cancer Patient's Bill of Rights since it was launched in the European Parliament on World Cancer Day in 2014, and has worked tirelessly to find solutions to the disparities that cancer patients experience across Europe."

"To fight cancer is a challenge for patients, families, doctors, researchers and industry, said Rafal Swierzewski, President of COCARDIA Foundation, Poland. Only through strong and sustainable cooperation can this fight be maintained. The differences and inequalities in cancer care and survivorship in Europe are clear for all to see. We need to put more efforts into supporting cancer research and cancer care development in Central and Eastern European (CEE) countries. As a cancer patient from one of CEE countries, I am proud that we have such a person as Professor Lawler on board, showing openly the inequalities and bringing them forward at European level to develop solutions."

Speaking at the award ceremony, Professor Lawler said: "Cooperation is the key to this initiative. We need to compete, not against each other, but against our common enemy - Cancer." He also honoured three sadly departed Irish cancer leaders who were involved in the initiative, Prof Donal Hollywood, Prof John Fitzpatrick and in particular Prof Paddy Johnston who worked very closely with Prof Lawler on this initiative, hoping that "those three proud Irishmen were looking down on this proud Irishman" as he collected the award.

QUEEN'S UNIVERSITY PROFESSOR HIGHLIGHTS BELFAST'S LEADERSHIP IN CANCER CONTROL AT UK CHINA SUMMIT

"Small countries can do big things." Professor Mark Lawler, Chair in Translational Cancer Genomics and Dean of Education, Faculty of Medicine, Health and Life Sciences at Queen's University Belfast has highlighted how Northern Ireland has shown leadership at both national and European level in controlling cancer, a disease that kills 2.8 million citizens of the Peoples Republic of China each year.

Speaking at the 4th UK China Regional Leaders Summit in the city of Dalian in the Liaoning Province, Professor Lawler highlighted how Northern Ireland and China, though different in scale, had shared healthcare priorities, particularly in the area of cancer. He commented: "Healthy China 2030 aligns with our 70:35 Vision, 70% long term survival for cancer patients by 2035. Through our work with over 60 partners in 25 countries, this 70:35 Vision has now become a priority across Europe."

Professor Lawler collected The 2018 European Health Award, a prestigious award that recognises collaborative health initiatives with impact, for this pan-European project at the European Health Forum Gastein earlier this month.

Professor Lawler said: "In the mid-90s Northern Ireland had the worst outcomes for all cancers in the United Kingdom (UK), but by developing and implementing a research-

enabled National Cancer Control Strategy which put patients at the centre, we were able to significantly reduce mortality for diseases such as breast cancer, such that we now have the best outcomes in the UK.

"We hope that our experience may be of help in controlling cancer in China, where it is the most frequent cause of death. With the ageing population in China, cancer is a ticking time bomb. We need to defuse that time bomb and ensure better health for our citizens."

Professor Lawler also highlighted the role of big data in ensuring better health for the citizens of the UK and China. "Gathering data and using that intelligence to inform healthcare research and policy is vital, from a health, economic and societal perspective". Professor Lawler, also an Associate Director for Health Data Research UK (HDR-UK), and leads HDR Northern Ireland, one of six sites of HDR-UK, highlighted how the UK and China could together be a "powerhouse for data analytics and Artificial Intelligence" and expressed his excitement at looking at opportunities to collaborate in this innovative domain. He outlined ambitious plans for a One Health Innovation Centre, harnessing interdisciplinary excellence within the first Agri-Food and Health Informatics Institute in Europe.

Commenting on his presentation, David Sterling, Head of the Civil Service, who led the

delegation said: "Our international reputation in cancer research and data analytics makes us an ideal partner for driving an innovation agenda between Northern Ireland and China that will bring improved health to our citizens and joint ventures that can yield both economic and societal benefit for our two countries".

"Northern Ireland has significant expertise in these sectors," said Tim Losty Director of Northern Ireland's Bureau in China. "Our ambition is to develop focussed strategic collaborations that can be mutually beneficial by harnessing this expertise to deliver impact as a key component of the UK-China partnership going forward."

Professor Ian Greer, Vice Chancellor and President of Queen's University Belfast said:

"We have a very significant commitment to research and education in China. This is demonstrated by our partnership with China Medical University in Shenyang that is successfully delivering education programmes for Chinese students and promises much more in terms of research collaboration in a number of areas including cancer. Our leadership in cancer research, recognised internationally through the recent 2018 European Health Award and our strengths in data analytics and Artificial Intelligence, provide the opportunity for innovative solutions to be developed in cooperation with our colleagues in China."

MEN WITH PROSTATE CANCER COULD BENEFIT FROM NEW RADIOTHERAPY APPROACH THAT REDUCES TREATMENT SESSIONS BY 75%

A news release on Dr Ciaran Fairmichael and Dr Suneil Jain's research into prostate cancer radiotherapy has received significant media attention. The SPORT trial uses a technique called Stereotactic Ablative Radiotherapy (SABR) combined with an injected hydrogel that separates the prostate from other organs. This allows the safe delivery of much bigger doses of radiation per treatment, meaning men only need to come to hospital on 5 days instead of the usual 20 or more. The news release received over 150 pieces of international, national and local media coverage, including Sky News, BBC, Press Association, Daily Mail, i News London, The Irish Independent, The Irish Times, UTV, Daily Express, Newstalk and RTE Online. Dr Fairmichael and Mr Gordon Robinson, one of the patients involved, also gave live broadcast interviews with Sky News. The first paper to come from the trial was published in the British Journal of Radiology and the trial is now fully recruited with the final patient expected to be treated in January. The trial is part of the Prostate Cancer UK/Movember Foundation Centre of Excellence at Queen's and is conducted in collaboration with the NI Cancer Centre and NI Cancer Trials Network. Support and funding has also been provided by Friends of the Cancer Centre, Augmenix UK Ltd and the NI HSC R&D division.



Dr Ciaran Fairmichael



Dr Suneil Jain

RESEARCHERS AT QUEEN'S CHAMPION MULTIDISCIPLINARY APPROACH TO MOLECULARLY PROFILING CANCER

Researchers at Queen's University Belfast have demonstrated the importance of measuring the levels of non-cancerous cells present in a bowel (colorectal) tumour sample, prior to performing molecular analysis. This approach is of particular relevance in recent years, as clinicians look to use molecular analysis to better understand the biology of disease, which in turn enables the selection of the most appropriate drug for that patient's individual tumour.

While molecular data can be analysed by non-computational cancer researchers, care needs to be taken when interpreting the results. Having a pathologist assess the tissue, prior to profiling and informatics analysis, can help reduce the chance of misinterpreting biological signalling.

The study, published in the prestigious *Journal of Pathology*, was conducted by researchers within the Centre for Cancer Research and Cell Biology (CCRCB) in collaboration with Dr Maurice Loughrey, consultant gastrointestinal pathologist in the Royal Victoria Hospital, Belfast and Honorary Senior Lecturer in Queen's. Dr Loughrey commented that "by incorporating extensive details recorded during a pathologist's assessment of the same tumour tissue, prior to molecular profiling and analysis, this new study demonstrates how a cross-disciplinary approach can vastly reduce the chance of misinterpreting biological signalling originating from the non-cancerous cells that surround a tumour mass."

Dr Philip Dunne, Lecturer in Molecular Pathology and Pathogenesis and senior author of the study, commented how this work

"emphasises the need for the modern cancer researcher to have an interdisciplinary skillset, combining mechanistic biology, pathology and data analysis, in order to fully exploit and most accurately interpret data and their clinical implications. In order to develop better treatments for individual patients, we must first understand the biology of that person's tumour; this is the basis of personalised medicine in cancer. This study highlights how we can begin to use this new understanding developed in research laboratories, to identify the biology underlying an individual patient's tumour in the clinic; the 'bench-to bedside' approach."

PhD student and first author on the study, Amy McCorry, explains "Our aim was to show that without a full overview of tumours before profiling, it's easy to make incorrect conclusions from the resulting data. In this study, we examined epithelial-to-mesenchymal transition (EMT) signalling and found that the levels of connective tissue in the samples could confound the results. As a cancer researcher, working alongside expert pathologists, like Dr Maurice Loughrey, is essential to overcoming this common problem."

Professor Mark Lawler, Chair in Translational Cancer Genomics and Dean of Education for the Faculty of Medicine, Dentistry and Biomedical Sciences, who co-authored the study said, "This work demonstrates the cutting edge scientific research ongoing within Queen's, and how this research can be translated into improvements in patient care for people with cancer. The approach taken by Dr Dunne's research team, combining



Amy McCorry

molecular analysis with histopathology, improves our understanding of tumour biology and exemplifies the need for interdisciplinary skills in the era of precision medicine. The training programmes in Queen's provide the opportunity for young researchers to develop these unique skills, and Amy is an example of the new generation of "hybrid researcher", who can seamlessly combine molecular data analysis with pathological information, to deliver a new biological understanding of disease"

The research study was supported by Cancer Research UK (CRUK), the Belfast Experimental Cancer Medicine Centre (ECMC) and the Medical Research Council (MRC), in addition to the Entwistle Family scholarship, and is available from the *Journal of Pathology*: <https://onlinelibrary.wiley.com/doi/abs/10.1002/path.5155>

YOUNG ACADEMY OF SCOTLAND RESPOND TO PLAN S

Dr Ian Overton led the Young Academy of Scotland contribution to an international response on 'Plan S', which was launched on 4 September 2018 by cOAlition S with support from the European Commission and the European Research Council. Plan S proposes bold changes in the area of Open Access, the position statement is available here: <https://globalyoungacademy.net/wp-content/uploads/2018/10/YA-Statement-on-Plan-S-FINAL.pdf>.

Here is some further information from the press release by the Global Young Academy (15th October):

Publicly funded research output should neither be hidden behind paywalls nor be a 'pay-to-publish' game. This is one of the core tenets of the Position Statement titled 'Opportunities and Challenges for

Implementing Plan S – The View of Young Academies', which is the result of discussions among several European young academies and the Global Young Academy (GYA). The joint Statement was released on 15 October 2018. According to the Statement, 'We consider Plan S as a bold step that has the potential to be a game-changer in making European science open and setting an example globally on how publicly funded research is published, in particular its requirement that the copyright remains with the author and that licences adhere to the Berlin Declaration.' Driven by the voice of several national young academies and spearheaded by members of the GYA's Open Science working group, the Statement considers the set of principles offered by Plan S to be 'an invitation to contribute to shaping the research ecosystem and its impact on society as a whole. At the same time, given

the large room for possible interpretation and implementation, there is much concern that Plan S may not lead to the positive changes that we, as young scholars, think are necessary.' Moritz Riede, Immediate Past Co-Chair of the GYA, added: 'Plan S is ambiguous, and a wide range of implementations is possible, from scientific dystopia to a system where open access – a central part of open science – can really thrive.'



BELFAST TRANSLATIONAL RESEARCH HIGHLIGHTS THE NEED FOR IMPROVED CLINICAL GUIDELINES IN COLORECTAL CANCER (CRC)

Dr Philip Dunne is part of a new multidisciplinary team, led by Dr Dale Vimalachandran (Countess of Chester hospital), and funded to develop recommendations for improving the quality and quantity of CRC biopsy specimens collected from patients participating in cancer clinical trials. The study is supported by the National Cancer Research Institute (NCRI) and the Bowel Disease Research Foundation (BDRF), and aims to improve tissue biopsy sampling protocols to provide new insights into how cancer therapies behave in the human body.

CRC is the 4th most common cancer, which accounts for 41,000 diagnoses each year in the UK. While numerous studies have identified molecular signatures within CRC, critical to any of this work is the collection of sufficient, high quality biological material prior to the instigation of any treatment. Biopsies for research are most often taken at the same time as the initial diagnostic biopsy or simply any excess material in addition to the diagnostic biopsy is utilised. These biopsies are most often obtained by clinical staff that are unaware of the downstream utilisation of such material or the factors

that may be important in ensuring sufficient material is collected. Analysis of samples in Belfast as part of the SCORT project has revealed that the mean amount of DNA obtained from clinical trial biopsies is too low for multi-omic profiling, suggesting that adaptation of a reproducible biopsy protocol is urgently needed.

The aims of this BDRF-funded project are to therefore establish a robust and reproducible biopsy protocol and identify factors associated with poor sampling. The project will also further establish the collaborative links between CRC research groups throughout the UK with the aim of developing a larger prospective sample collection based on the biopsy protocol. The initial phase of this clinical study has been funded, with Dr Dunne as translational lead, to recruit 40 patients across six centres in the UK (Chester, Swansea, Shrewsbury, Addenbrookes, Leicester and Birmingham), with data analysis being performed by Dr Susan Richman in Leeds and Dr Dunne's group in Belfast. Following the initial pilot phase, the guidelines will be rolled out in clinical centres across the UK using the NCRI clinical studies group networks.



Figure: Tumour biopsies collected for research often don't have enough of the tumour tissue, an issue that can lead to some patients being ineligible for clinical trial entry or translational research studies. The issue is highlighted by these two biopsy samples, from different patients, which have very different amounts of tumour tissue indicated within the dashed lines.

QUEEN'S PROFESSOR AMONG THE 30 WHO EXPERTS ESTABLISHING THE TAXONOMY OF CANCERS OF THE DIGESTIVE SYSTEM

For many decades pathologists have been the real taxonomists of cancer. Since the 1st edition, edited by World Health Organization's Dr Leslie Sobin and published by WHO in Geneva in 1967-1981, the WHO blue books have been the reference for the classification of cancer worldwide. A single, unified classification of cancer is not only a diagnostic exercise, but is paramount to frame the way we understand cancer and we deliver and improve oncology care. Having a single cancer taxonomy is essential at many levels: to monitor cancer incidence, understand cancer epidemiology, explore the aetiology and pathogenesis of neoplasia, improve diagnostic criteria, focus therapeutic decision-making, define cancer prognosis and, crucially, begin to elucidate the predictive response to therapeutic intervention.

Prof Manuel Salto-Tellez (pictured on the top right row) was one of the 30 world experts chosen by the lead editor of the WHO Blue Book collection, Dr Ian Cree, to edit the next edition of the WHO Blue Book on Cancers of the Digestive System, in meetings that took place in Lyon in February and July 2018.



NORTHERN IRELAND HOSTS FIRST CHILDHOOD LEUKAEMIA RESEARCH UK FORUM

The annual Childhood Leukaemia Research UK forum was held for the first time in Northern Ireland on 14th September. It was also the largest ever meeting with over 80 participants from across UK and Ireland. Keynote lectures were given by Prof David Gonzalez de Castro (CCRCB) on “Genomics and precision medicine in cancer” and Dr Vicki Rand (Newcastle University) on paediatric lymphoma. The programme included presentations from speakers from Glasgow, Edinburgh, London, Newcastle, Oxford and Dr Katrina Lappin from CCRCB.



L-R: Dr Tony Ford (Institute of Cancer Research, London), Prof David Gonzalez de Castro (CCRCB), Dr Chis Halsey (Glasgow), Dr Vicki Rand (Newcastle), Prof Ken Mills (CCRCB) and Prof Anthony Moorman (Newcastle).

LEADING RESEARCHERS WARN THAT BREXIT WILL HARM UK CANCER RESEARCH AND THE HEALTH OF OUR CITIZENS

Researchers from Queen’s University Belfast, Kings College London and the University of Leeds have produced evidence on the positive benefit that researchers from other European Union (EU) countries have on cancer research in UK research institutions.

The study, which was recently published as the Editor’s Choice in the October issue of the premier cancer journal, *The Lancet Oncology*, demonstrated that there have been an increasing number of scientific papers on cancer published by research teams which include at least one non-UK EU born member of staff. Even more significantly, cancer research papers that include non-UK EU born authors had a much greater scientific impact, being published in the top tier of medical and scientific journals.

Professor Mark Lawler, from the Centre for Cancer Research and Cell Biology at Queen’s University Belfast, said. “The challenge of cancer is so great, it is critical that we bring together the best minds to find the best solutions to improve cancer outcomes for our citizens. Currently, in the UK we attract high quality talent (both from the UK and elsewhere in the EU) and that is why we are a powerhouse for cancer research across Europe”.

“Nearly 20% of our research staff are non-UK born. The ‘Brexit effect’ on our research reputation could be catastrophic, and given that high quality research underpins better cancer outcomes, we risk undermining the cancer care of our patients.”

The study clearly indicates that the loss of human capital that would result from a tightening of restrictions on free movement from the EU to a post-Brexit UK would have serious ramifications for the quality and impact of UK cancer research.



Professor Richard Sullivan, Director of the Institute for Cancer Policy at Kings College London and joint senior author on the paper, commented: “Our results indicate a very positive and statistically significant contribution of foreign staff to the UK cancer research knowledge base, one that we must preserve following the UK’s departure from the EU. In the uncertainty of a post-Brexit world, we risk the distinct possibility that cancer scientists from other parts of the EU either won’t want to or won’t be allowed to work in the UK. The knock-on effect could be devastating.”

“And you also have to factor in the effect on research funding”, said Professor Lawler. “UK researchers have been incredibly successful in competing for European research funding, drawing down €4.8 billion of overall funding since 2014. But whereas in 2015, we were at Number 1 in research funding in the EU, with an annual intake of >15% of the overall budget, this has dropped to <12% by June 2018 and now we have been replaced at the top by Germany. This is definitely a Brexit

effect and it is clear that potential European research partners are worrying about having a UK researcher on their collaborative research grant”.

The study demonstrated that overseas staff contributed to nearly 80 per cent of cancer research papers published in the UK.

In a related study, published in the *Journal of the Royal Society of Medicine*, the researchers highlighted that foreign scientists in other disease domains have also contributed greatly to the quality of UK research, while EU medical doctors, particularly those from Eastern Europe are an increasing component of the UK’s medical workforce.

Professor Lawler added: “The UK’s departure from the EU could trigger a medical manpower crisis, impacting negatively on the health of the 65 million citizens that live in the UK. These studies show that the decision to exit the EU will have substantial ramifications for UK cancer research and for the health of our society.”

FROM GEOLOGY TO ONCOLOGY

Dr Jaine Blayney, pictured on the right, spoke at the Women Who Code Belfast and AI-NI (Artificial Intelligence Northern Ireland) meet-up on 24th October, at the Ormeau Baths Gallery, Belfast. In a talk entitled “From Geology To Oncology”, Jaine spoke about her use of unsupervised and supervised learning approaches in the domain of personalised medicine and the adaptation of geostatistical methods to facilitate soft integration of datasets.

Organised by Mary-Jane McBride (City Lead, Women Who Code Belfast) and Austin Tanney and Jordan McDonald (both AI-NI) and sponsored by Barclays, approximately 100 attendees from a wide variety of backgrounds listened to talks from Jaine, Claire McMullan (@HealthGainz), Meredith Telford (@axial_3D) and Chloe McAteer (@KainosSoftware).

Women Who Code inspires women to excel in technology careers. The Belfast chapter is one of the most active branches and regularly organises technical talks, training sessions and hack nights.



Twitter: @WWCodeBelfast
Email: belfast@womenwhocode.com

AI_NI (@ai_ni_community) is a networking group organising events for those interested in or working in artificial intelligence and have recently launched an AI Academy.

BREAKTHROUGH IN ACCESS TO INNOVATIVE MEDICINES FOR NORTHERN IRELAND CANCER PATIENTS

The Department of Health in Northern Ireland have announced an initiative that will give Northern Ireland cancer patients the same access to cancer drugs as their counterparts have experienced in other parts of the UK. Previously this cancer inequality had led to the equivalent of a post code lottery, with cancer patients in Belfast for example, not having the same access to cancer drugs as patients with the same disease in Birmingham, Brechin or Bridgend.

“This represents a landmark day for the citizens of Northern Ireland” said Prof Mark Lawler, Centre for Cancer Research and Cell Biology, Queen’s University Belfast and the European Cancer Concord - European Cancer Organisation Oncopolicy Forum. “It is a significant victory for cancer patients, cancer researchers, cancer doctors and industry working together in partnership to achieve change that can extend people’s lives. But it has taken far too long – 4 health ministers have come and gone in the time it has taken to reach this decision. But partnership has been the key. We in the European Cancer Concord (ECC) have

worked closely with the charity Cancer Focus Northern Ireland who led the “Equal Access” Campaign and adopted the ECC’s 2nd Article of the European Cancer Patients Bill of Rights on patient access to the best quality care, underpinned by research and innovation, as a key part of their campaign.”

“This is a real victory for patients”, said Dr Ian Banks, Chair of the Patients Advocacy Committee at the European Cancer Organisation (ECCO). “It shows how a partnership approach that is centred on addressing cancer inequalities can achieve real change at national level!”

“Coming just after our ECCO Summit in Vienna, where we passed a series of resolutions in relation to achieving meaningful real life solutions for patients, this announcement will be welcomed by cancer patients across Europe,” said Prof Philip Poortmans, President of ECCO. “We congratulate our colleagues in Northern Ireland for achieving a significant breakthrough that will improve patient outcomes.”





Prof Mark Lawler (CCRCB) delivers a key note address at the European CanCER Organisation (ECCO) Cancer Summit in Vienna



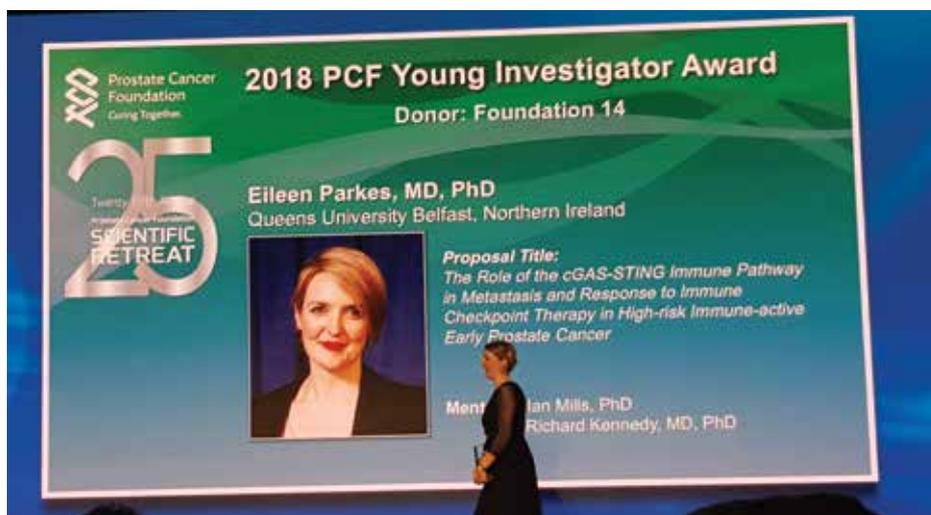
Prof Francoise Meunier, former Director General of the European Organisation for the Research and Treatment of Cancer (EORTC) and a Queen's University Belfast Honorary Graduate delivers the inaugural Patrick Johnston Memorial Lecture in honour of our sadly departed Vice Chancellor and former Director of CCRCB, Patrick "Paddy" Johnston at the ECCO Cancer Summit in Vienna

PROSTATE CANCER FOUNDATION RETREAT 2018

The Prostate Cancer Foundation Retreat 2018 was held from 25th – 28th October in San Diego, California. This prestigious meeting was attended by Professors Ian Mills and David Waugh, Drs Suneil Jain, Darragh McArt and Eileen Parkes. Eileen Parkes was awarded a PCF Young Investigator Award and NI (i.e. CCRCB) furnishing more applications than almost anywhere other than the US.

Statistics

#	Country	Number of Applicants
1	Australia	1
2	Canada	1
3	England	2
4	Germany	1
5	Lithuania	1
6	Netherlands	1
7	Northern Ireland	3
8	Norway	1
9	Spain	3
10	Switzerland	1
11	United States	88
Total		103



REBECCA TRAVELS TO AUSTRALIA WITH THE ENTWISTLE FAMILY TRAVEL SCHOLARSHIP

Dr Rebecca Steele, a Research Fellow at the CCRCB was awarded the Entwistle Family Travel Scholarship alongside a European Association for Cancer Research (EACR) Travel Award earlier this year.

Over the Summer Rebecca spent six weeks working at the South Australian Health & Medical Research Institute (SAHMRI) and the University of Adelaide in Australia, working in the labs of Professor Lisa Butler and Professor Wayne Tilley.

The visit enabled her to develop new techniques working with primary prostate cancer tissue and forge and strengthen collaborative research between Belfast and Adelaide.



WHO INTERNATIONAL HEALTHY CITIES CONFERENCE VISIT

During a tour of CCRCB Kirsty McLaughlin and Dr Peter Gallagher welcomed delegates from the WHO International Healthy Cities Conference and staff from the Belfast HSC Trust. Visitors heard about cancer research conducted in CCRCB and collaborations in clinical research. Delegates also had the opportunity to see facilities in the NI Cancer Centre during their visit on 3rd October 2018.



QUEEN'S PROFESSOR AMONG THE 100 MOST INFLUENTIAL PATHOLOGISTS IN THE WORLD

The Pathologist is one of the most important magazines in this field of Pathology, and its annual "Power List" highlights the 100 most influential figures in Pathology practice. Queen's own Professor Manuel Salto-Tellez (pictured on the right), is among those 100 chosen practitioners who "are making a difference to the discipline today". The list is based on nominations by pathologists from all over the world, and crafted by a group of international pathology judges.

Pathology is one of the cornerstones of hospital and academic medical life. Approximately 4 out of 5 decisions on patient treatment are made based on the pathologist's opinion. In addition, many of the new developments that are transforming patients' care (such as the genomic revolution or the applications of artificial intelligence in clinical practice) are introduced in our hospitals by pathologists.



THE INSTITUTE OF SCIENCE AND TECHNOLOGY DELIVERS PROFESSIONAL REGISTRATION WORKSHOP

As part of Queen’s University Belfast’s continued support and investment in The Technician Commitment, MHLS hosted a Professional Registration workshop on Wednesday 26th September 2018. There were thirty five technicians attending, and the workshop was delivered by representatives of IST (The Institute of Science and Technology).

Joan Ward (Finance Officer) introduced the technicians to IST membership and talked impressively of how IST was formed “by technicians, for technicians”. IST offers benefits to technicians, not only in MHLS but, across the whole university technical workforce.

Michelle Jackson (IST Registrar and Department Technical Manager, School of Life Sciences at Nottingham University) presented the advantages offered to technicians willing to commit to Professional Registration, which gives visibility and recognition by concentrating on skills and competencies, rather than academic qualifications.

Finally, John-Paul Ashton (IST Social Media/ Engagement Advisor and Research Technician in the Zebrafish Screening Unit, University of Sheffield) guided us through the Professional Registration application procedure, with a promise that IST will give further support to anyone who chooses to apply.

The immediate feedback from the workshop has been extremely positive and there was a great buzz in the room at the prospect of achieving recognition for the great research and teaching delivered by QUB technicians.



QUB TECHNICIANS ON TOUR

Seven technical staff from four different research/teaching areas in the faculty attended the annual Institute of Science and Technology (IST) one-day Technical conference held in Newcastle Upon Tyne on the 20th of September. Our MHLS representatives were Kirsty McLaughlin, Emily McDermott, Darren Murray, John Doran, Alison Meredith, Emma Gorman and Marek Knopik

The conference provided a unique opportunity for over 300 technical staff from all backgrounds and specialities from throughout to UK to meet and attend a variety of specialised keynote lectures and parallel interactive workshops, ranging from bionic hands, mitochondrial disease, CERN specialists, plastic discussions, centrifuge clinics, and professional registration.

Those that attended the conference found it to be extremely positive, engaging and motivating. They enjoyed interacting exclusively with technical staff from Universities leading the way with the Technician Commitment and realising the potential it brings to Technical staff at Queen’s.



CONGRATULATIONS TO RECENT PhD SUCCESS



Jamie Roberts receiving a pen from Prof Chris Scott on behalf of CCRCB to congratulate him on successfully achieving his PhD in October 2018.



L-R: Lauren Cairns, Lisa Rainey and Charlene Junkin receiving a pen from Prof Chris Scott on behalf of CCRCB to congratulate them on successfully achieving their PhD's in November 2018.



WeAreTheCity
Supporting the female pipeline

**Women
IN
TECH** AWARDS

In association with
zendesk

JAINE BLAYNEY AWARDED TECH DATA SCIENTIST AWARD

Dr Jaine Blayney, Course Director in MSc Bioinformatics and Computational Genomics, has been awarded the 2018 all-Ireland Women in Tech, Data Scientist Award.

The award ceremony took place at the RDS Concert Hall, Dublin on 22nd November and served as a testament to the diverse and innovative work being done by women in tech. Powered by Dublin Tech Summit, the event strove to highlight women in the industry who have created tangible and positive change and encourage others to learn from them. With 11 categories, as well as two special recognition awards, the event was one of inclusion and celebration.

The Women in Tech Awards is Ireland's first annual celebration of women and diversity in the technology industry. The goal of the Women in Tech Awards is to drive diversity and narrow the gender gap in an industry which offers opportunity and success to anyone with ambition, passion and a strong work ethic. The WTA will promote the success of female influencers in the tech industry, who in turn, can stimulate further dialogue around equality and inspire the millions of female tech enthusiasts around the world to become leaders in their own right.

Jaine has also been shortlisted for the UK @WATC WeAreTech #TechWomen100 awards.

The aim of the #TechWomen100 Awards is to highlight the accolades of up-and-coming inspirational female tech talent, and to help



L-R: Dr Pixie McKenna, Dr Jaine Blayney and Will Brightling

create a new generation of female role models for the industry.

A shortlist of 200 women from a range of technology disciplines has been chosen and winners will be announced on 10th December. The winners will also be announced on the WeAreTechWomen site and invited to collect their awards at a prestigious ceremony in London in January.

More information on the #TechWomen100 Awards can be found at:

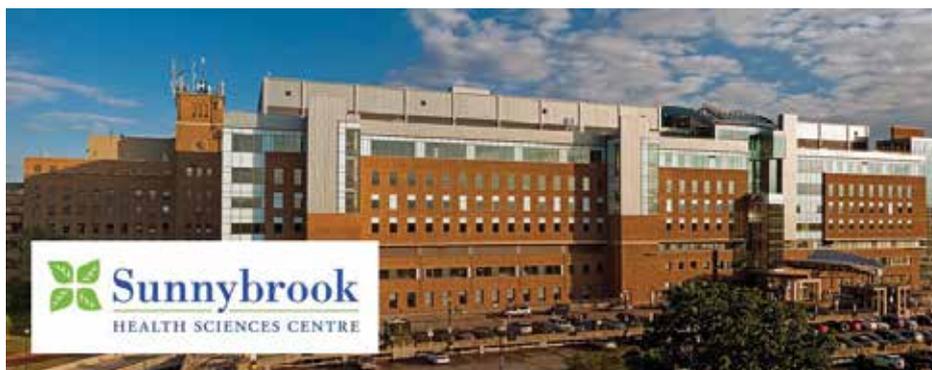
<https://wearetechwomen.wearethecity.com/techwomen100-awards-individual-shortlist-2018/>

<https://wearetechwomen.wearethecity.com/jaine-blayney-queens-university/>

CHARLES HAUGHEY VISITS RESEARCH LAB IN TORONTO

Charles Haughey a PhD student spent 6 weeks in Prof Stanley Liu Laboratory at Sunnybrook Health Sciences Centre in Toronto. While there he was successful in deriving a number of primary prostate cancer cultures from biopsies which had been donated by patients undergoing treatment in the centre.

The visit will lead to collaborations between institutes in Belfast and Toronto and generation of new cell lines which will be used for drug discovery and the investigation of prostate cancer progression.



Charles Haughey pictured in the middle along with research assistants and students from the Sunnybrook Health Sciences Centre, Toronto.

CCRCB COURSE SHORTLISTED IN ALL-IRELAND HIGHER EDUCATION AWARDS

The MSc Bioinformatics and Computational Genomics has been shortlisted for the 2019 gradireland Higher Education Awards in both the Postgraduate Course of the Year in Computer Science & Technology (sponsored by PwC) and Postgraduate Course of the Year in Science (sponsored by AbbVie) categories. This is the second year that the course has been shortlisted in two categories. Submissions for each course category are shortlisted and judged by specialist panels comprising experts in their field, drawn from industry, careers, education and other renowned professionals in each subject area.

The MSc Bioinformatics and Computational Genomics is a conversion course enabling students, with a previous background in computational or life sciences, to move across into an exciting new area of

discovery, technology and applications. The course provides a broad learning base and offers training in open-source programming languages and software commonly used in academia and industry. Co-ordinated overall by CCRCB, the course's modules are delivered by colleagues from CCRCB, CEM and CPH and includes contributions from both clinical and industrial partners. Students go on to careers in the public, academic and commercial sectors.

The programme director, Dr Jaine Blayney, will attend the gradireland Higher Education Awards and Symposium 2019, which takes place on 23rd November at the Crowne Plaza Hotel, Dublin.

Full shortlist of courses: <https://gradireland.com/events/gradireland-higher-education-awards-symposium-2019/558460-shortlist>



DONATIONS

Lynette McKendry



To date has raised over £40,000 for BRCA breast and ovarian cancer research at Queen's. To support Lynette's fundraising Lady Captain, Elaine Arthurs of Whitehead Golf Club chose the Queen's Foundation as a beneficiary charity of her golf event and raised over £2500. Also the Whitehead Line Dancing Club donated £2,000 to Lynette to take her over the £40,000. Lynette was awarded an MBE in 2018 for services to women in the UK with breast cancer.

Stephen Cooper and Kirsty Burrell



Father and daughter Stephen Cooper and Kirsty Burrell took part in the 5km swim in Lough Erne in August to support the research of Mr Stuart McIntosh. They have raised over £4,000 for breast cancer research.

Heather Gault – Dublin Marathon



Massive thank you to Sam and Heather Gault and Joanne Robinson and who took part in this year's Dublin Marathon. So far they have raised over £1,600 for lung cancer research.

Royal Belfast Golf Club



Captain Angus Creed has selected Pancreatic Cancer research as his chosen charity in memory of his brother-in-law John Martin (also a member of the club). Their main fundraiser was a casual foursomes one Friday night and raised an amazing £2,500.

Gwyneth Hinds/Leah Williams 1 million step challenge



Leah Williams, (10) was recently with Gwyneth Hinds to present Dr Kienan Savage with £2,150 – proceeds of her 1 Million steps challenge. That's 10,000 steps a day, for 100 days. Thanks Leah, Gwyneth & Jennifer Ard for some mega fundraising.

Perennials – Pancreatic and MS



The Perennials RFC once again held a hospitality race day at Down Royal in September 2018. Amongst other charities they were supporting Multiple Sclerosis (MS) and Pancreatic cancer research at Queen's University. The race day was attended by Professor Chris Scott and Dr Richard Turkington and raised £5,000 for each research area. Pictured above are the Perennial members including former Ireland and Ulster rugby player, Tommy Bowe.

Brian Montague

Congratulations to Brian and Anna who got married in September. Instead of wedding favours they kindly made a donation to Gastro-Intestinal research in CCRCB.

If you would like to support cancer research on your wedding day please contact Rachel Ketola, Development Manager of Health on 028 9097 5073 or email r.ketola@qub.ac.uk

THE MOVEMBER SPINATHON

On Friday 16th November, CCRCB and the School of Nursing and Midwifery joined forces with MOVEMBER, the charity tackling prostate cancer, testicular cancer, mental health and suicide prevention in men. Three bikes were set up outside the Cancer Centre (hospital side) and keen volunteers pedalled all day long (10am-3pm) in slots of 15min or 30 mins to raise money.



CCRCB'S INTERNATIONAL MEN'S DAY

On Monday 19th November, CCRCB celebrated International Men's day with a cake sale and an all-day table tennis tournament. Donations were in aid of Movember.



GEMMA GREGG PRESENTS AT NCRI 2018



Gemma Gregg recently presented her work during Breast Cancer Now “Science Simplified” session at the 2018 National Cancer Research Institute (NCRI) Cancer conference held at Scottish Events Campus, Glasgow. Pictured in the photo is Gemma (far right) along with fellow speakers and the panel of judges on the night.

GOODBYE GERRY



A drinks reception was held for Dr Gerry Hanna who left our Centre at the end of October 2018. He will now take up a new post as Director of Radiation Oncology at the Peter MacCallum Cancer Centre in Melbourne. We wish Gerry all the best! (L-R) Dr Suneil Jain, Professor Pascal McKeown, Dr Vicky Coyle, Dr Gerry Hanna, Professor Chris Scott and Dr Karl Butterworth.

RECENT GRANTS AWARDED

Investigator(s)	Sponsor	Title	Amount	Start Date	End Date
Branco, Cristina	Breast Cancer Now	Cell-specific Hypoxia Inducible Factors in Premetastatic Niche: Mechanisms and Therapeutic Opportunities in Breast Cancer	£165,612	01/10/2018	31/01/2021
Branco, Cristina	Cancer Research UK	CRUK Cambridge Centre Non-clinical Teaching Award	£22,864	01/09/2018	31/08/2020
Ladner, Robert., Wilson, Melissa., Wilson, Richard	British Lung Foundation	Enhancing the efficacy of standard-of-care chemotherapy in malignant pleural mesothelioma	£185,498	21/01/2019	21/01/2021
McIntosh, Stuart	NIHR Health Technology Assessment Funding Board	A phase III, randomised, multi-centre trial addressing overtreatment of small, screen-detected breast cancer by comparing standard surgery with minimally invasive vacuum-assisted excision.	£2,319,114.37 *not all awarded to QUB	1/10/2018	30/06/2029
Mullan, Paul	MRC – Medical Research Council	The identification and testing of blood markers to detect the presence of early ovarian stage cancers, speeding up patient diagnosis and ultimately improving patient survival	£55,200	01/10/2018	30/09/2019
Sousa, Jose., McArt, Darragh., Williamson, Kate	Radox Laboratories	Framework for actionable intelligence semantics	£140,694	1/02/2019	31/1/2020
Van Schaeuybroeck, Sandra	MRC – Medical Research Council	Development of biomarkers for inhibitors of GRP78, the master regulator of the unfolded protein response, for poor prognostic colorectal cancer subgroups	£55,200	01/10/2018	30/09/19

RECENT PUBLICATIONS

- ALLOTT, E.H., FREEMAN, M.R. and FREEDLAND, S.J. (2018) Statin Therapy to Improve Prostate Cancer Outcomes: Who, When, and for How Long? *Eur Urol*. 2018 Aug 31. pii: S0302-2838(18)30597-9. doi: 10.1016/j.eururo.2018.08.012. [Epub ahead of print] No abstract available.
- ALLOTT, E.H., FARNAN, L., STECK, S.E., SONG, L., ARAB, L., SU, L.J., FONTHAM, E.T.H., MOHLER, J.L. and BENSON, J.T. (2018) Statin use, high cholesterol and prostate cancer progression; results from HCaP-NC. *Prostate*. 2018 Aug;78(11):857-864. doi: 10.1002/pros.23644. Epub 2018 May 1.
- ALLOTT, E.H., MARKT, S.C., HOWARD, L.E., VIDAL, A.C., MOREIRA, D.M., CASTRO-SANTAMARIA, R., ANDRIOLE, G.L., MUCCI, L.A. and FREEDLAND, S.J. (2018) Geographic Differences in Baseline Prostate Inflammation and Relationship with Subsequent Prostate Cancer Risk: Results from the Multinational REDUCE Trial. *Cancer Epidemiol Biomarkers Prev*. 2018 Jul;27(7):783-789. doi: 10.1158/1055-9965.EPI-18-0076. Epub 2018 Apr 18.
- ARKEAU, H.T., ITALIANO, A., SAGGESE, M., MAK, G., TOULMONDE, M., BAIRD, R., CORBACHO, J.G., PLUMMER, E.R., FLYNN, M., FORSTER, M., WILSON, R.H., TOSI, D., ADENIS, A., DONALDSON, K., POSNER, J., KAWABATA, I., ARIMURA, A., DEVA, S. and SPICER, J. (2018) An expanded Phase I study of epertinib, an orally active reversible dual EGFR/HER2 tyrosine kinase inhibitor, in patients with solid tumors. *European Journal of Cancer*. September 2018; 103: 17-23.
- BARRETT, S., HANNA, G.G., MARIGNOL, L. (2018) An overview on personalisation of radiotherapy prescriptions in locally advanced non-small cell lung cancer: Are we there yet? *Radiother Oncol*. 2018 Sep;128(3):520-533. doi: 10.1016/j.radonc.2018.05.029.
- BASU, B., KREBS, M.G., SUNDAR, R., WILSON, R.H., SPICER, J., JONES, R., BRADA, M., TALBOT, D.C., STEELE, N., RUSSO, A.I., HALL, E., TOVEY, H., MENDES DE OLIVEIRA, F., CARREIRA, S., SWALES, K., RUDDLE, R., RAYNAUD, F.I., PURCHASE, B., DAWES, J.C., PARMAR, M., TURNER, A.J., TUNARIU, N., BANERJEE, S., DE BONO, J. and BANERJI, U. (2018) Vistusertib (dual mTORC1/2 inhibitor) in combination with paclitaxel in patients with high grade serous ovarian and squamous non-small cell lung cancer. *Annals of Oncology*. September 2018; 29 (9): 1918-1925.
- BEGUM, M., LEWISON, G., LAWLER, M. and SULLIVAN, R. (2018) Mapping the European cancer research landscape: An evidence base for national and Pan-European research and funding. *Eur J Cancer*. 2018 Sep;100:75-84. (ML joint Senior Author)
- BEGUM, M., LEWISON, G., JASSEM, J., MIXICH, V., CUFER, T., NURGOZHIN, T., SHABALKIN, P., KUTLUK, T., VOKO, Z., RADOSAVLJEVIC, D., VRDOLJAK, E., ENIU, A., WALEWSKI, J., AGGARWAL, A., LAWLER, M. and SULLIVAN, R. (2018) Mapping cancer research across Central and Eastern Europe, the Russian Federation and Central Asia: Implications for future national cancer control planning. *Eur J Cancer*. 2018 Oct 19;104:127-136. (ML joint Senior Author)
- BLACKBURN, N.E., MC VEIGH, J.G., MC CAUGHAN, E., KENNEDY, R.D., MCINTOSH, S.A. and WILSON, I.M. (2018) The Musculoskeletal Consequences of LD Breast Reconstruction in Women following Mastectomy for Breast Cancer. *PLoS ONE*. August 2018.
- BLAYNEY, J.K., CAIRNS, L., LI, G., MCCABE, N., STEVENSON, L., PETERS, C.J., REID, N.B., SPENCE, V.J., CHISAMBO, C., MCMANUS, D., JAMES, J., MCQUAID, S., CRAIG, S., ARTHUR, K., MCART, D., ONG, C.J., LAO-SIRIEIX, P., HAMILTON, P., SALTO-TELLEZ, M., EATOCK, M., COLEMAN, H.G., FITZGERALD, R.C., KENNEDY, R.D., TURKINGTON, R.C. and OESOPHAGEAL CANCER CLINICAL AND MOLECULAR STRATIFICATION (OCCAMS) STUDY GROUP. (2018) Glucose transporter 1 expression as a marker of prognosis in oesophageal adenocarcinoma. *Oncotarget*. 2018 Apr 6;9(26):18518-18528. doi: 10.18632/oncotarget.24906. eCollection 2018 Apr 6.
- CAMPBELL, F.C., LOUGHREY, M.B., MCCLEMENTS, J., DEEVI, R.K., JAVADI, A. and RAINEY, L. (2018) Mechanistic Insights into Colorectal Cancer Phenomics from Fundamental and Organotypic Model Studies. *Am J Pathol*. 2018 Sep;188(9):1936-1948. doi: 10.1016/j.ajpath.2018.05.021. Epub 2018 Jul 18.
- CARABET, L. A., LALLOUS, N., LEBLANC, E., BAN, F., MORIN, H., LAWN, S., GHAI, F., LEE, J., MILLS, I. G., GLEAVE, M. E., RENNIE, P.S. and CHERKASOV, A. (2018) Computer-aided drug discovery of Myc-Max inhibitors as potential therapeutics for prostate cancer. *Eur J Med Chem* 160: 108-119.
- POULOSE, N., MILLS, I.G. and STEELE, R.E. (2018) The impact of transcription on metabolism in prostate and breast cancers. *Endocr Relat Cancer* 25(9): R435-R452.
- CROSS, W., KOVAC, M., MUSTONEN, V., TEMKO, D., DAVIS, H., BAKER, A.M., BISWAS, S., ARNOLD, R., CHEGWIDDEN, L., GATENBEE, C., ANDERSON, A.R., KOELZER, V.H., MARTINEZ, P., JIANG, X., DOMINGO, E., WOODCOCK, D.J., FENG, Y., KOVACOVA, M., MAUGHAN, T., S.CORT CONSORTIUM, JANSEN, M., RODRIGUEZ-JUSTO, M., ASHRAF, S., GUY, R., CUNNINGHAM, C., EAST, J.E., WEDGE, D.C., WANG, L.M., PALLES, C., HEINIMANN, K., SOTTORIVA, A., LEEDHAM, S.J., GRAHAM, T.A. and OMLINSON, I.P.M. (2018) The evolutionary landscape of colorectal tumorigenesis. *Nat Ecol Evol*. 2018 Oct;2(10):1661-1672. doi: 10.1038/s41559-018-0642-z. Epub 2018 Aug 31.
- CUTRESS, R.I*, MCINTOSH, S.A*, POTTER, S*, GOYAL, A., KIRWAN, C.C., HARVEY, J., FRANCIS, A., CARMICHAEL, A.R., VIDYA, R., VAIDYA, J.S., FAIRBROTHER, P., BENSON, J. and REED MWR ON BEHALF OF THE ASSOCIATION OF BREAST SURGERY SURGICAL GAP ANALYSIS WORKING GROUP. (2018) Opportunities and priorities for breast surgical research. *Lancet Oncology*, October 2018. DOI:https://doi.org/10.1016/S1470-2045(18)30511-4. (*joint first authors)
- HORTON, S., SULLIVAN, R., FLANIGAN, J., FLEMING, K.A., KUTI, M.A., LOOI, L.M., PAL, S.A. and LAWLER, M. (2018) Delivering modern, high-quality, affordable pathology and laboratory medicine to low-income and middle-income countries: a call to action. *Lancet*. 2018 May 12;391(10133):1953-1964.
- MICHAEL, J., HOWARD, L.E., MARKT, S.C., DE HOEDT, A., BAILEY, C., MUCCI, L.A., FREEDLAND, S.J. and ALLOTT, E.H. (2018) *Cancer Prev Res (Phila)*. 2018 Oct;11(10):621-628. doi: 10.1158/1940-6207.CAPR-18-0057. Epub 2018 Aug 23.
- HUMPHRIES, M.P., MCQUAID, S., CRAIG, S., BINGHAM, V., MAXWELL, P., MAURYA, M., MCLEAN, F., SAMPSON, J., HIGGINS, P., GREENE, C., JAMES, J. and SALTO-TELLEZ, M. (2018) Critical appraisal of PD-L1 reflex diagnostic testing: current standards and future opportunities. *Journal of Thoracic Oncology*. 2018 Oct 5. pii: S1556-0864(18)33177-0. doi: 10.1016/j.jtho.2018.09.025. [Epub ahead of print]
- KUNZMANN, A.T., CANADAS GARRE, M., THRIFT, A.P., MCMENAMIN, U.C., JOHNSTON, B.T., CARDWELL, C.R., ANDERSON, L.A., SPENCE, A., LAGERGREN, J., XIE, S., SMYTH, L., MCKNIGHT, A.J. and COLEMAN, H.G. (2018) Information on Genetic Variants Does Not Increase Identification of Individuals at Risk of Esophageal Adenocarcinoma Compared to Clinical Risk Factors. *Gastroenterology* 2018; Epub Sept 19.
- KUNZMANN, A.T*, MALLON, K.P*, HUNTER, R.F., CARDWELL, C.R., MCMENAMIN, U.C., SPENCE, A.D. and COLEMAN, H.G. (2018) Physical activity, sedentary behaviour and risk of oesophago-gastric cancer: a prospective cohort study within UK Biobank. *United European Gastroenterol J* 2018; 6(8): 1144-1154.
- KUNZMANN, A.T., COLEMAN, H.G., HUANG, W.Y. and BERNDT, S.I. (2018) The association of lifetime alcohol use with mortality and cancer risk in older adults: A cohort study. *PLOS Med* 2018; 15(6):e1002585.
- KUNZMANN, A.T., THRIFT, A.P., CARDWELL, C.R., LAGERGREN, J., XIE, S., ANDERSON, L.A., BUSBY, J., MCMENAMIN, U.C., SPENCE, A.D. and COLEMAN, H.G. (2018) Model for Identifying Individuals at Risk for Esophageal Adenocarcinoma. *Clin Gastroenterol Hepatol*; 2018 Epub Mar 17.
- LAWLER, M., PRUE, G., BANKS, I., LAW, K., SELBY, P., MCVIE, G. and SULLIVAN, R. (2018) Mapping the cancer patient information landscape: A comparative analysis of patient groups across Europe and North America. *Eur J Cancer*. 2018 Mar;92:88-95.
- LAWLER, M., MORRIS, A.D., SULLIVAN, R., BIRNEY, E., MIDDLETON, A., MAKAROFF, L., KNOPPERS, B.M., HORGAN, D. and EGGERMONT, A. (2018) A roadmap for restoring trust in Big Data. *Lancet Oncol*. 2018 Aug;19(8):1014-1015.
- LAWLER, M., BEGUM, M., LEWISON, G., AGGARWAL, A., SELBY, P. and SULLIVAN, R. (2018) The impact of Brexit on UK cancer research. *Lancet Oncol*. 2018 Oct;19(10):1276-1278.
- LEWIS, C., MCQUAID, S., CLARK, P., MCGUIGAN, T., MURRAY, P., GREENE, C., COULTER, B., MILLS, K., JAMES, J. (2018). The Northern Ireland Biobank: A Cancer

Focused Repository of Science. *Open Journal of Bioresources*, 5, [9]. DOI: 10.5334/ojb.47.

LIGHTBODY, G., HABERLAND, V., HENGH, Z., TAGGART, L., BROWNE, F., PARKES, E. and BLAYNEY, J. (2018) Review of Applications of High-Throughput Sequencing in Personalised Medicine: Barriers and Facilitators of Future Progress in Research and Clinical Application. *Briefings in Bioinformatics*, June 2018.

LINDSAY, C.R., SHAW, E.C., BLACKHALL, F., BLYTH, K.G., BRENTON, J.D., CHATURVEDI, A., CLARKE, N., DICK, C., EVANS, T.R.J., HALL, G., HANBY, A.M., HARRISON, D.J., JOHNSTON, S.R.D., MASON, M.D., MORTON, D., NEWTON-BISHOP, J., NICHOLSON, A.G., OIEN, K.A., POPAT, S., RASSL, D., SHARPE, R., TANIÈRE, P., WALKER, I., WALLACE, W.A., WEST, N.P., BUTLER, R., GONZALEZ DE CASTRO, D., GRIFFITHS, M. and JOHNSON, P.W.M. (2018) Somatic cancer genetics in the UK: real-world data from phase I of the Cancer Research UK Stratified Medicine Programme. *ESMO Open*. 2018 Sep 5;3(6):e000408. doi: 10.1136/esmoopen-2018-000408. eCollection 2018.

MANSUKHANI, S., BARBER, L.J., MOORCRAFT, S.U., DAVIDSON, M., WOOLSTON, A., GRIFFITHS, B., FENWICK, K., HERMAN, B., MATTHEWS, N., O'LEARY, B., HULKKI, S., GONZALEZ DE CASTRO, D., HUBANK, M., PATEL, A., WOTHERSPOON, A., OKACHI, A., RANA, I., BEGUM, R., DAVIES, M., POWLES, T., VON LOGA, K., TURNER, N., WATKINS, D., CHAU, I., CUNNINGHAM, D., STARLING, N. and GERLINGER, M. (2018) Ultra-sensitive mutation detection and genome-wide DNA copy number reconstruction by error corrected circulating tumour DNA sequencing. *Clin Chem*. 2018 Aug 27. pii: clinchem.2018.289629. doi: 10.1373/clinchem.2018.289629. [Epub ahead of print]

MCALEESE, J., MOONEY, L., WALLS, G.M., EAKIN, R.L., HARNEY, J., HANNA, G.G. (2018) Risk of Death from Pneumocystis jirovecii after Curative-intent Radiotherapy for Lung Cancer. *Clin Oncol (R Coll Radiol)*. 2018 Sep 7. pii: S0936-6555(18)30415-1. doi: 10.1016/j.clon.2018.08.006. [Epub ahead of print]

MCCAIN, R.S., TRAINOR, J., MCMANUS, D.T., MCMENAMIN, Ú.C., MCQUAID, S., BINGHAM, V., JAMES, J.A., SALTO-TELLEZ, M., TURKINGTON, R.C. and COLEMAN H.G. (2018) Vitamin D receptor as a marker of prognosis in oesophageal adenocarcinoma: a prospective cohort study. *Oncotarget* 2018; 9(76):34347-34356.

MCCAIN, S., DIAMOND, A., JONES, C. and COLEMAN, H.G. (2018) Current practices and future prospects for the management of gallbladder polyps: a topical review. *World J Gastroenterol* 2018;24(26):2844-2852.

MCCAIN, S., TRAINOR, J., MCMANUS, D.T., MCMENAMIN, Ú.C., MCQUAID, S., BINGHAM, V., JAMES, J.A., SALTO-TELLEZ, M., TURKINGTON, R.C. and COLEMAN, H.G. (2018) Vitamin D receptor as a marker of prognosis in oesophageal adenocarcinoma: a prospective cohort study. *Oncotarget*. 2018 Sep 28;9(76):34347-34356. doi: 10.18632/oncotarget.26151.

MCMENAMIN, Ú.C., TRAINOR, J., COLEMAN, H.G., MCMANUS, D.T., MCQUAID, S., BINGHAM, V., JAMES, J., SALTO-TELLEZ, M., JOHNSTON, B.T. and TURKINGTON, R.C.

(2018) Sex hormone receptor expression and survival in esophageal adenocarcinoma: a prospective cohort study. *Oncotarget*. 2018; Oct 28;9:35300-35312. doi.org/10.18632/oncotarget.26236.

MOHAN, R., HELD, K.D., STORY, M., GROSSHANS, D., CAPALA, J., BLAKELY, E.A., BOERMA, M., BORTFIELD, T., CHANG, P., COMBS, S.F., DURANTE, M., FORMENTI, S., FORNACE, A.J., KRISHNAN, S., LIMOLI, C., PAGANETTI, H., PRISE, K.M., STEWART, R.D., TINGANELLI, W., TIMMERMAN, R., VIKRAM, B., WILLERS, H., WEIL, M. and WILLERS, H. (2018) Proceedings of the National Cancer Institute Workshop on Charged Particle Radiobiology. *International Journal of Radiation Oncology, Biology and Physics*, 100, 816-831.

MONTRONI, I., UGOLINI, G., SAUR, N.M., SPINELLI, A., ROSTOFT, S., MILLAN, M., WOLTHUIS, A., DANIELS, I.R., HOMPES, R., PENNA, M., FÜRST, A., PAPAMICHAEL, D., DESAI, A.M., CASCINU, S., GÉRARD, J.P., MYINT, A.S., LEMMENS, V.E.P.P., BERHO, M., LAWLER, M., DE LIGUORI CARINO, N., POTENTI, F., NANNI, O., ALTINI, M., BEETS, G., RUTTEN, H., WINCHESTER, D., WEXNER, S.D. and AUDISIO, R.A. (2018) Personalized management of elderly patients with rectal cancer: Expert recommendations of the European Society of Surgical Oncology, European Society of Coloproctology, International Society of Geriatric Oncology, and American College of Surgeons Commission on Cancer. *Eur J Surg Oncol*. 2018 Nov;44(11):1685-1702.

PRUE, G., BAKER, P., GRAHAM, D., NUTTING, C., GREENHOUSE, P. and LAWLER, M. (2018) It is time for universal HPV vaccination. *Lancet*. 2018 Sep 15;392(10151):913-914.

SALTO-TELLEZ, M., MAXWELL, P. and HAMILTON, P. (2018) Artificial Intelligence - The Third Revolution in Pathology. *Histopathology*. 2018 Oct 1. doi: 10.1111/his.13760. [Epub ahead of print]

SAYED, S., CHERNIAK, W., LAWLER, M., TAN, S.Y., EL SADR, W., WOLF, N., SILKENSEN, S., BRAND, N., LOOI, L.M., PAI, S.A., WILSON, M.L., MILNER, D., FLANIGAN, J. and FLEMING, K.A. (2018) Improving pathology and laboratory medicine in low-income and middle-income countries: roadmap to solutions. *Lancet*. 2018 May 12;391(10133):1939-1952.

STUPNIKOV, A., O'REILLY, P.G., MCMENAMIN, C.E., RODDY, A., DUNNE, P.D., GILMORE, A., ELLIS, H.P., FLANNERY, T., HEALY, E., MCINTOSH, S.A., SAVAGE, K., KURIAN, K.M., EMMERT-STREIB, F., PRISE, STUPNIKOV, A., O'REILLY, P.G., MCMENAMIN, C.E., RODDY, A.C., DUNNE, P.D., GILMORE, A., ELLIS, H.P., FLANNERY, T., HEALY, E., MCINTOSH, S.A. and SAVAGE, K. (2018) Impact of Variable RNA-Sequencing Depth on Gene Expression Signatures and Target Compound Robustness: Case Study Examining Brain Tumor (Glioma) Disease Progression. *JCO precision oncology*, 2, pp.1-17.

STUPNIKOV, A., O'REILLY, P.G., RODDY, A., DUNNE, P.D., GILMORE, A., ELLIS, H.P., FLANNERY, T., HEALY, E., MCINTOSH, S.A., SAVAGE, K., KURIAN, K.M., EMMERT-STREIB, F., PRISE, K., SALTO-TELLEZ, M. and MCART, D.G. (2018) Targeting-compound robustness as a consequence of information loss in RNA-Seq

profiles of glioma disease progression. *JCO Journal of Precision Oncology* September 2018. DOI: 10.1200/PO.18.00014.

STUPNIKOV, A., O'REILLY, P.G., MCMENAMIN, C.E., RODDY, A., DUNNE, P., GILMORE, A., ELLIS, H.P., FLANNERY, T., HEALY, E., MCINTOSH, S., SAVAGE, K., KURIAN, K.M., EMMERT-STREIB, F., PRISE, K., SALTO-TELLEZ, M. & MCART, D., (2018) Impact of Variable RNA-Sequencing Depth on Gene Expression Signatures and Target Compound Robustness: Case Study Examining Brain Tumor (Glioma) Disease Progression. 3 Sep 2018, In: *JCO Precision Oncology*. p. 1-16.

SUD, A., THOMSEN, H., ORLANDO, G., FÖRSTI, A., LAW, P.J., BRODERICK, P., COOKE, R., HARIRI, F., PASTINEN, T., EASTON, D.F., PHAROAH, P.D.P., DUNNING, A.M., PETO, J., CANZIAN, F., EELES, R., KOTE-JARAI, Z., MUIR, K., PASHAYAN, N., CAMPA, D., HOFFMANN, P., NÖTHEN, M.M., JÖCKEL, K.H., VON STRANDMANN, E.P., SWERDLOW, A.J., ENGERT, A., ORR, N., HEMMINKI, K. and HOULSTON, R.S. (2018) Genome-wide association study implicates immune dysfunction in the development of Hodgkin lymphoma. *Blood*. 2018 Sep 7. pii: blood-2018-06-855296. doi: 10.1182/blood-2018-06-855296. [Epub ahead of print]

SUTTON, A.J., LAMONT, J.V., EVANS, R.M., WILLIAMSON, K., O'ROURKE, D., DUGGAN, B., SAGOO, G.S., REID, C.N. and RUDDOCK, M.W. (2018) An early analysis of the cost-effectiveness of a diagnostic classifier for risk stratification of haematuria patients (DCRSH) compared to flexible cystoscopy in the diagnosis of bladder cancer. *PLoS ONE* 13(8): e0202796.

TRAN, K.T., MCMENAMIN, Ú.C., HICKS, B., MURCHIE, P., THRIFT, A.P., COLEMAN, H.G., IVERSEN, L., JOHNSTON, B.T., LEE, A.J. and CARDWELL, C.R. (2018) Proton pump inhibitor and histamine-2 receptor antagonist use and risk of liver cancer in two population-based studies. *Aliment Pharm Ther* 2018; Epub May 9.

WALLS, G.M., HANNA, G.G., QI, F., ZHAO, S., XIA, J., ANSARI, M. and LANDAU, D., 2018. Predicting outcomes from radical radiotherapy for non-small cell lung cancer: a systematic review of the existing literature. *Frontiers in oncology*, 8, p.433.

WARREN, A.Y., MASSIE, C.E., WATT, K., LUKO, K., ORAFIDIYA, F., SELTH, L.A., MOHAMMED, H., CHOHAN, B.S., MENON, S., BARIDI, A., ZHAO, W., ESCRIU, C., PUNGSRINONT, T., D'SANTOS, C., YANG, X., TAYLOR, C., QURESHI, A., ZECCHINI, V.R., SHAW, G.L., DEHM, S.M., MILLS, I.G., CARROLL, J.S., TILLEY, W.D., MCEWAN, I.J., BANIAHMAD, A., NEAL, D.E. and ASIM, M. (2018). A reciprocal feedback between the PDZ binding kinase and androgen receptor drives prostate cancer. *Oncogene*.

WONG, N.A.C.S., TANIÈRE, P., WALSH, S., WALLACE, A., NONAKA, D., JONES, T., GONZALEZ, D. (2018) Gastrointestinal Stromal Tumor With Multiple Primary Tyrosine Kinase Mutations-Clinicopathologic and Molecular Characterization. *Appl Immunohistochem Mol Morphol*. 2018 May 4 [Epub ahead of print]

XIA, X.L. (2018). Training Sparse Least Squares Support Vector Machines by the QR Decomposition. *Neural Networks*. DOI: 10.1016/j.neunet.2018.07.008.

NEW APPOINTMENTS



Mr Paul Montgomery Senior Biobank Technician

The Northern Ireland Biobank (NIB) are pleased to announce that Mr Paul Montgomery has been appointed to the post of Senior Biobank Technician. He will work alongside the wider NIB team to help establish a high quality collection of tissues and bloods from consented patients being treated in the NI Health and Social Care system. The main duties of this post 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. Paul joins NIB from the Christie Hospital in Manchester where he also worked as a biobank technician.



Mr Jonathan Morgan LLNI funded PhD student

Leukaemia & Lymphoma NI is delighted to fund another PhD studentship in the CCRCB, their sixth in the past eight years. Jonathan Morgan completed his undergraduate degree in Biochemistry at Queen's before completing his masters in haematology here in the CCRCB. Continuing his interest in Haematology and specifically Multiple Myeloma, Jonathan is now investigating the role of HUWE1 in DNA replication and genome stability in Multiple Myeloma.

We look forward to seeing how this project progresses under the supervision of Dr Lisa Crawford and Professor Ken Mills.



Dr Heather Anderson New Centre Manager

Dr Heather Anderson joined CCRCB in October as Centre Manger. Heather joins us from the School of Pharmacy where she carried out the similar role of School Manger for over 12 years. Heather studied zoology at QUB, completed a PhD in parasitology and then spent one year working as a Research Fellow in the Veterinary Research Labs at Stormont. Following this, Heather moved to Ophthalmology in the RVH as a Research Fellow working on diabetic retinopathy before making a career change by moving to Randox where she gained valuable experience of industry and business in the private sector including quality assurance, regulatory affairs, CE-marking of in vitro diagnostic products, health & safety, quality control and export. Heather then moved back to QUB and took up the post of Research Support Officer for the Faculty of Medicine, Health and Life Sciences for 4 years before taking up the newly-created post of School Manager in Pharmacy.

Postgraduate Students

Welcome to the following postgraduate students who have commenced their research studies at CCRCB this academic year:

Student

Maryam Al Barashdi
Kathryn Brown
Paul Cahoon
Gary Dobson
Stephanie Gatdula
Mustfa Kabi
Swati Kumar
Sudhir Malla
Roisin McAvera
Aoife McCooley
Kelsey McCulloch
Sara McDowell
Andrew McGuigan
Jonathan Morgan
Ieuan Morgan
Piangfan Naksukpaiboon
Shannon Tracey
Timothy Winter
Timothy Wright

Supervisors

Prof Ken Mills
Dr Karl Butterworth, Prof Kevin Prise
Prof Kevin Prise, Dr Stephen McMahon
Dr Stuart McIntosh, Dr Kienan Savage
Simon McDade, Dr Adone Mohd-Sarip
Professor Chris Scott
Dr Richard Turkington
Prof Daniel Longley, Dr Philip Dunne, Prof M Lawler
Prof Ken Mills, Dr Lisa Crawford
Prof Daniel Longley, Dr Philip Dunne
Dr Ian Overton, Dr Ian Mills
Prof Chris Scott, Dr Roberta Burden, Dr Niamh Buckley
Dr Richard Turkington
Prof Ken Mills, Dr Lisa Crawford
Dr Kienan Savage, Dr Stuart McIntosh
Dr Ian Overton, Dr Ian Mills
Prof Chris Scott, Prof Dan Longley, Dr Caroline Barelle
Dr Simon McDade, Dr Nick Orr
Prof Kevin Prise, Dr Aidan Cole

Administrative Staff

Valerie Brown
Michelle Whiteside
Sean Grieve



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