

## Hutchison/MRC Research Centre

# Newsletter

To undertake world leading research into cancer cell biology that can be translated into clinical practice

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Autumn 2012

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## New research group leader arrives at the MRC Cancer Cell Unit

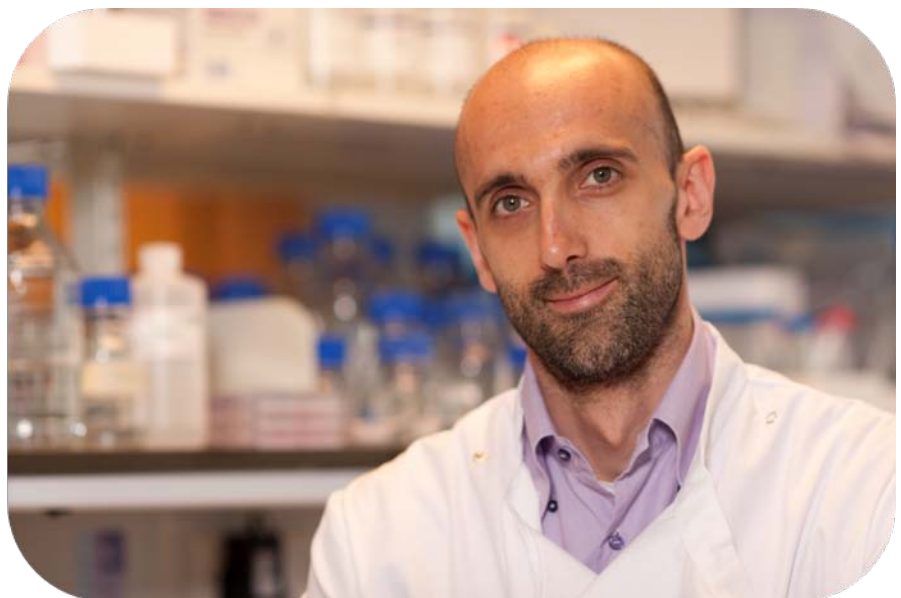
We would like to welcome new group leader, Dr Christian Frezza, to the Unit and to the Research Centre. Christian joins us from the Beatson Institute for Cancer Research in Glasgow.

### Message from the Directors

Welcome to the autumn issue of the Hutchison/MRC Research Centre newsletter. This edition puts the spotlight on our newest researchers, as well as highlighting the achievements of our more established scientists. It also contains news of our latest initiatives to become more environmentally friendly.

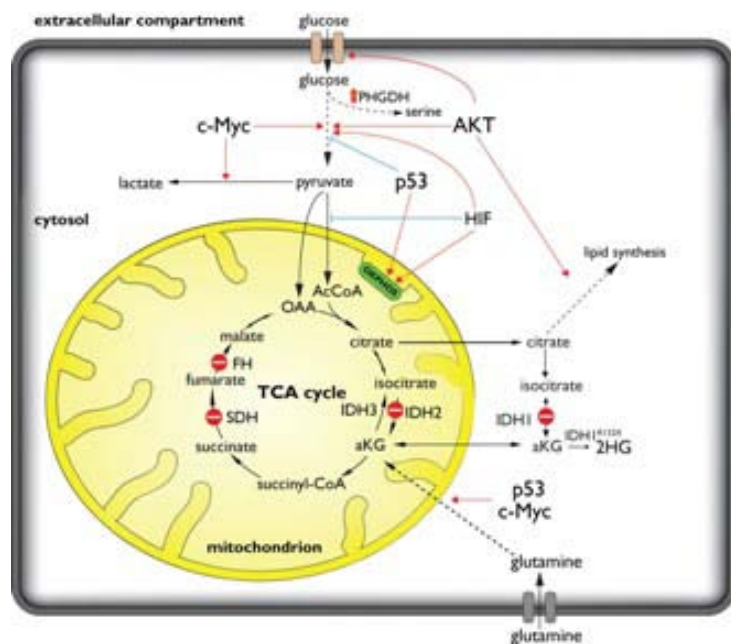
Professor Ashok Venkitaraman  
Professor Bruce Ponder

Joint Directors, Hutchison/MRC  
Research Centre



*Dr Christian Frezza will lead a programme on cancer metabolism and the mechanisms that link mitochondrial defects to tumorigenesis.*

*Continued on page 2.*



A schematic representation of the metabolic transformation of a cancer cell

Christian has a long standing interest in mitochondrial physiology and in the role of mitochondria in dictating cell behaviour. He studied Medicinal Chemistry at the University of Padova, Italy. He gained his MSc in 2002, after a period of research on anticancer drugs that once photo-activated become pro-apoptotic mitochondrial toxins. Christian then joined the laboratory of Professor Luca Scorrano in Padova where he investigated the role of mitochondrial dynamics in apoptosis. It was in this laboratory that he started to gain an interest in the intertwined connections between mitochondrial physiology and tumorigenesis. To investigate this emerging topic further, he moved to the Beatson Institute of Cancer Research in Glasgow in 2008, as a recipient of an EMBO Long Term

Based in the laboratory of Professor Eyal Gottlieb, he studied the link between loss of the mitochondrial enzyme fumarate hydratase and renal cancer using a combination of metabolomics, systems biology, and hardcore biochemistry.

Christian joined us in the MRC Cancer Cell Unit in May of this year. His research programme here will be aimed at understanding cellular metabolism and the intricacies of the process of cellular transformation, particularly focusing on the metabolic relation between cancer cells and the surrounding tissues. His major goal now is to exploit this biochemical knowledge to pioneer novel therapeutic strategies for cancer.

Commenting on his appointment, Christian said, "*The MRC Cancer Cell Unit is the perfect environment to fully develop my challenging scientific programme thanks to both the excellent facilities and the invaluable scientific support from world leaders in the field of cancer biology*".

MRC Cancer Cell Unit Director Professor Ashok Venkitaraman added, "*We are delighted to welcome Christian to the Unit and the wider Research Centre community. Cancer metabolism is an exciting new area of research which has the potential to provide numerous novel insights into the development of cancer, and how we can stop these processes. And I am confident that Christian's work will make a valuable contribution to this field.*"

## MRC Cancer Cell Unit Director appointed as first Jubilee Professor by the Indian Academy of Sciences



Ashok Venkitaraman, University of Cambridge Ursula Zoellner Professor of Cancer Research and Director of the MRC Cancer Cell Unit, has been selected as the Indian Academy of Sciences first ever Jubilee Professor.

The Indian Academy of Sciences was founded in 1934, and celebrated its platinum jubilee in 2009. The Council of the Academy instituted the Jubilee Professorship to mark this event. A specific feature of this Professorship is the opportunity to engage with researchers at all levels across India, in order to promote the progress of science.

Commenting on the award, Professor Venkitaraman said, *"I am honoured to have been appointed the first Jubilee Professor of the Indian Academy of Sciences, and thank the Academy for this award. It has been very exciting for me to witness personally over the past few years the excellence of research in the biomedical*

*sciences at several Indian institutions, and I look forward to extending my interactions with colleagues and students in India during the Jubilee Professorship."*

The President of the Academy, Prof Ajay Sood, welcomed the appointment, saying, *"I am delighted to have Professor Ashok Venkitaraman as the first occupant of Jubilee Chair of the Academy. As envisaged in this professorship, I am sure that students, teachers and researchers will be inspired by their close interaction with Professor Venkitaraman at the different universities and colleges he will visit."*

As part of his role as the Jubilee Professor, Ashok has already visited a number of Indian research institutes and given a public lecture on chromosomal instability and cancer at the Indian Institute of Sciences in Bangalore.




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## Arrivals and departures

We would like to welcome all our new graduate students to the Research Centre. They are: Arthur Bartolozzi, Magdalena Grzeszczuk, and Shawn Tan (Venkitaraman group); Greta Skrupskelyte and Agnieszka Wabik (Jones group); Laura Hardwick (Philpott group); and Rachel Fels Elliot (Fitzgerald group).

We also welcome Dr Marco Sciacovelli, Edoardo Gaude (Frezza group) and Jason Crowte (Fitzgerald group) to the Research Centre.

We would also like to wish Sandra Murray all the best for the future after her recent retirement from the Research Centre's glasswash team.

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## Upcoming Events

### CRUK Cambridge Research Institute Symposium

**2-3<sup>rd</sup> November**

**Li Ka Shing Centre, Cambridge**

The symposium will focus on questions relating to cancer sequencing, including challenges facing the computational biology of cancer sequencing, and the impact of cancer sequencing on medicine.

[Event website](#)

### NCRI Cancer Conference

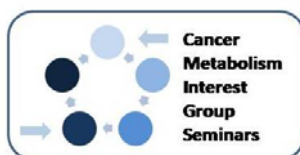
**4-7<sup>th</sup> November**

**BT Convention Centre, Liverpool**

The NCRI Cancer Conference will deliver a programme showcasing high-quality data and a multi-disciplinary approach to cancer research from basic research to prevention, diagnosis, treatment and survivorship.

[Event website](#)

## Cancer metabolism seminar series-coming soon!



We are delighted to announce that a new seminar series aimed at bringing together all those with an interest in metabolism and its role in cancer will be launched soon. The series will be coordinated by new MRC

CCU group leader, Dr Christian Frezza, and will host a diverse range of speakers to reflect the multi-disciplinary nature of cancer metabolomics research.

For further details of this series visit either [talks.cam](https://talks.cam) or our [website](#), which will be updated with information about forthcoming speakers soon.

## Research Centre gets green

The Hutchison/MRC Research Centre has always aimed to be as environmentally friendly as possible, but as the cost of utilities has risen there's now even more incentive to improve our energy efficiency and 'green-ness'. The challenge has been taken on by the Hutch's Green Team, which consists of Brian Richardon, Archie Nepomuceno, Karen Hébert, and researchers Marina Popleteeva, Asta Bjork Jonsdottir and Jamie Weaver. The team have already been active in highlighting the small measures that can reduce energy consumption, such as not leaving lights or equipment on unnecessarily, as well as spotting areas of good practice. And following on from a Research Centre wide survey into energy usage, the Edwards' group have been announced as the most energy efficient research group in the building.

Not only is improving our energy efficiency good for the environment, it is also good for science as any savings can then be spent on research activities. Anyone in the Research Centre can contact the Green Team with ideas on saving energy or related issues.



## Hutch scientists in the media

Over the summer, **Dr Rebecca Fitzgerald** was interviewed on BBC Radio Cambridgeshire and spoke about heartburn awareness, and its potential role in the development of Barrett's oesophagus and oesophageal cancer.



The summer edition of [MRC Network](#) contained a feature on CCU-supported Clinical Research Training Fellow, Dr Matt Murray. Matt was interviewed about his career in paediatric oncology, and how the MRC has enabled him to combine research with clinical work.



**Prof Ashok Venkitaraman's** appointment to the Jubilee Professorship by the Indian Academy of Sciences was featured as a news story on the [University of Cambridge website](#) in June.

In September, a number of national media outlets in India featured news of further strategic collaborations with Prof Venkitaraman and various high-profile Indian research institutions.



## Recent publications

*Independence of Repressive Histone Marks and Chromatin Compaction during Senescent Heterochromatic Layer Formation.*

Chandra T, Kirschner K, Thuret JY, Pope BD, Ryba T, Newman S, Ahmed K, Samarajiwa SA, Salama R, Carroll T, Stark R, Janky R, Narita M, Xue L, Chicas A, Núñez S, Janknecht R, Hayashi-Takanaka Y, Wilson MD, Marshall A, Odom DT, Babu MM, Bazett-Jones DP, Tavaré S, **Edwards** PA, Lowe SW, Kimura H, Gilbert DM, Narita M. *Mol Cell*. 2012 Jul 27;47(2):203-14.

*Tumor Initiating but Differentiated Luminal-Like Breast Cancer Cells are Highly Invasive in the Absence of Basal-Like Activity.*

Kim J, Villadsen R, Sørlie T, Fogh L, Grønlund SZ, Fridriksdottir AJ, Kuhn I, Rank F, Wielenga VT, Solvang H, **Edwards** PA, Børresen-Dale AL, Rønnev-Jessen L, Bissell MJ, Petersen OW. *Proc Natl Acad Sci USA*. 2012 Apr 17;109(16):6124-9.

*A Systematic Approach to Therapeutic Target Selection in Oesophago-Gastric Cancer.*

Paterson AL, Shannon NB, Lao-Sirieix P, Ong CA, Peters CJ, O'Donovan M, **Fitzgerald** RC. *Gut*. 2012 Jul 6.

*Population-Based Study Reveals New Risk-Stratification Biomarker Panel for Barrett's Esophagus.*

Bird-Lieberman EL, Dunn JM, Coleman HG, Lao-Sirieix P, Oukrif D, Moore CE, Varghese S, Johnston BT, Arthur K, McManus DT, Novelli MR, O'Donovan M, Cardwell CR, Lovat LB, Murray LJ, **Fitzgerald** RC. *Gastroenterology*. 2012 Jul 3. [Epub ahead of print]

*Characterisation of the Timing and Prevalence of Receptor Tyrosine Kinase Expression Changes in Esophageal Carcinogenesis.*

Paterson AL, O'Donovan M, Provenzano E, Murray LJ, Coleman HG, Johnson BT, McManus DT, Novelli M, Lovat LB, **Fitzgerald** RC. *J Pathol*. 2012 Jun 25. doi: 10.1002/path.4044. [Epub ahead of print]

*Oracular Guidance on Clinical Management of Early Neoplastic Barrett's Esophagus.*

**Fitzgerald** RC, Rubenstein JH. *Gastroenterology*. 2012 Aug;143(2):282-4. Epub 2012 Jun 18.

*Radiotherapy and Surgery for High-Risk Localized Prostate Cancer: A UK Questionnaire Survey Of Urologists and Clinical Oncologists.*

**Gnanapragasam** VJ, Persad R, Payne HA. *BJU Int*. 2012 Sep;110(5):608-12. doi: 10.1111/j.1464-410X.2012.11328.x. Epub 2012 Jul 5.

*A Single Progenitor Population Switches Behavior to Maintain and Repair Esophageal Epithelium.*

Doupe DP, Alcolea MP, Roshan A, Zhang G, Klein AM, Simons BD, **Jones** PH. *Science*. 2012 Aug 31;337(6098):1091-3. Epub 2012 Jul 19.

*HES6 Enhances the Motility of Alveolar Rhabdomyosarcoma Cells.*

Wickramasinghe CM, Domaschenz R, Amagase Y, Williamson D, Missaglia E, Shipley J, Murai K, **Jones** PH. *Exp Cell Res*. 2012 Sep 13. pii: S0014-4827(12)00382-5. doi: 10.1016/j.yexcr.2012.08.010. [Epub ahead of print]

*Act Your Age: Tuning Cell Behavior to Tissue Requirements in Interfollicular Epidermis.*

Roshan A, **Jones** PH. *Semin Cell Dev Biol.* 2012 Sep 7. pii: S1084-9521(12)00160-7. doi: 10.1016/j.semcdb.2012.08.013. [Epub ahead of print]

*A Two-Directional Strategy for the Diversity-Oriented Synthesis of Macrocyclic Scaffolds.*

O'Connell KM, Beckmann HS, Laraia L, Horsley HT, Bender A, **Venkitaraman** AR, Spring DR. *Org Biomol Chem.* 2012 Aug 30;10(37):7545-51.

*A DNA-Damage Selective Role for BRCA1 E3 Ligase in Claspin Ubiquitylation, CHK1 Activation, and DNA Repair.*

Sato K, Sundaramoorthy E, Rajendra E, Hattori H, Jeyasekharan AD, Ayoub N, Schiess R, Aebersold R, Nishikawa H, Sedukhina AS, Wada H, Ohta T, **Venkitaraman** AR. *Curr Biol.* 2012 Aug 1. [Epub ahead of print]

*Expression of LY6D is Induced at the Surface of MCF10A Cells by X-Ray Irradiation.*

Kurosawa M, Jeyasekharan AD, Surmann EM, Hashimoto N, Kurosawa G, Furukawa K, **Venkitaraman** AR, Kurosawa Y. *FEBS J.* 2012 Oct 17. doi: 10.1111/febs.12034. [Epub ahead of print]

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