



Queen's University
Belfast

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



CCRCB
Centre for
Cancer Research
& Cell Biology

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DIAMOND JUBILEE QUEEN'S ANNIVERSARY PRIZE

Northern Ireland's Comprehensive Cancer Services programme – a major partnership between Queen's University and Health and Social Care services, which has led to improved survival rates for patients was honoured by Her Majesty the Queen on 24 February 2012, at a ceremony in Buckingham Palace.

Queen's, in partnership with the Department of Health, Social Services and Public Safety, Belfast Health and Social Care Trust and other Trusts providing cancer services in Northern Ireland, has led the way in significantly reorganising cancer services across Northern Ireland. The University and its health partners have invested over £200 million in infrastructure and personnel for cancer treatment and research in Northern Ireland over the past ten years. During the same period, the survival rates for cancer patients have improved year on year, despite the increasing incidence of cancer.

This programme, which was recognised at the palace with a Queen's Anniversary Prize for Higher and Further Education in this Diamond Jubilee year, is the most prestigious UK honour a higher education institution can receive. The awards – part of the national honours system – recognise and honour outstanding achievement by universities and colleges in the United Kingdom.

Welcoming the announcement, Queen's Vice-Chancellor Professor Sir Peter Gregson said: "We are delighted to learn of the award of a Queen's Anniversary Prize for Northern Ireland's Comprehensive Cancer Services programme, and I congratulate all those involved. This recognition of Northern Ireland's Comprehensive Cancer Services reflects the excellent partnership between Queen's, the Department



Vice-Chancellor of Queen's University Professor Sir Peter Gregson and Professor Patrick Johnston, Dean, School of Medicine, Dentistry and Biomedical Sciences at Buckingham Palace

of Health, Social Services and Public Safety, Belfast Health and Social Care Trust and the other Trusts providing cancer services in Northern Ireland. The University's commitment to high quality translational research has led to new techniques for early detection, diagnosis and therapy, and improved outcomes for cancer patients. It has already produced life-saving and life-enhancing results, reflecting the drive by Queen's and Northern Ireland's Health and Social Care services to become a global force in the worldwide fight against cancer."

Jennifer Welsh, Director of Cancer and Specialist Services for Belfast Health and Social Care Trust, said: "Our Trust has valued the importance of research in enhancing standards of care and outcomes in the management of patients with cancer. We have worked with our colleagues in Queen's University to make the support of research a key goal of our service development in Oncology.

We look forward to continued collaboration with our University colleagues to keep this momentum and achieve greater benefits in the years to come."

The University-led Comprehensive Cancer Centre (CCC), based on the United States National Cancer Institute model, is recognised nationally and internationally for its excellence and is seen as a flagship for health research in Northern Ireland. It comprises the Clinical Cancer Centre at Belfast City Hospital, and the Centre for Cancer Research and Cell Biology and Northern Ireland Cancer Registry at Queen's.

Queen's University Belfast has won an award in five rounds of the Queen's Anniversary Prizes. The University was previously honoured for world-class excellence in law, environmental research, palaeoecology and green chemistry.

BRAINWAVES NI INFORMATION EVENING

In Brain Tumour Awareness month, the charity Brainwaves NI, hosted an information event at the Centre for Cancer Research and Cell Biology (CCRCB), Queen's University Belfast on 28 March 2012, to raise awareness about the prevalence of brain tumours and the need for vital research.

This event was an opportunity for those affected by a brain tumour to find out about pioneering local research and to meet some of the leading researchers. Participants had an opportunity to take a tour of the laboratories and to meet with the researchers and clinicians involved in this research. The focus of the local research programme is on malignant gliomas – the most common adult primary malignant brain tumour. These tumours are characterised by their ability to invade normal brain and by their relative resistance to current treatments. Furthermore, the incidence of these tumours is increasing worldwide making the need to find better treatments paramount to clinicians and scientists.

With the fundraising support of the local community, Brainwaves NI are making

a difference. The Charity has financed the establishment of a malignant glioma tumour bank in Northern Ireland, a valuable resource to brain tumour researchers across the UK and part financed the appointment of a post-doctoral research fellow to carry out this research.

CCRCB is pleased to be working in partnership with Brainwaves NI who have

further ambitious plans to support local brain tumour research.

To find out more about the support available from Brainwaves NI or how you can get involved in raising vital funds for local research, go to www.brainwaves-ni.org or call 028 9335 3995.



Ms Sandra McKillop (Brainwaves NI) with the speakers at the Brain Tumour Research Information Evening, from left, Dr Ali Shoakazemi, Dr Tom Flannery, Dr Stephen McQuaid, Dr Chris Scott, Dr Fred Currell and Professor Richard Kennedy

RESEARCH AIMS TO IMPROVE EFFECTIVENESS OF RADIOTHERAPY TREATMENT FOR PROSTATE CANCER

A new three year research project aimed at improving the effectiveness of radiotherapy treatment for men affected by prostate cancer is taking place at Queen's University. With new and improved treatments needed for men with advanced prostate cancer, it is hoped the project will identify a new approach using radiotherapy, a commonly used treatment, to treat the disease more effectively.

Funded by a £99,273 PhD research grant awarded by The Prostate Cancer Charity, the project will first seek to understand how a man's prostate cancer becomes resistant to radiotherapy. Following this, the researchers will test a combination of existing drug treatments alongside radiotherapy to overcome this resistance. It is hoped that the cancer will become more sensitive to

radiotherapy and thereby improve the success of the treatment to stop the disease in its tracks.

Lead researcher at Queen's University Belfast's Centre for Cancer Research and Cell Biology, Professor of Radiation Biology, Kevin Prise, said: "The use of radiotherapy to treat prostate cancer is currently restricted by the cancer's ability to develop resistance to the treatment. Drugs exist which can help to 'sensitise' the cancer cells to radiotherapy, and in this study we will use these drugs in combination with radiotherapy to try and improve the success of prostate cancer treatment, using techniques that are already available."

The grant has been awarded, as part of The Prostate Cancer Charity's ongoing programme of investment in research to

help tackle this disease. This year, the Charity has awarded over £2 million – its largest research investment to date – to institutions across the UK to improve the diagnosis and treatment of prostate cancer.

Dr Kate Holmes, Research Manager at The Prostate Cancer Charity said: "Radiotherapy has been used for a number of years to treat prostate cancer. In some cases, however, the tumour develops resistance and does not respond well to this treatment. We hope that this new research will be able to improve the success of radiotherapy, so that it can be used to kill more cancer cells and further delay the spread of the disease. We are looking forward to working closely with the team and eagerly await the results of the study."

SABBATICAL VISIT IN BOSTON AND CAMBRIDGE

Dr. Frank Emmert-Streib spent his sabbatical leave at the Department of Biostatistics and Computational Biology at the Dana-Farber Cancer Institute, Harvard School of Public Health in Boston, hosted by Prof. John Quackenbush, and the Cambridge Computational Biology Institute at the University of Cambridge, hosted by Prof. Simon Tavare. During his research stay he has worked on high-throughput data generated by next-generation sequencing (NGS) technologies investigating their experimental design, statistical analysis and biological

interpretation. Due to the novelty of this sequencing technology, generally acknowledged standards are largely absent and need to be developed in order to allow the application to biomedical problems. Another focus of his sabbatical leave has been on integrative approaches for gene expression data and genome-wide association studies (GWAS), because such methods have the potential to connect genomics and public health research. Both problems offer a fascinating opportunity to develop novel computational statistics approaches

with an intriguing complexity that have the potential of a profound impact on cancer research. Dr. Frank Emmert-Streib said: "This sabbatical leave offered me the wonderful opportunity to establish international collaborations with leading scientists in the field and to have many discussions with researchers from their institutions. This opened me the door to get access to state-of-the-art knowledge about fundamental problems that will certainly help us to advance our research in Computational Biology in Belfast significantly."

RED HEROES TO TAKE PART IN DEEP RIVERROCK BELFAST CITY MARATHON 2012

CCRCB researchers have joined forces to become the 'Red Heroes' to support Northern Ireland Leukaemia Research Fund (NILRF) in the 2012 Deep RiverRock Belfast City Marathon.

On Monday 7 May 2012, The 'Red Heroes' will each run a leg of the Belfast City Marathon and raise vital funds for leukaemia research in Northern Ireland. You can follow the 'Red Heroes' training and fundraising progress on twitter - @redheroes64 and you can donate online through their justgiving page - www.justgiving.com/redheroes

PhD student Jodie Hay who is part of the team said: "The Belfast City Marathon is a great opportunity for people of all ages and abilities to come together, have some fun and raise money for charity." Jodie has persuaded friends to take part from her home country of Scotland and be part of the red heroes.

Caroline Crothers, Co-ordinator for NILRF, said: "With the Belfast City Marathon being one of the biggest fundraising events in Northern Ireland we are so pleased to have support like this and we hope that as many people as possible will join our 'Red Heroes' and put on their running shoes for NILRF. And if you can't take part by



L-R: Dr Lisa Crawford, Ms Gemma Logan, Ms Jodie Hay and Ms Laura Kettyle

running, I would encourage people to come together to sponsor and cheer on people running for the charity."

For more information on the 2012 Deep RiverRock Belfast City Marathon log on

to www.belfastcitymarathon.com and to find out about joining the 'Red Heroes' contact 028 9097 2928 or email: admin@leukeamia-ni.org

CCRCB SPINATHON FOR THE ULSTER CANCER FOUNDATION

On 17 February 2012 a team of eighteen people representing CCRCB took part in a 'Spinathon' at Queen's Sport. The event was in aid of the Ulster Cancer Foundation and has been running for the past few years for this cause. The team took part in eight successive indoor cycling endurance classes with each member taking part for between one and eight hours, for a total of thirty-eight hours overall.

Thanks to support from family, friends and colleagues, a fantastic £1,750 was raised by the CCRCB team for the Ulster Cancer Foundation, which was part of an overall event total of over £3,200. Jacqueline Stewart of Queen's Sport organised the event, which has been the most successful Spinathon to date. Thanks are due to all who donated money towards the event and building on the success of this year's effort, it is hoped that the team will have recovered in time to consider Spinathon 2013!



L-R: Dr Michael Moran, Ms Jacqueline Stewart, Mr Neill Grainger (Ulster Cancer Foundation) and Dr Cheryl McFarlane

MPN & MPN_r-EURONET MEETING

Clinicians and Scientists from twenty-two countries around the world arrived in Belfast to attend the fifth Molecular Diagnosis of MyeloProliferative Neoplasms (MPN) and MPN related congenital diseases. The meeting was held in Riddel Hall at Queen's University Belfast from 7-9 March 2012. This meeting was organised by Professor Mary Frances McMullin who was chair of one of the working groups within the study.

Participants to the fifth MPN & MPN_r-EuroNet meeting had the opportunity to hear from the leading experts about the newest developments in the molecular diagnosis of MPN and related congenital diseases. They each had the opportunity to present their own work and original diagnostic assays and exchange with colleagues on the newest genes and techniques of interest in the field of MPN, congenital erythrocytosis and hereditary thrombocythemia. The programme included presentations from Professor Mary Frances McMullin, Professor Ken Mills, Dr Claire Arnold and other clinical colleagues in the Belfast City Hospital.



MPN & MPN_r-EuroNet meeting delegates

The MPN & MPN_r-EuroNet has contributed to the innovation, optimization and standardization of the

biological diagnosis of MPN and related congenital diseases in Europe.

CR-UK ENGAGEMENT ACTIVITIES IN 2011

2011 was another great year for engagement and outreach activities within the Belfast Cancer Research UK Centre. The statistics for the year are impressive with 214 researchers/research nurses taking part in 91 events and reaching over 14,500 people. Dr Jonathan Coulter (pictured) was the lucky researcher who won the meal for two, kindly sponsored by Villa Italia, for the researcher who took part in the most engagement activities throughout the year.

2012 will no doubt be an equally successful year under the leadership of Mrs Katie Scott who has taken over the role of Local Engagement and Development Manager for the Centre. For further information on CR-UK engagement and outreach activities please email: Katie.Scott@cancer.org.uk



L-R: Mr Max Lusci, Ms Helen Barnes and Dr Jonathan Coulter

RECENT GRANTS AWARDED

Investigator(s)	Sponsor	Title	Amount	Start Date	End Date
Campbell, Charles	Friends of the Cancer Centre	Studies on Bowel Cancer Glands	£5,000	01/01/12	31/12/13
Flannery, Tom	Brainwaves NI	Biology of Cathepsin S in Malignant Gliomas	£38,000	01/02/12	31/01/14
Flannery, Tom	Neurosurgery Charitable Funds	Brain Tumour (Glioma) Tissue Bank	£17,160	01/03/12	31/05/15
Haigh, David	Invest NI	Establishing a Northern Ireland Drug Discovery Facility	£48,085	01/03/12	31/08/12
Hamilton, Peter	EC FP7 – Marie Curie	FAST PATH	£177,627	01/01/12	31/12/14
McCance, Dennis	BHSCT Charitable Funds	MD – Lynsey Hinds	£20,000	01/02/12	31/01/13
McCance, Dennis	Ulster Cancer Foundation	Fellowship	£400,000	01/09/12	31/08/16
McMullin, Mary Frances Mills, Ken Wilson, Richard	Leukaemia & Lymphoma Research	Therapy Acceleration Programme (TAP)	£73,802	01/04/12	31/03/14
Mills, Ken	NILRF	Summer Studentships	£4,800	01/07/12	31/08/12
Mills, Ken Wilson, Richard	CR-UK R&D	Experimental Cancer Medicine Centre Renewal	£400,000	01/04/12	31/03/14
Salto-Tellez, Manuel	Pathological Society	Completion of the Molecular Pathology of the Runt Family of Genes in Breast Cancer (David Boyle)	£9,900	01/01/12	31/12/14
Salto-Tellez, Manuel	Pathological Society	Mapping of Treatable Targets in the Progression of Pathological Changes leading to Adenocarcinoma of the Lung (Clinton Boyd)	£10,000	01/01/12	31/12/14
Waugh, David Wilson, Richard	Invest NI	Validation of Novel Biomarker defining Colorectal Cancer Patients sensitive to EGFR-targeted Therapeutics	£46,228	01/11/11	30/04/12

BELFAST CITY COUNCIL FUNDRAISING FOR CCRCB

The third week in November was European Week of Waste Reduction. Throughout Europe local authorities, companies, schools, community groups and other organisations were asked to sign up to a commitment to reduce their waste for at least a week and record their results.

Ms Sonia Boal, from Belfast City Council, said: "BCC ran a number of projects

including "Show your Support" which targeted the removal of bras from the waste stream. Initially planned as a small internal project, our idea was to arrange a collection point for bras within one of the council offices. These would be collected by our textile contractor who sends the items out to a market in Kenya where they are sold to the local population. As there is a small income from this, we thought it would be

appropriate to donate this to a charity involved with breast cancer, preferably here in Northern Ireland."

We are grateful that Belfast City Council chose the Centre for Cancer Research and Cell Biology at Queen's University Belfast as their charity and presented Dr Paul Mullan's research group with a cheque for £300.



L-R: Ms Sonia Boal, Dr Paul Mullan and Dr Niamh O'Brien

RECENT PUBLICATIONS

KHOO, S.G., AL-ALAWI, M., WALSH, M.T., HANNIGAN, K., GLYNN, S., THORNTON, M., MCQUAID, S., WANG, Y., HAMILTON, P.W., VERRIERE, V., GLEICH, G.J., HARVEY, B.J., COSTELLO, R.W. and MCGARVEY, L. (2012) Eosinophil peroxidase induces the expression and function of acid-sensing ion channel-3 in allergic rhinitis: in vitro evidence in cultured epithelial cells, *Clinical & Experimental Allergy*, p1365-2222.

SGOBBA, M., OLUBIYI, O., KE, S. and HAIDER, S. (2012) Molecular Dynamics of HIV1-Integrase in Complex with 93del – A Structural Perspective on the Mechanism of Inhibition, *Journal of BioMolecular Structure and Dynamics*, Vol 29(5), p863-877.

WANG, Y., LEDGERWOOD, C., GRILLS, C., FITZGERALD, D.C. and HAMILTON, P.W. (2012) A Robust Co-Localisation Measurement Utilising Z-Stack Image Intensity Similarities for Biological Studies, *PLoS ONE*, 7, e30632.

WANG, Y., WILLIAMSON, K.E., KELLY, P.J., JAMES, J.A. and HAMILTON, P.W. (2012) SurfaceSlide: A Multitouch Digital Pathology Platform, *PLoS ONE*, 7, e30783.

YUEN, H-F, CHAN, K.K., GRILLS, C., MURRAY, J.T., PLATT-HIGGINS, A., SHARAF EIDIN, O., JANNE, P., FENNELL, D.A., JOHNSTON, P.G., RUDLAND, P.S. and EL-TANANI, M. (2012) Cancers with activated PI3K/Akt/mTORC1 and Ras/MEK/ERK pathways

depend on Ran GTPase for survival, *Clinical Cancer Research*, 18(2), p380-91.

YUEN, H-F, ZHANG, S-D., WONG, A.S-Y., MCCRUDDEN, C.M., HUANG, Y-H., CHAN, K.Y-K., EL-TANANI, M.K., UI-SOON KHOO, U-S. (2012) Co-expression of SNAIL and TWIST determines prognosis in estrogen receptor-positive early breast cancer patients, *Breast Cancer Research and Treatment*, 131(1), p351-2.

GROUND-BREAKING CANCER RESEARCH RECEIVES MASSIVE FUNDING BOOST

Research into a ground-breaking treatment for bowel cancer at Queen's University Belfast has received a massive funding boost from Cancer Research UK. Dr Sandra Van Schaeybroeck, whose research aims to identify ways to increase survival from bowel cancer, has received a prestigious £688,000 Cancer Research UK Clinical Scientist Fellowship. The award, which is one of only four fellowships awarded to UK clinical investigators, renews Dr Van Schaeybroeck's current funding from the charity for another three years. Her research aims to develop new treatment strategies to improve bowel cancer patients' response to treatment and increase survival of particular groups of patients with bowel cancer.

Dr Van Schaeybroeck, from the CCRCB, School of Medicine, Dentistry and Biomedical Sciences at Queen's, said: "Bowel cancer affects more than 35,000 people a year in the UK. A major barrier

in the treatment of bowel cancer is drug resistance with more than half of patients not responding to standard chemotherapy treatment. I'm specifically aiming to identify the molecular reasons this happens in cells with specific gene faults. My ultimate goal is to increase survival in particular groups of patients with bowel cancer. I'm delighted to have received the renewal of the Cancer Research UK Clinician Scientist Fellowship. It is a major recognition of my research so far and the world-class cancer research ongoing at Queen's University."

Speaking about the selection process, Professor Philip Johnson, Chair of the clinical interview panel and a world leader in cancer trials at the University of Birmingham, said: "We saw oncologists, surgeons, haematologists, public health specialists and more. It was a tough decision, but we have found five great post-doc clinicians. These are people

who see clinical problems that need solving, and then do research to find solutions. They have an exciting and rewarding career ahead of them."

Dr David Scott, Cancer Research UK's Director of Science Funding, said: "The doctors receiving this funding are carrying out world-class research to develop new ways to diagnose and treat patients more effectively. We hope this funding will be an important boost to develop new approaches which we hope will ultimately increase survival from cancer."

The funding is part of a total three million pound funding pot awarded to the five UK researchers - an important investment from Cancer Research UK, with the aim of identifying the next generation of clinical research leaders in the UK.

CCRCB PHOTO GALLERY



L-R: Professor Graham McGeown, Professor Liam Murray, Professor Hany Ariffin, Dr Karen McCloskey and Dr Marie Cantwell at the University of Malaya Medical Centre



Mr Matt Wallace (centre) pictured with CR-UK researchers during his visit to CCRCB. Matt sold his house, left his job and set off to walk from John O'Groats to Lands' End via all 16 of the CR-UK Centres of Excellence, his aim being to raise at least £10,000 to support the work of the charity.



Thanks to Ms Janice Hill who presented a cheque for £2,100 in aid of Breast Cancer research at CCRCB, pictured (centre) with Ms Sharon Armstrong and Dr Paul Mullan

EVENTS 2012

28th IABCR/Breakthrough Breast Cancer Conference

15-18 April 2012
 Palace Hotel, Manchester, UK
 For further information and registration please refer to:
www.mcrc.manchester.ac.uk/conference

2nd EACR-OECI Joint Training Course in Molecular Pathology

7-9 May 2012
 De Roed Hoed, Amsterdam
 For further information and registration please refer to:
www.eacr.org

First European Symposium of Biopathology

14-15 June 2012
 Paris, France
 For further information and registration please refer to:
www.symposium-biopathology.eu

EACR/IACR Joint Conference on Tumor Microenvironment

17-19 September 2012
 Burlington Hotel, Dublin
 For further information and registration please refer to:
www.eacr.org

CCRCB EVENTS

CR-UK Centre Lecture 2012

24 May 2012
 CCRCB Building
 Professor Harald Zur Hausen,
 Nobel Laureate
 University of Erlangen-Nuremberg

Mitchell Lecture 2012

18 October 2012
 CCRCB Building
 Dr Edison Liu
 Director, Jackson Laboratory in
 Bar Harbor, Maine

NEW APPOINTMENTS

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

Administrative Staff:

Mrs Katie Scott (CR-UK LEAD Manager)

Technical Staff:

Mrs Sara McQuillan

Clinical Research Fellows:

Dr David Boyle

Visiting Researchers:

Ms Joan Comenge
 Ms Catherine Donnelly
 Ms Wendy Hyland
 Dr Raymond King
 Dr Yuying Liu
 Dr Nuala McCabe
 Dr Ewa Odrzywol
 Ms Lyndsey Williams
 Ms Karolina Wojtania

Research Staff:

Dr Annamaria Gal
 Mr Simon Horn
 Dr Cheryl McFarlane

STAFF PROMOTIONS

Congratulations to Dr Paul Mullan who has been promoted to Senior Lecturer and to Dr Chris Scott who has been promoted to Reader. Also congratulations to Ms Julie Hunter who has been promoted to a new post of Clinical Trials Administrator on a project with Dr Kate Williamson.

PRIZES/AWARDS

Congratulations to Dr Paula Hyland, the Northern Irish Cancer Prevention Fellow and Research Fellow in the Genetic Epidemiology Branch (GEB) at the National Cancer Institute (NCI), who received the 2012 NCI Director's Innovation Intramural Award from the Dr Harold E. Varmus (Nobel Laureate in Medicine and NCI Director) for her project entitled: "Global chromatin accessibility patterns in melanoma-prone individuals with and without CDKN2A mutations". Dr Hyland's research interests include investigating the association of genetic

variation as well as epigenetic changes and the risk of esophageal cancer and melanoma. She is currently working with Dr Rose Yang, Investigator, GEB, Division of Cancer Epidemiology and Genetics (DCEG) examining the epigenome in melanoma-prone families. Previously, Dr Hyland was also awarded the 2010 DCEG Intramural Research Award for her project: "Genome-wide histone modifications in melanoma-prone families segregating CDKN2A mutations".

Congratulations to the following CCRCB staff who were awarded prizes at the IACR conference 1-2 March 2012:

- Dr Niamh O'Brien – EACR Young Scientist Award.
- Ms Ann-Christin Cichon – Oral Poster prize.
- Ms Katy Orr – Poster prize.
- Dr Caitriona Holohan – Poster prize.
- Ms Marta Crudden – Poster prize.

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