



Queen's University
Belfast



CCRCB
Centre for
Cancer Research
& Cell Biology

Bulletin



December
2012
Issue 25

Centre for Cancer Research and Cell Biology,
School of Medicine, Dentistry and Biomedical Sciences,
Queen's University Belfast,
97 Lisburn Road, Belfast, BT9 7BL
T: +44 (028) 9097 2760
W: www.qub.ac.uk/ccrcb

DARREN CLARKE MAKES MAJOR GIFT TO QUEEN'S



Ms Helen Barnes (Head of Medical Fundraising at Queen's); Mr Darren Clarke and Dr David Waugh (Acting Director, CCRCB)

Darren Clarke OBE, the 2011 Open Golf Champion and veteran of five consecutive European Ryder Cup teams, visited Queen's University Belfast on Friday 14 September to present a cheque for £80,000 from the Darren Clarke Foundation to the Centre for Cancer Research and Cell Biology.

Through the Darren Clarke Foundation, the Northern Ireland golfer has been a major supporter of cancer research, donating to a number of local and national cancer charities. Presenting the cheque, Darren Clarke said: "I am delighted to support the Centre for Cancer Research at Queen's University through my Foundation and I am hopeful this is the start of a long-term relationship."

The gift was received on behalf of the Centre for Cancer Research and Cell

Biology by Dr David Waugh, Acting Director of the CCRCB in the School of Medicine, Dentistry and Biomedical Sciences at Queen's.

"More women in Northern Ireland are surviving breast cancer than ever before, thanks to earlier detection and better treatments. But there is so much more to be done to accelerate our impact on this disease. This generous gift from the Darren Clarke Foundation will enable us to continue our research into aggressive forms of cancer, including breast cancer, and accelerate the pace and quality of cancer research worldwide," concluded Dr David Waugh.

Dr David Waugh added: "Between 1993 and 2009, the number of women dying from cancer has gone down by 0.9 per cent and survival rates for cancer in Northern Ireland are now among the

best in the UK. Some of our survivors are currently alive and well a significant number of years after the kind of cancer that not so long ago would have taken them from us. At CCRCB, with the continued support of donors, large and small, we can continue to wage war on cancer."

The Centre for Cancer Research and Cell Biology has gained global recognition for its pioneering work since it opened in 2007. Survival rates for cancer in Northern Ireland are now among the best in the UK. Earlier this year an initiative led by Queen's, in partnership with the local Health and Social Care Trusts, reorganising cancer treatment throughout Northern Ireland, won a Diamond Jubilee Queen's Anniversary Prize.

QUEEN'S HOSTS INFORMATION EVENT FOR BRCA GENE MUTATION CARRIERS

Cancer researchers from Queen's University hosted an information day on Friday 26 October for patients who are BRCA gene mutation carriers, and for those who wanted to find out more about hereditary cancers.

Held in conjunction with BRCA Link NI, the event was open to both men and women affected by the BRCA1 and BRCA2 genes, which increase susceptibility to breast and ovarian cancer in carriers. Approximately five per cent of all breast cancers are due to changes in these genes.

Dr Gareth Irwin, a Clinical Research Fellow in CCRCB, said: "The BRCA genes, when working correctly, reduce the risk of breast tumours forming by making a protein that regulates the

growth and division of cells in the breast. If the BRCA gene is mutated, however, the protein that it makes is unable to regulate cell division, leaving breast cells susceptible to the growth of cancer. Female BRCA1 carriers have a 70-85 per cent risk of developing breast cancer during their lifetime and a 40-50 per cent lifetime risk of ovarian cancer. Males with BRCA1 mutation also have an increased risk of breast cancer. Female BRCA2 carriers have a 50-80 per cent risk of developing breast cancer during their lifetime and a 10-20 per cent lifetime risk of ovarian cancer. These faulty genes have a 50 per cent chance of being passed on to children of a carrier, male or female."

Dr Jennifer Quinn, a Breast Cancer Campaign Research Fellow in CCRCB,

said: "At our BRCA Link NI meeting we highlighted a unique collaboration between patients who are BRCA gene mutation carriers, their families, Queen's researchers and Belfast Trust doctors, nurses, psychologists and geneticists."

Hazel Carson from BRCA Link NI, a BRCA1 carrier, added: "We are keen to highlight the good work that is taking place in Northern Ireland with regards to research into and treatment of BRCA carriers and their families, however, we would be keen to see improvements in how we ensure people here get the optimum treatment and appropriate counselling for them and their families."

Further information is available online at www.brcani.co.uk.

MITCHELL LECTURE 2012



Dr David Waugh with Dr Edison Liu at CCRCB

The Mitchell Lecture was delivered on 18 October 2012 in CCRCB by Dr Edison Liu. Dr Liu is the president and CEO of The Jackson Laboratory and Director of The Jackson Laboratory Cancer Center, and has been president of the international Human Genome Organization (HUGO) since 2007.

Dr Liu's scientific research has focused on the functional genomics of human cancers, particularly breast cancer, uncovering new oncogenes, and deciphering the dynamics of gene regulation on a genomic scale that modulate cancer biology. He has authored nearly 300 scientific papers and

reviews, and co-authored two books.

During his visit Dr Liu met with a number of the Principal Investigators in CCRCB and had an opportunity to talk to the Post-doctoral Research Fellows and Postgraduate students about their ongoing research.

A MAJOR DONATION FOR NORTHERN IRELAND LEUKAEMIA RESEARCH FUND

Mr and Mrs McAree's son Michael was diagnosed with Leukaemia early in 2012 and he is currently in Belfast City Hospital receiving treatment.

Michael's parents decided to do some fundraising for Northern Ireland Leukaemia Research Fund and organised a dinner and a raffle in Balmoral Golf Club, of which they are both members and set a target of

£5,000. They set up a Justgiving page to collect donations and as they began to sell tickets they quickly realised that they would exceed their initial target. The final amount came to an outstanding £16,000 which will boost research into Leukaemia in Northern Ireland.

For more information about NILRF please visit: www.leukaemia-ni.org.



Mr and Mrs McAree presenting the cheque to NILRF Co-ordinator Caroline Crothers

FOLKS ON THE HILL CREATOR SEAN CRUMMEY REMEMBERED

A memorial fund set up in memory of the political satirist Sean Crummey has donated £18,000 to Queen's Centre for Cancer Research and Cell Biology (CCRCB). The Folks on the Hill creator and impersonator, who graduated from Queen's in 1980 with a BA in French and Classical Greek, died in November 2011 from a cancer-related illness aged 53.

The presentations were made on behalf of the Sean Crummey Memorial Fund set up to support bowel cancer research in the CCRCB. The money was raised through events organised by La Salle Golf Society, Ardglass Captain's Day and an Entertainers Golf Day in September by groups with close links to the former entertainer. Among those at the

presentation were Sean's wife Gabrielle, daughter Niamh and son Brendan and his brother, Brendan. Sean's former consultant, Dr Richard Wilson and local entertainer John Linehan, better known as May McFettridge, were also present as were Sean's nieces Deirbhile and Caoimhe Maguire and Marie Therese Fleming, who raised over £110 in a cake sale at St Dominic's Grammar School on the Falls Road earlier in the year.

"This is a very appropriate way to honour Sean," said Gabrielle. "The studentship allows the family to express gratitude for the care Sean received from Dr Richard Wilson and his colleagues at Queen's and is a way of helping others who may face the challenges that cancer brings.

It is a real privilege to be able to make some contribution towards the work of CCRCB. As a family we are very gratified to be associated with the Centre," added Gabrielle.

The gifts were received on behalf of the Centre for Cancer Research and Cell Biology by Dr David Waugh, Acting Director of the CCRCB.

Dr David Waugh said: "Bowel cancer affects more than 35,000 people a year in the UK. In Northern Ireland alone, around 1,000 people were diagnosed with bowel cancer last year. Research in CCRCB is focused on developing tailored treatment strategies to improve outcomes for bowel cancer patients. Research led by Professor Patrick Johnston, a global authority on the disease, has provided us with an improved understanding by which colon cancers develop resistance to current treatments. These gifts from the Sean Crummey Memorial Fund will enable Queen's to conduct further research that will underpin an improved genetic understanding of bowel cancers. This knowledge will enable our scientists and clinicians to identify new therapeutic strategies and simultaneously develop the tests that we can use to identify those patients in which these treatments will be effective. Public support such as that demonstrated today is vital to ensure that world class cancer treatment is available to people in Northern Ireland."



Family and friends remember Sean Crummey at CCRCB

QUEEN'S MAKES SIGNIFICANT CANCER BREAKTHROUGH

A breakthrough by a team led by Professor Dennis McCance has shown that the stroma surrounding a cancer has an effect on the proliferation and invasion of the cancer cells and the results were published in the European Molecular Biology Organization Journal.

Professor McCance said: "Cancer spreads as the result of two-way communication between the cancer cells in a tumour and the non-cancerous cells in the surrounding tissue. What we have discovered is that a particular protein in non-cancerous tissue has the ability to either open or close

the communication pathway between the healthy tissue and the tumour. When the Retinoblastoma protein (Rb) in non-cancerous tissue is activated, this leads to a decrease in factors that encourage invasion by cancer cells, and so, the cancer doesn't spread."

The research was conducted using three-dimensional tissue samples, grown in Professor McCance's lab, by postdoctoral fellow Dr Adam Pickard. "Our research has focussed on cancers of the throat and cervix. But it is possible that Rb or other proteins in the healthy tissue surrounding

other types of cancer, may play a similar role in regulating the spread of tumour cells", Professor McCance added.

The research was funded by the Wellcome Trust, the Experimental Cancer Medicine Centre and the National Institutes of Health (USA), and was supported by the Northern Ireland Biobank. The research paper, entitled 'Inactivation of Rb in stromal fibroblasts promotes epithelial cell invasion' can be found online at: www.nature.com/emboj/journal/vaop/ncurrent/full/emboj2012153a.html.

CCRCB PHOTO GALLERY



Thanks for all the support for the Macmillan World's Biggest Coffee morning. Through your generosity we managed to raise a phenomenal £550 within CCRCB, with a further £100 raised in Almac Diagnostics. With a maximum of a further 25% that can be raised with Gift Aid, we could have a potential grand total of over £800.



Thanks to Mrs Maria Gibney pictured with Professor Dennis McCance, who raised £370 to support vital research at the CCRCB by auctioning her handbags.



Thanks to the McArdle family who organised a 10K run in memory of their mother and raised £2,846 for Leukaemia and Lymphoma Research. Dr Sandra Irvine collected the cheque at a presentation at Killeavy Gaelic Football Club in Forkhill on 27 September 2012.



NI Leukaemia Research Fund held their first annual sponsored walks of 2012 in Bangor and Derry. The events were a great success and those who took part raised a superb £7,500 (and still counting!) to support leukaemia research taking place in Northern Ireland.

CANCER FOCUS NORTHERN IRELAND FELLOWSHIP

Cancer Focus Northern Ireland, formerly the Ulster Cancer Foundation, has announced that it has invested £400,000 in cutting-edge breast cancer research, funding a new four year research fellowship at Queen's University Belfast.

Dr Kienan Savage was awarded the Cancer Focus Research Fellowship and took up his lectureship post in November. The primary focus of his research is preventing breast cancer and he will be investigating how damaged genes can be repaired. Dr Savage has recently identified a number of new cancer genes that appear to be involved in the development of breast and ovarian cancers and some forms of leukaemia. Dr Savage said: "These cancers often arise due to damage to genes within our DNA, known as 'gatekeeper genes', which control how often cells divide, allowing cells to grow out of control forming a tumour. The new cancer genes

which have been discovered appear to play a role in repairing damage to DNA and thereby aid the repair of damaged 'gatekeeper genes', helping to prevent cancer. My research will add significantly to our understanding of how these genes work to prevent the development of cancer. It may also lead to the development of new quick and effective tests to help decide which treatments specific cancer patients will benefit from, and may identify new proteins that could be targeted for future therapies. It is fantastic to get this opportunity to develop my own independent research which could potentially be hugely significant for cancer patients."

Roisin Foster, Cancer Focus Chief Executive, said: "Cancer Focus promotes and supports internationally competitive, high quality research into the causes, treatment and prevention of cancer. Each year we invest £300,000 - £400,000 on

cancer research. Many cancers previously thought to be incurable are now being treated successfully as a result of scientific research. It helps us to identify the causes of cancer and it is pointing the way to improved methods of diagnosis and treatment."



Dr Kienan Savage and Ms Marie Foy (Cancer Focus Northern Ireland PR & Events Officer) at CCRCB

SUMMER SCHOOL IN COMPUTATIONAL BIOLOGY: ANALYZING HIGH-DIMENSIONAL DATA



Summer School in Computational Biology Delegates

The Cancer Bioinformatics group of the CCRCB organized this year the first summer school in Computational Biology. The summer school, supported by the CCRCB and the School of Mathematics and Physics, took place in the Health Sciences Building from 15-19 September 2012, attracting students from Ireland, the UK and Europe.

The underlying goal of the summer school was to teach students a basic understanding of high-dimensional data as generated by high-throughput genomic technologies, including data analysis and visualization methods.

This included applications in DNA microarray profiling and next generation sequencing. Due to the interdisciplinary character of this field the lectures for the summer school were provided by a number of members from different Centres and Schools of Queen's University: The Centre for Cancer Research and Cell Biology (Jaine Blayney, Ricardo de Mattos Simoes, Frank Emmert-Streib, Chang Kim, Darragh McArt, Ken Mills, Shu-Dong Zhang), the Centre for Public Health (Gareth McKay and Maria Hughes) and the School of Mathematics and Physics (James F McCann).

A highlight of this year's summer school was an invited talk by Simon Tavare from the Cancer Research UK Cambridge Research Institute who provided the students with a fascinating overview of his research in Computational Biology over the last decades. An important lesson from his inspiring contribution was to emphasize that biology and medicine has entered a new data-driven era requiring an advanced understanding of

data analysis techniques in order to cope with the day-to-day scientific discovery.

The summer school in Computational Biology is the precursor to a newly established MSc in Computational Biology at the School of Medicine, Dentistry and Biomedical Sciences at the Queen's University that will start in 2013. Dr Frank Emmert-Streib said: "We recognize the challenges of the data revolution in modern biology and accept the leadership not only in research but also in training and mentoring students. For Queen's University, it is of eminent importance to establish a comprehensive program in Computational Biology and to enable the CCRCB and the School of Medicine, Dentistry and Biomedical Sciences to drive translational research through our detailed understanding of molecular data."

The second summer school in Computational Biology in Belfast will take place in September 2013 and the organization of this event is already underway.

MOVEMBER COMES TO CCRCB

A team of researchers from across the Centre have been growing moustaches to raise awareness and funds for men's health issues. The now global event has taken over and even renamed the month of November, with each Mo Bro giving up their upper lip to help change the face of men's health. The money raised goes to Prostate Cancer UK, the Institute of Cancer Research and the Movember Foundation, funding research into prostate and testicular cancer.

The CCRCB team, which consists of a diverse mix of students, post-docs and senior staff, has already raised more than £400 and that figure is set to rise. To find out more about the team members and make a donation to the cause visit the team page at: uk.movember.com/team/440337.



CCRCB Mo Bros with the Lord Mayor of Belfast Alderman Gavin Robinson at CCRCB

CANCER RESEARCH - A BRIGHTER FUTURE TOGETHER

A public information evening was held on 6 September 2012 in Belfast City Hospital (BCH) showcasing how local cancer research is bringing advances in cancer treatment and benefits in quality of life for patients in NI. The event also emphasised how Personal and Public Involvement (PPI) is now integral to the cancer research process, and plays a vital role to enhance the patient benefit of research. The evening was hosted by the Northern Ireland Cancer Research Consumer Forum (NICRCF) and chaired by Mrs Margaret Grayson (NICRCF Chair) and Mr Geoff Hill (NICRCF).

Dr Richard Wilson outlined how the structures and activities of the NICTN are facilitating over 1000 patients per year taking part in cancer research studies across NI. Mrs Eileen Dillon, NICTC&N Lead Nurse and Network Manager, described how Clinical Research Nurses provide patient focused care to clinical trial participants.

Mr Stuart McIntosh, Consultant Breast Surgeon, BCH, illustrated how research in breast cancer surgery is bringing major

improvements in cosmetic outcomes and quality of life for women. Professor Richard Kennedy described how research in CCRCB is leading to the discovery of new treatments and personalized medicine.

Professor Joe O'Sullivan highlighted how clinical trials in prostate cancer are offering patients hope, access to new drugs and techniques and are promoting high quality cancer treatments. Mr Paul Burns described his personal experience of participating in a cancer clinical trial. The audience was moved by his honest account of the impact of cancer in his life.

Mr Dave Ardron, NCRN Consumer Liaison Group, and Sheffield Research Panel, and Mrs Margaret Grayson described how those affected by cancer (patients and carers) add a vital voice by helping to shape research both locally and nationally.

Speakers talked passionately about their research and after the event members of the audience described how inspiring the evening had been.



Delegates at the public information evening in Belfast City Hospital

To find out more about Personal and Public Involvement (PPI) and how you can get involved please contact Ruth Boyd at nictc@belfasttrust.hscni.net.

DAVID SIMPSON MP VISITS THE BELFAST CR-UK CENTRE



Dr David Waugh, Mr David Simpson and Professor Kevin Prise at CCRCB

In September we received a visit from David Simpson MP (Upper Bann), a long-term supporter of Cancer Research UK. He was invited to hear more about the bowel cancer research programme, supported by the charity.

During his visit Mr Simpson was taken on a tour of the labs by Dr Dan Longley and Ms Kirsty McLaughlin. Of the visit, he said: "This was a great opportunity to see some of the world class research that is carried out here in Belfast

and it highlighted just why it is so important to support the vital research. The work that is carried out could make a significant difference to thousands of people in Northern Ireland.

"It can take many years of research to detect effective methods of treatment. I am committed to working with the dedicated team in Belfast to enable patients to benefit as soon as possible from breakthroughs in research."

TOGETHER WE CAN GO BEYOND

Queen's has launched an ambitious £140m fundraising campaign dedicated to helping the University provide the ultimate student experience and address some of the greatest challenges facing society today. The campaign has seven overall projects, one of which is medicine.

The focus of the medical campaign is the development of the Institute of Health Sciences. Translational research is at the heart of the Institute, where Queen's pioneering work in the major diseases confronting us today will be developed into treatments to save patients' lives tomorrow.

£32m has already been secured for the campaign, including a gift of £15m from Atlantic Philanthropies – the largest gift the University has ever received. This will establish the Centre for Experimental Medicine, adjacent to CCRCB, focusing on the prevention and treatment of eye disease and diabetes and developing a global programme into the understanding of complex chronic diseases.

For more information, go to www.queensfoundation.com or contact Helen Barnes, Head of Medical Fundraising, on 028 9097 1568.



CCRCB personnel help launch the Queen's University Medical Fundraising Campaign

LORD MAYOR SELECTS CANCER RESEARCH UK AS CHARITY PARTNER

Following his visit to the CCRCB in July, the Lord Mayor of Belfast Alderman Gavin Robinson has selected Cancer Research UK as one of his charity partners. The partnership will last for the duration of his term in office and includes a Charity Ball, hosted by the Lord Mayor, at City Hall in March 2013.

REPORT FROM THE THIRD INTERNATIONAL CONFERENCE IN QUANTITATIVE BIOLOGY AND BIOINFORMATICS IN MODERN MEDICINE

This year the third installment of the conference series 'Quantitative Biology and Bioinformatics in Modern Medicine' took place in the Riddel Hall in Belfast from 20-21 September 2012. Sponsored by the CCRCB and Partek the conference gathered, like in previous years, leading scientists in Computational Biology and Bioinformatics from Harvard University (USA), Cambridge University (UK) and the ETH in Zurich (Switzerland). Initiated by funding from DEL (Department for Employment and Learning (UK)) to establish research collaborations between the north and south of Ireland, the conference continues to foster this connection beyond this initial grant.

One major focus of this year's conference has been methods to analyze high-throughput data from breast cancer, lymphoma and signaling pathways from gene expression, proteomics and epigenetic data. Overall it has become clear that Bayesian methods

are playing a dominating role providing a very rich framework to interrogate heterogeneous genetics and genomics data. Cheng Li from the Department of Biostatistics and Computational Biology, Dana-Farber Cancer Institute, Harvard School of Public Health (USA) presented exciting results utilizing such data toward a Personalized Cancer Medicine. This and other talks demonstrated the enormous potential that methods from Computational Biology have on Translational Research and Modern Medicine.

Our congratulations go to the winners of the best poster presentations, Nuala McCabe (CCRCB - Title: siRNA screening identifies compounds synthetic lethal in PTEN deficient tumour cells through connectivity mapping and Vadim Farztdinov (Almac Diagnostics - Title: New feature ranking method for detecting differential expression in microarray experiments). We are grateful to Cambridge University Press that donated generously book vouchers for

this competition.

Due to the success of the last three conferences, the fourth international conference in 'Quantitative Biology and Bioinformatics in Modern Medicine' will take place again in 2013. In order to further enhance the integration of experimental and computational research in biomedicine, next year's conference will feature dedicated sessions organized around different types of cancer but also other complex diseases. Dr Frank Emmert-Streib said: "In this way we are trying to actively involve the focus groups of the CCRCB in the conference and also the Centre for Public Health. This will hopefully generate a collective consciousness that collaborative research is at the heart of Translational Research."

The conference was organized by the Cancer Bioinformatics Group of the CCRCB consisting of Peter Hamilton, Frank Emmert-Streib, Ken Mills and Shu-Dong Zhang.

STANDING UP TO CANCER

Scientists at CCRCB and Research Nurses from across the region joined Channel 4 and Cancer Research UK to Stand Up To Cancer in October. The campaign urged the nation to dig deep in a bid to move closer to the day when all cancers are cured.

To promote the event and encourage people to show their support, articles featuring these scientists and nurses showing their support for the campaign were published in papers across the region, including the Belfast Telegraph, Antrim Times, Ballymena Guardian and Coleraine Times.

A special mention should go to three PhD students Kylie McLaughlin, Maggie Barros and Philip Burn – who handed over their hair for the event, making it stand up on end, to raise over £600 and spread the word about this important campaign.

In total, Stand Up to Cancer raised over £7m to fund research specifically designed to have an impact within just three years, by funding clinical research at hospitals and universities across the UK.



Ms Maggie Barros, Mr Philip Burn and Ms Kylie McLaughlin

SCIENCE MEETS FOOD AT THE TESCO TASTE NI FESTIVAL

Cancer Research UK joined local food companies in Northern Ireland to showcase its work at this year's Tesco Taste NI Food Festival, which this year was attended by over 14,000 people.

Several scientists from CCRCB manned a stall, inviting festival goers to have a go at extracting DNA from strawberries. Participants were told how DNA is damaged and repaired by cells, and how mistakes in this process can lead to cancer.

We were overwhelmed by the interest in the stall, from children and adults alike.

Everyone who took part got a chance to find out about the Belfast Cancer Research UK Centre.

Over 300 people also took away information about how to spot the signs and symptoms of cancer, ensuring more people are aware of the importance of early diagnosis.

Cancer Research UK is Tesco's Charity of the Year for 2012. The partnership aims to raise £10 million to help more people survive cancer.



CCRCB Researchers Ms Caitriona Holohan and Ms Kirsty McLaughlin

THANKING STAFF AT TK MAXX



Staff from TK Maxx stores across Northern Ireland at CCRCB

We recently welcomed staff from TK Maxx stores across Northern Ireland into the Centre to thank them for supporting Cancer Research UK, through the bi-annual Give up Clothes For Good campaign. During this year's campaign, the nation was asked to strip their wardrobes and cupboards as bare as they dared, to donate their unwanted quality items to help beat childhood cancers. This year the campaign raised a staggering £3.1m.

In Northern Ireland, TK Maxx stores collected 2,792 bags of stock - enough goods to stock all the Cancer Research UK stores in the region for two weeks. To thank them for their effort, staff from TK Maxx stores in Northern Ireland were invited to come and spend the afternoon hearing about the work of the Belfast Cancer Research UK Centre. They also got a chance to see cancer research in action, as they toured through the labs at CCRCB. One participant commented: "Everyone was so passionate and friendly. This has been an amazing experience - thank you."

All funds raised by TK Maxx during the campaign go into the Together for Kids Fund, to help fund research into childhood cancers.

CAN YOU VOLUNTEER AT A CR-UK SHOP THIS CHRISTMAS?

Christmas is fast approaching and Cancer Research UK is looking for scientists from CCRCB to volunteer at some of our shops for a day. If you would like to get involved, please contact Katie Scott, on 028 9097 2715 or katie.scott@cancer.org.uk.

RECENT GRANTS AWARDED

Investigator(s)	Sponsor	Title	Amount	Start Date	End Date
El-Tanani, Mohamed	Invest NI	Dissect the ran axis in diagnosis, prognosis and therapy of epithelial cancers	£9,492	01/11/12	30/04/13
El-Tanani, Mohamed	Invest NI	Technology development plan for Ran Assay: Early prediction of metastasis risk in cancer patients, treatment and follow up care	£27,255	01/12/12	30/04/13
Haigh, Dave Longley, Dan Haider, Shozeb Johnston, Patrick	Wellcome Trust	SDDI – FLIP-FADD	£3,991,143	01/12/12	30/11/15
Hamilton, Peter	British Lung Foundation	MesoBank	£70,000	01/09/12	31/08/15
Irvine, Sandra	NILRF	Consumable funds	£10,000	01/09/12	31/08/13
Irvine, Sandra	NILRF	Travel fund	£2,000	01/09/12	31/08/13
Johnston, Patrick Longley, Dan Van Schaeybroeck, Sandra	CR-UK	Identification and targeting of clinically relevant molecular and genetic subtypes in colorectal cancer	£995,104	01/08/12	31/07/17
Mills, Ken	Celgene	An in vitro and molecular study of possible combination therapies involving Azacytidine and Romidepsin for myelodysplastic syndrome (MDS) – PhD Studentship	£120,047	01/10/12	30/09/15
Mullan, Paul Quinn, Jenny	Charitable Funds – Samaritan Fund	Characterising the cell or origin of high grade serous ovarian cancer	£20,075	01/10/12	31/09/13
Turkington, Richard	BHSCT Charitable Funds	Identification of Molecular Biomarkers to Neo-adjuvant Chemotherapy	£70,626	01/10/12	30/09/14
Van Schaeybroeck, Sandra Longley, Dan Johnston, Patrick	EC FP7 – HEALTH APO-DECIDE	A phase Ib/II study of MEK1/2 inhibitor PD-0325901 with cMET inhibitor PF-02341066 in KRASMT and KRASWT (with aberrant c-MET) colorectal cancer patients	£275,690	01/01/13	31/12/14
Waugh, David	Darren Clarke Foundation	PhD Studentship	£80,000	01/10/13	30/09/16

PRIZES AND AWARDS

Ms Jodie Hay, CCRCB PhD student, was awarded a grant from the EU COST Action Committee of €750 to attend the bioinformatic workshop organised by COST Action BM0801 in Modena, Italy with 18 other young scientists from 12 different EU countries.

Mr Ryan Hutchinson won top award for his presentation on Image Analysis of EGFR Expression in Colorectal Cancer in the Oncology and Personalised Medicine track in the scientific session at Pathology Informatics in Chicago. Ryan is a second year PhD student with Professor Peter Hamilton and has been working on new methods for quantifying biomarkers in tissue. He has also presented some of his work in Pathology Visions in Baltimore and is now working closely with J&J on animal tissue imaging.

Ms Laura Kettle, CCRCB PhD student, gave an oral presentation in the Presidential Session of the Haematology Association of Ireland meeting in October in Cork, Ireland.

RECENT PUBLICATIONS

- AGNEW, C.E., KING, R.B., HOUNSELL, A.R. and MCGARRY, C.K. (2012) Implementation of phantom-less IMRT delivery verification using Varian DynaLog files and RV output, *Physics in Medicine and Biology*, 57, p6761-6777.
- BLAYNEY, J.K., CERESOLI, G.L., CASTAGNETO, B., O'BRIEN, M.E.R., HASAN, B., SYLVESTER, R., RUDD, R., STEELE, J., BUSACCA, S., PORTA, C., MUTTI, L., O'BYRNE, K.J., SCULLIN, P., GAAFAR, R., BAAS, P., VAN MEERBEECK, J. and FENNELL, D.A. (2012) Response to chemotherapy is predictive in relation to longer overall survival in an individual patient combined-analysis with pleural mesothelioma, *European Journal of Cancer*, 48, p2983-2992.
- BOYD, C. and BOYLE, D.P. (2012) Molecular diagnosis on tissues and cells: how it affects training and will affect practice in the future, *Cytopathology*, 23(5), p286-294.
- BUTTERWORTH, K.T., MCGARRY, C.K., CLASIE, B., CARABE-FERNANDEZ, A., SCHUEMANN, J., DEPAUW, N., TANG, S., MCMAHON, S.J., SCETTINO, G., O'SULLIVAN, J.M., LU, H-S., KOOY, H., PAGANETTI, H., HOUNSELL, A.R., HELD, K.D. and PRISE, K.M. (2011) Cell survival responses to modulated proton beams delivered by passive scattering and pencil beam scanning, *Physics in Medicine and Biology*, 57, p6671-6680.
- CAIRNS, M-L., DICKSON, G.R., ORR, J.F., FARRAR, D., HARDACRE, C., SA, J., LEMOINE, P., MUGHAL, M.Z. and BUCHANAN, F.J. (2012) The potential of electron beam radiation for simultaneous surface modification and bioresorption control of PLLA, *J Biomed Mater Res Part A*, 100A, p2223-2229.
- CATHERWOOD, M.A., SCHMITT, F. and SALTO-TELLEZ, M. (2012) Molecular diagnostics and the training of future tissue- and cell-based pathologists, *Cytopathology*, 23(5), p283-285.
- CHAN, J.Y. and SALTO-TELLEZ, M. (2012) Opinion: molecular gestalt and modern pathology, *Adv Anat Pathol*, 19(6), p425-426.
- COLE, A.J., MCGARRY, C.K., BUTTERWORTH, K.T., PRISE, K.M., O'SULLIVAN, J.M. and HOUNSELL, A.R. (2012) Development of a novel experimental model to investigate radiobiological implications of respiratory motion in advanced radiotherapy, *Physics in Medicine and Biology*, 57(22), N411-N420.
- COULTER, J., JAIN, S., BUTTERWORTH, K., TAGGART, L., DICKSON, G., MCMAHON, S., HYLAND, W., MUIR, M., TRAINOR, C., HOUNSELL, A., O'SULLIVAN, J., SCETTINO, G., CURRELL, F., HIRST, D. and PRISE, K. (2012) Cell type-dependent uptake, localization, and cytotoxicity of 1.9 nm gold nanoparticles, *International Journal of Nanomedicine*, 7, p2673-2685.
- CURTIN, C., CUNNIFFE, G., LYONS, F., BESSHO, K., DICKSON, G., DUFFY, G. and O'BRIEN, F. (2012) Innovative Collagen Nano-Hydroxyapatite Scaffolds Offer a Highly Efficient Non-Viral Gene Delivery Platform for Stem Cell-Mediated Bone Formation, *Advanced Materials*, 24(6), p749-754.
- DEL REY, M., O'HAGAN, K., DELLETT, M., FONTANILLO, C., DE LAS RIVAS, J., MILLS, K.I. and HERNANDEZ, J.M. (2012) Genome-Wide Profiling of CpG Methylation identifies Novel Targets of Aberrant Hypermethylation and Reduced Expression in Low-Risk Myelodysplastic Syndromes, *Leukemia*, 31 August 2012 (Epub ahead of print).
- DE MATOS SIMOES, R., TRIPATHI, S. and EMMERT-STREIB, F. (2012) Organizational structure and the periphery of the gene regulatory network in B-cell lymphoma, *BMC Syst Biol*, 14 May 2012, 6:38.
- DE MATOS SIMOES, R. and EMMERT-STREIB, F. (2012) Bagging statistical network inference from large-scale gene expression data, *PLoS ONE*, 7(3):e33624.
- DE MATOS SIMOES, R. and EMMERT-STREIB, F. (2011) Influence of statistical estimators of mutual information and data heterogeneity on the inference of gene regulatory networks, *PLoS ONE*, 6(12):e29279.
- DOUGLAS, T.E., MESSERSMITH, P.B., CHASAN, S., MIKOS, A.G., DE MULDER, E.L., DICKSON, G., SCHAUBROECK, D., BALCAEN, L., VANHAECKE, F., DUBRUEL, P., JANSEN, J.A. and LEEUWENBURGH, S.C. (2012) Enzymatic mineralization of hydrogels for bone tissue engineering by incorporation of alkaline phosphatase, *Macromol Biosci*, August 2012, 12(8), p1077-1089.
- EMMERT-STREIB, F., DE MATOS SIMOES, R., TRIPATHI, S., GLAZKO, G.V. and DEHMER, M. (2012) A Bayesian analysis of the chromosome architecture of human disorders by integrating reductionist data, *Sci Rep*, 2:513.
- EMMERT-STREIB, F., HAKKINEN, A. and RIBEIRO, A.S. (2012) Detecting sequence dependent transcriptional pauses from RNA and protein number time series, *BMC Bioinformatics*, 28 June 2012, 13(1), p152.
- EMMERT-STREIB, F. and DEHMER, M. (2012) Exploring statistical and population aspects of network complexity, *PLoS ONE*, 7(5):e34523.
- EMMERT-STREIB, F. (2012) Limitations of gene duplication models: evolution of modules in protein interaction networks, *PLoS ONE*, 7(4):e35531.
- EMMERT-STREIB, F., GLAZKO, G.V., ALTAY, G. and DE MATOS SIMOES, R. (2012) Statistical inference and reverse engineering of gene regulatory networks from observational expression data, *Front Genet*, 3:8.
- EMMERT-STREIB, F. (2011) Parametric construction of episode networks from pseudoperiodic time series based on mutual information, *PLoS ONE*, 6(12):e27733.
- GELSI-BOYER, V., CERVERA, N., BERTUCCI, F., BRECCQUEVILLE, M., FINETTI, P., MURATI, A., ARNOULET, C., MOZZICONACCI, M.-J., MILLS, K.I., CROSS, N.C.P., VEY, N. and BIRNBAUM, D. (2012) Molecular similarity between myelodysplastic form of chronic myelomonocytic leukemia and refractory anemia with ring sideroblasts, *Haematologica*, 12 October 2012 (Epub ahead of print).
- HANNON, M.M., LOHAN, F., ERBILGIN, Y., SAYITOGULU, M., O'HAGAN, K., MILLS, K.I., OZBEK, U. and KEESHAN, K. (2012) Elevated TRIB2 with NOTCH1 activation in paediatric/adult T-ALL, *Brit. J. Haem*, 158(5), p626-634.
- MADI, A., FISHER, D., WILSON, R.H., ADAMS, R.A., MEADE, A.M., KENNY, S.L., NICHOLS, L.L., SEYMOUR, M.T., WASAN, H., KAPLAN, R. and MAUGHAN, T.S. (2012) Oxaliplatin/capecitabine versus oxaliplatin/infusional 5-FU in advanced colorectal cancer: The MRC COIN Trial, *British Journal of Cancer*, 107(7), p1037-1043.
- MAXWELL, P.J., COULTER, J., WALKER, S.M., MCKECHNIE, M., NEISEN, J., MCCABE, N., KENNEDY, R.D., SALTO-TELLEZ, M., ALBANESE, C. and WAUGH, D.J. (2012) Potentiation of Inflammatory CXCL8 Signalling Sustains Cell Survival in PTEN-deficient Prostate Carcinoma, *Eur Urol*, 28 August 2012 (Epub ahead of print).
- MUELLER, L.A., KUGLER, K.G., GRABER, A., EMMERT-STREIB, F. and DEHMER, M. (2011) Structural measures for network biology using QuACN, *BMC Bioinformatics*, 12:492.
- MCCOURT, C.M., BOYLE, D., JAMES, J. and SALTO-TELLEZ, M. (2012) Immunohistochemistry in the era of personalised medicine, *J Clin Pathol*, 21 September 2012 (Epub ahead of print).
- MCLORNAN, D., MCLAUGHLIN, K., HOLOHAN, C., BURNETT, A.K., GILKES, A.F., JOHNSTON, P.G., MILLS, K.I., MCMULLIN, M.F. and LONGLEY, D.B. (2012) Prognostic and therapeutic relevance of c-FLIPL in acute myeloid leukaemia, *Brit.J.Haem* (In Press).
- MCGARRY, C.K., BUTTERWORTH, K.T., TRAINOR, C., MCMAHON, S.J., O'SULLIVAN, J., PRISE, K.M. and HOUNSELL, A.R. (2011) In-vitro investigation of out-of-field cell survival following the delivery of conformal, intensity-modulated radiation therapy (IMRT) and volumetric modulated arc therapy (VMAT) plans, *Physics in Medicine and Biology*, 57, p6635-6645.
- O'ROURKE, M.A., ELLISON, M.V., MURRAY, L.J., MORAN, M., JAMES, J. and ANDERSON, L.A. (2012) Human papillomavirus related head and neck cancer survival: A systematic review and meta-analysis, *Oral Oncology*, 27 July 2012 (Epub ahead of print).
- OLMOS, D., A'HERN, R., MARSONI, S., TABERNERO, J., GOMEZ-ROCA, C., VERWEIJ, J., VOEST, E.E., SCHÖFFSKI, P., ERNANG, J., PENEL, N., SCHELLENS, J.H., GIANNI, L., BRUNETTO, A.T., EVANS, J., WILSON, R.H., SESSA, C., PLUMMER, R., MORALES, R., SORIA, J.-C. and KAYE, S.B. on behalf of the European Drug Development Network (EDDN) (2012) Patient selection for oncology phase I trials – a multi-institutional study of prognostic factors, *Journal of Clinical Oncology*, 30(9), p996-1004.
- OMAR, M.F., ITO, K., NGA, M.E., SOO, R., PEH, B.K., ISMAIL, T.M., THAKKAR, B., SOONG, R., ITO, Y. and SALTO-TELLEZ, M. (2012) RUNX3 Downregulation in Human Lung Adenocarcinoma is Independent of p53, EGFR or KRAS Status, *Pathol Oncol Res*, 18(4), p783-792.
- ORR, N., LEMNRAU, A., COOKE, R., FLETCHER, O., TOMCZYK, K., JONES, M., JOHNSON, N., LORD, C.J., MITSOPOULOS, C., ZVELEBIL, M., MCDADE, S.S., BUCK, G., BLANCHER, C., KCONFAB CONSORTIUM, TRAINER, A.H., JAMES, P.A., BOJENSEN, S.E., BOKMAND, S., NEVANLINNA, H., MATTSON, J., FRIEDMAN, E., LAITMAN, Y., PALLI, D., MASALA, G., ZANNA, I., OTTINI, L., GIANNINI, G., HOLLESTELLE, A., OUWELAND, A.M., NOVAKOVI, S., KRAJC, M., GAGO-DOMINGUEZ, M., CASTELAO, J.E., OLSSON, H., HEDENFALK, I., EASTON, D.F., PHAROAH, P.D., DUNNING, A.M., BISHOP, D.T., NEUHAUSEN, S.L., STEELE, L., HOULSTON, R.S., GARCIA-CLOSAS, M., ASHWORTH, A. and SWERDLOW, A.J. (2012) Genome-wide association study identifies a common variant in RAD51B associated with male breast cancer risk, *Nat Genet*, 23 September 2012, 44(11), p1182-1184.
- PANG, B., MATTHIAS, D., ONG, C.W., DHEWAR, A.N., GUPTA, S., LIM, G.L., NGA, M.E., SEET, J.E., QASIM, A., CHIN, T.M., SOO, R., SOONG, R. and SALTO-TELLEZ, M. (2012) The positive impact of cytological specimens for EGFR mutation testing in non-small cell lung cancer: a single South East Asian laboratory's analysis of 670 cases, *Cytopathology*, 23(4), p229-236.
- RAHMATALLAH, Y., EMMERT-STREIB, F. and GLAZKO, G. (2012) Gene set analysis for self-contained tests: complex null and specific alternative hypotheses, *Bioinformatics*, 7 Oct 2012 (Epub ahead of print).
- SUBRAMANIAM, M.M., LOH, M., CHAN, J.Y., LIEM, N., LIM, P.L., PENG, Y.W., LIM, X.Y., YEOH, K.G., IACOPETTA, B., SOONG, R. and SALTO-TELLEZ, M. (2012) The topography of DNA methylation in the non-neoplastic colonic mucosa surrounding colorectal cancers, *Mol Carcinog*, 21 August 2012 (Epub ahead of print).
- TRAINOR, C., BUTTERWORTH, K.T., MCGARRY, C.K., MCMAHON, S.J., O'SULLIVAN, J.M., HOUNSELL, A.R. and PRISE, K.M. (2012) DNA damage responses following exposure to modulated radiation fields, *PLoS ONE*, 7(8):e43326.
- TRIPATHI, S. and EMMERT-STREIB, F. (2012) Assessment method for a power analysis to identify differentially expressed pathways, *PLoS ONE*, 7(5):e37510.
- WILSON, C., MAXWELL, P.J., LONGLEY, D.B., WILSON, R.H., JOHNSTON, P.G. and WAUGH, D.J.J. (2012) Constitutive and treatment-induced CXCL8 signaling selectively modulates the efficacy of anti-metabolite therapeutics in metastatic prostate cancer, *PLoS ONE*, 7(5):e36545.
- YUEN, H.F., MCCRUDDEN, C.M., GRILLS, C., ZHANG, S.D., HUANG, Y.H., CHAN, K.K., CHAN, Y.P., WONG, M.L., LAW, S., SRIVASTAVA, G., FENNELL, D.A., DICKSON, G., EL-TANANI, M. and CHAN, K.W. (2012) Combinatorial use of bone morphogenetic protein 6, noggin and SOST significantly predicts cancer progression, *Cancer Sci*, June 2012, 103(6), p1145-1154.
- ZHUO, J., TAN, E.H., YAN, B., TOCHHAWNG, L., JAYAPAL, M., KOH, S., TAY, H.K., MACIVER, S.K., HOOI, S.C., SALTO-TELLEZ, M., KUMAR, A.P., GOH, Y.C., LIM, Y.C. and YAP, C.T. (2012) Gelsolin induces colorectal tumor cell invasion via modulation of the urokinase-type plasminogen activator cascade, *PLoS ONE*, 7(8):e43594.
- HANNA, G.G., MCALEESE, J., CARSON, K.J., STEWART, D.P., COSGROVE, V.P., EAKIN, R.L., ZATARI, A., LYNCH, T., JARRITT, P.H., YOUNG, V.A., O'SULLIVAN, J.M. and HOUNSELL, A.R. (2010) (18)F-FDG PET-CT simulation for non-small-cell lung cancer: effect in patients already staged by PET-CT, *Int J Radiat Oncol Biol Phys*, 1 May 2010, 77(1), p24-30. Cited in the UK's National Radiotherapy Implementation Group Report on Image Guided Radiotherapy (IGRT) Guidance for Implementation and Use (August 2012).

EVENTS 2013

Tumour Models

29-31 January 2013
Strand Palace Hotel, London
For further information and registration please refer to:
www.tumour-models.com/

IACR

27 February - 1 March 2013
Crowne Plaza Hotel, Santry, Dublin
For further information and registration please refer to:
www.ia-cr.ie
or contact
iacr@qub.ac.uk

CCRCB EVENTS

Official Opening of the NI Molecular Pathology Laboratory and the NI Biobank

9 January 2013 at 10:00am
Foyer, CCRCB Building
For further information please contact:
Mrs Priscilla Clarke:
p.clarke@qub.ac.uk
Telephone: (028) 9097 2915

Conference in Computational Biology

19-20 September 2013
Riddel Hall, Queen's University Belfast
For further information please contact:
Dr Frank Emmert-Streib:
f.emmertstreib@qub.ac.uk

EpoCan EU Workshop

6-9 October 2013
Riddel Hall, Queen's University Belfast
For further information please contact:
Professor Terry Lappin:
t.lappin@qub.ac.uk

NEW APPOINTMENTS

Welcome to the following new staff who have recently joined the Centre:

Academic Staff:

Dr Suneil Jain (Senior Lecturer/
Consultant)
Dr Simon McDade (Lecturer)
Dr Kienan Savage (Lecturer)

Clerical Staff:

Miss Jenni Byers
Ms Denise Caldwell
Mr Michael McCabe
Mrs Anne McRoberts

Honorary Staff

Professor Alan Hounsell (Honorary
Professor)
Dr Colin James (Honorary Senior
Lecturer)
Dr James Murray (Honorary Lecturer)

Research Staff:

Mr Richard Armstrong
Dr Peter Bankhead
Dr Kerry Anne Hughes
Dr Nuala Mulgrew

Technical Staff:

Ms Oksana Lyubomska

Visiting Researchers:

Ms Siobhan Cleary
Mr Tim Durkan
Ms Yuhan Huang
Dr Jean O'Keeffe

NEW RESEARCH STUDENTS

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

Students:	Supervisors:
Conor Bradley	Dr S Van Schaeybroeck & Prof P Johnston
Kathryn Clarke	Prof K Mills, Dr A Thompson & Prof MF McMullin
Robyn Foster	Prof K Prise & Dr T Flannery
Ezanee Azlina Mohamad Hanif	Dr P Mullan & Prof R Kennedy
Thomas Marshall	Dr G Schettino & Dr F Currell
Niamh McGivern	Prof R Kennedy & Dr P Mullan
Chee Wee Ong	Dr D Waugh & Prof M Salto-Tellez
Eileen Parkes	Prof R Kennedy & Dr P Mullan
Viorel Vlad	Dr D Waugh, Dr A Kissenfennig & Prof M Salto-Tellez
Qing Wen	Dr S Zhang & Prof P Hamilton

Comments on the CCRCB Bulletin or suggestions for future editions should be forwarded to Margaret-Rose Mervyn: m.mervyn@qub.ac.uk