

MRC Cancer Unit

Newsletter

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Summer 2014

www.mrc-cu.cam.ac.uk

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Dr Phil Jones elected to the Fellowship of the Academy of Medical Sciences

MRC Cancer Unit Programme Leader, Dr Phil Jones, has joined one of a select group of scientists to be elected to the Fellowship of the Academy of Medical Sciences.

Message from the Director

Welcome to the summer issue of our newsletter. This edition highlights some of our recent media work, the successful efforts to reduce our environmental impact, and of course the achievements of our researchers and other staff. We have also updated our website, with a fresh new design and easy links to find us on other platforms such as Facebook and Twitter. We'd be very happy to hear what you think about our new communication channels!

Professor Ashok Venkitaraman
Director, MRC Cancer Unit



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Dr Phil Jones, Programme Leader, MRC Cancer Unit

We are delighted to congratulate Dr Phil Jones on his election to the Fellowship of the Academy of Medical Sciences. Phil leads the cancer and stem cells programme within the Unit, using a range of innovative multi-disciplinary techniques to study cell fates in normal and cancerous cells.

The Academy of Medical Sciences is the independent body in the UK representing the diversity of medical science. Its mission is to promote medical science and its translation into benefits for society. The Academy's elected Fellows are the United Kingdom's leading medical scientists from hospitals, academia, industry and the public service. The Academy works with them to promote excellence, influence policy to improve health and wealth, nurture the next generation of medical researchers, link academia, industry and the NHS, seize international opportunities and encourage dialogue about the medical sciences.

Commenting on his Fellowship, Phil said, "It's an honour to join the Academy of Medical Sciences as an elected Fellow. I look forward to their support as I continue my research career, and anticipate that this will enhance the translation of our work investigating how cancers can arise from a single mutant cell into tangible benefits for patients."

New Fellows were admitted to the Academy in July, with the ceremony followed by a Distinguished Lecture by Professor Dario Alessi from the MRC Protein Phosphorylation and Ubiquitylation Unit, and the Fellows Soirée.

Also attending the event was Programme Leader, Professor Rebecca Fitzgerald. Rebecca was admitted to the Fellowship in 2013, but had been unable to attend last year's Fellowship ceremony.



Professor Rebecca Fitzgerald at the Academy's Fellows Soirée

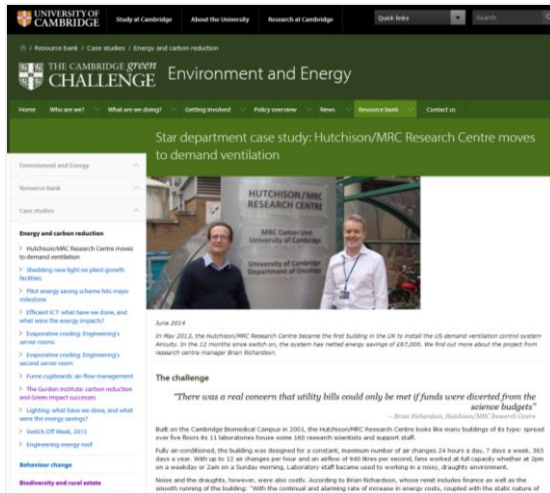
Conferences and awards

Under the University of Cambridge's recent Senior Academic Promotions, Professorships have been established for many members of the Clinical School, including MRC Cancer Unit Programme Leader, Rebecca Fitzgerald. Rebecca will hold her Professorship in the Department of Oncology, with effect from October 2014.

Several members of the Unit have also been invited speakers at a number of international conferences, including Dr Christian Frezza, who spoke at a recent Gordon Research Conference on Mitochondria and Chloroplasts in Italy.

Research Centre News- green impact success continues!

We're happy to report that the numerous green initiatives operating across the Hutchison/MRC Research Centre (where our Unit is located) have continued to gain recognition, both within the University and the wider community. These activities have not just produced significant financial savings for the Research Centre, but are now also providing examples of best practice across the laboratory management sector.



The project to install demand ventilation control in the Research Centre has been documented as a case study on the University's Energy and Environment website, allowing us to share our experiences and the challenges involved with this project. You can read about the environmental impact of this project, and the cost savings achieved, here:

www.environment.admin.cam.ac.uk/resource-bank/case-studies/energy-and-carbon-reduction/star-department-case-study-hutchisonmrc

We were short-listed for the national S-Labs awards earlier in the year, and have recently been nominated for a [Green Gown award](#) in the Technical Innovation for Sustainability category. These awards are an annual celebration of sustainability success across the UK tertiary education sector, and the Research Centre will be joining 60 other HEIs across the UK in vying for this prestigious recognition of best practice. The results will be announced in November, so keep your eye on the next newsletter for an update!

We have also been awarded two silver awards in the [University's Green Impact](#) award scheme, which is focussed on reducing the environmental impact of University workplaces, and improving their sustainability.

Congratulations to Research Centre Manager, Brian Richardson, the Hutch Green Team, and the staff located within the Research Centre, who have all contributed to making our energy saving and environmental impact activities so successful!



Members of the Hutch Green Team collecting the Research Centre's Green Impact awards, (l-r): Karen Hébert., Max Fries, Brian Richardson, and Greta Skrupskelyte.

New MRC Cancer Unit website launched

Some of you may have noticed that the MRC Cancer Unit website has been sporting a new look for the past few months. The new site brings the Unit into line with the University of Cambridge's new design template, emphasising our position within this organisation.

We now have extensive information about our key achievements, environmental policies, and outreach activities, as well as about our research programmes. We hope that our website complements our presence on other digital platforms such as [Facebook](#) and [Twitter](#), and also our [increasingly popular blog](#).

You can find us at www.mrc-cu.cam.ac.uk

We're happy to receive any feedback you may have on the new site, and any other information or features you would like to see on it. Please contact the Scientific Communications Manager on: id207@mrc-cu.cam.ac.uk with any comments.

Cambridge Cancer Centre update

The Cambridge Cancer Centre is a network of around 500 researchers and clinicians working on the detection, treatment and prevention of cancer. The core partners are Cancer Research UK, the University of Cambridge and Cambridge University Hospitals NHS Foundation Trust.

By working with nearly 150 research groups based in different departments and institutes across Cambridge, the Centre aims to enable scientific collaboration across disciplines, to encourage the



translation of scientific discoveries into clinical applications,

and to educate and support the next generation of cancer scientists.

We also organise events for students, post-docs, and clinical fellows for you to share your research and meet colleagues from other departments and institutes across Cambridge.

If your research is cancer-related and you would like to be part of the Cambridge cancer science community, please go the website (www.cambridgecancercentre.org.uk) and click 'sign up' in the top right-hand corner or contact Katie Edwards (Katie.Edwards@cruk.cam.ac.uk) for more information.

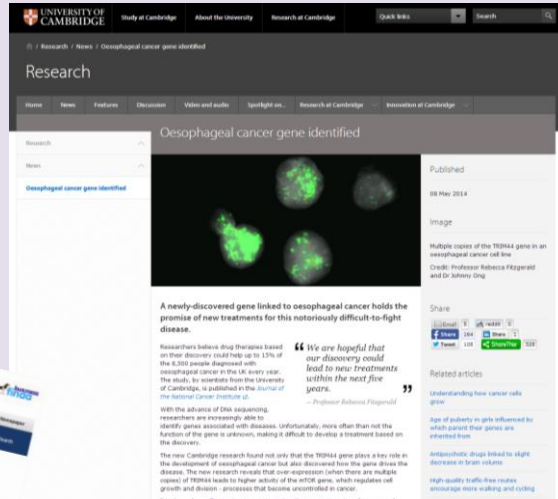
Arrivals and departures

We would like to welcome researchers Simon Stockwell, Cigdem Williams, Estrella Guarino Almeida (Venkitaraman group), Paulo Rodrigues (Vanharanta group), Ana Sofia Henriques da Costa, and Vincent Zecchini (Frezza group), to the Unit.

We would also like to welcome our summer vacation students, Erasmus programme students, and Amgen Scholars - Bhavesh Tailor, Karim Ahmad, Carlo Fumagalli, Sebastian Theobald, Emma Woolcock, Angel Galvez-Merchan, and Sara Przetocka- to the Unit, and hope they have a productive time during their visits.

Our scientists in the media

Professor Rebecca Fitzgerald's recent work on biomarkers for oesophageal cancer was [press released by the University of Cambridge](#), following its publication in the Journal of the National Cancer Institute. This gathered a range of local, national and international press coverage.



The MRC Cancer Unit and the Hutchison/MRC Research Centre's extensive energy saving activities, and the role of our Research Manager have been featured in the University's [Greenlines newsletter](#).

The ongoing development of the Cytosponge device for the early detection of oesophageal cancer, also led by **Professor Rebecca Fitzgerald**, was featured on the Channel 4 series *Embarrassing Bodies- Live from the Clinic*. Research collaborators from the University of Southampton demonstrated the device, and also discussed it on a recent [Cancer Research UK podcast](#).



Recent publications

Accuracy, Safety, and Tolerability of Tissue Collection by Cytosponge vs Endoscopy for Evaluation of Eosinophilic Esophagitis.

Katzka DA, Geno DM, Ravi A, Smyrk TC, Lao-Sirieix P, Miramedi A, DeBiram I, O'Donovan M, Kita H, Kephart GM, Kryzer LA, Camilleri M, Alexander JA, **Fitzgerald RC**. *Clin Gastroenterol Hepatol*. 2014 Jul 2. pii: S1542-3565(14)00933-1. doi: 10.1016/j.cgh.2014.06.026. [Epub ahead of print]

Ordering of mutations in preinvasive disease stages of esophageal carcinogenesis.

Weaver JM, Ross-Innes CS, Shannon N, Lynch AG, Forshew T, Barbera M, Murtaza M, Ong CA, Lao-Sirieix P, Dunning MJ, Smith L, Smith ML, Anderson CL, Carvalho B, O'Donovan M, Underwood TJ, May AP, Grehan N, Hardwick R, Davies J, Oloumi A, Aparicio S, Caldas C, Eldridge MD, Edwards PA, Rosenfeld N, Tavaré S, **Fitzgerald RC**; the OCCAMS Consortium. *Nat Genet*. 2014 Jun 22. doi: 10.1038/ng.3013. [Epub ahead of print]

Fluorescence imaging for the detection of early neoplasia in Barrett's esophagus: old looks or new vision?

Boerwinkel DF, Shariff MK, di Pietro M, Holz JA, Aalders MC, Curvers WL, **Fitzgerald RC**, Bergman JJ. *Eur J Gastroenterol Hepatol*. 2014 Jul;26(7):691-8. doi: 10.1097/MEG.000000000000101.

Biomarkers for Dysplastic Barrett's: Ready for Prime Time?

Gregson EM, **Fitzgerald RC**. *World J Surg*. 2014 May 21. [Epub ahead of print]

Amplification of TRIM44: pairing a prognostic target with potential therapeutic strategy.

Ong CA, Shannon NB, Ross-Innes CS, O'Donovan M, Rueda OM, Hu DE, Kettunen MI, Walker CE, Noorani A, Hardwick RH, Caldas C, Brindle K, **Fitzgerald RC**. *J Natl Cancer Inst*. 2014 Apr 28;106(5). pii: dju050. doi: 10.1093/jnci/dju050.

Barrett's Esophagus Translational Research Network (BETRNet): the pivotal role of multi-institutional collaboration in esophageal adenocarcinoma research.

Abrams JA, Appelman HD, Beer DG, Berry LD, Chak A, Falk GW, **Fitzgerald RC**, Ginsberg GG, Grady WM, Joshi BP, Lynch JP, Markowitz S, Richmond ES, Rustgi AK, Seibel EJ, Shaheen NJ, Shyr Y, Umar A, Wang KK, Wang TC, Wang TD, Yassin R. *Gastroenterology*. 2014 Jun;146(7):1586-90. doi: 10.1053/j.gastro.2014.04.014. Epub 2014 Apr 21.

Gastro-esophageal reflux disease symptoms and demographic factors as a pre-screening tool for Barrett's esophagus.

Liu X, Wong A, Kadri SR, Corovic A, O'Donovan M, Lao-Sirieix P, Lovat LB, Burnham RW, **Fitzgerald RC**. *PLoS One*. 2014 Apr 15;9(4):e94163. doi: 10.1371/journal.pone.0094163. eCollection 2014.

The combination of autofluorescence endoscopy and molecular biomarkers is a novel diagnostic tool for dysplasia in Barrett's oesophagus.

di Pietro M, Boerwinkel DF, Shariff MK, Liu X, Telakis E, Lao-Sirieix P, Walker E, Couch G, Mills L, Nuckcheddy-Grant T, Slininger S, O'Donovan M, Visser M, Meijer SL, Kaye PV, Wernisch L, Ragonath K, Bergman JJ, **Fitzgerald RC**. *Gut*. 2014 Apr 10. doi: 10.1136/gutjnl-2013-305975. [Epub ahead of print]

Defects in mitochondrial metabolism and cancer.

Gaude E, **Frezza** C. *Cancer Metab.* 2014 Jul 17;2:10. doi: 10.1186/2049-3002-2-10. eCollection 2014.

P439Comparative metabolomics identifies conserved metabolic pathways that control mitochondrial ROS production during ischaemia reperfusion injury.

Chouchani E, Pell V, Gaude E, Akseptijevic D, Shattock M, Davidson S, Duchon M, **Frezza** C, Krieg T, Murphy M. *Cardiovasc Res.* 2014 Jul 15;103 Suppl 1:S81. doi: 10.1093/cvr/cvu091.118. Epub 2014 Jun 27.

Germline FH mutations presenting with pheochromocytoma.

Clark GR, Sciacovelli M, Gaude E, Walsh DM, Kirby G, Simpson MA, Trembath RC, Berg JN, Woodward ER, Kinning E, Morrison PJ, **Frezza** C, Maher ER. *J Clin Endocrinol Metab.* 2014 Jul 8;jc20141659. [Epub ahead of print]

The metabolic alterations of cancer cells.

Sciacovelli M, Gaude E, Hilvo M, **Frezza** C. *Methods Enzymol.* 2014;542:1-23. doi: 10.1016/B978-0-12-416618-9.00001-7.

Nuclear ARRB1 induces pseudohypoxia and cellular metabolism reprogramming in prostate cancer.

Zecchini V, Madhu B, Russell R, Pérttega-Gomes N, Warren A, Gaude E, Borlido J, Stark R, Ireland-Zecchini H, Rao R, Scott H, Boren J, Massie C, Asim M, Brindle K, Griffiths J, **Frezza** C, Neal DE, Mills IG. *EMBO J.* 2014 Jun 17;33(12):1365-82. doi: 10.15252/embj.201386874. Epub 2014 May 16.

Mutation, clonal fitness and field change in epithelial carcinogenesis.

Frede J, Adams DJ, **Jones** PH. *J Pathol.* 2014 Jul 21. doi: 10.1002/path.4409. [Epub ahead of print]

Differentiation imbalance in single oesophageal progenitor cells causes clonal immortalization and field change.

Alcolea MP, Greulich P, Wabik A, Frede J, Simons BD, **Jones** PH. *Nat Cell Biol.* 2014 Jun;16(6):615-22. doi: 10.1038/ncb2963. Epub 2014 May 11.

Late Imaging with [1-11C]Acetate Improves Detection of Tumor Fatty Acid Synthesis with PET.

Lewis DY, Boren J, Shaw GL, Bielik R, Ramos-Montoya A, Larkin TJ, **Martins** CP, Neal DE, Soloviev D, Brindle KM. *J Nucl Med.* 2014 Apr 28;55(7):1144-1149. [Epub ahead of print]

Loss of the multifunctional RNA-binding protein RBM47 as a source of selectable metastatic traits in breast cancer.

Vanharanta S, Marney CB, Shu W, Valiente M, Zou Y, Mele A, Darnell RB, Massagué J. *Elife (Cambridge).* 2014 Jun 4:e02734. doi: 10.7554/eLife.02734. [Epub ahead of print]

High content screening of diverse compound libraries identifies potent modulators of tubulin dynamics.

Laraia L, Stokes J, Emery A, McKenzie GJ, **Venkitaraman** AR, Spring DR. ACS Med Chem Lett. 2014 Feb 24;5(5):598-603. doi: 10.1021/ml5000564. eCollection 2014 May 8.

Homeostatic control of polo-like kinase-1 engenders non-genetic heterogeneity in G2 checkpoint fidelity and timing.

Liang H, Esposito A, De S, Ber S, Collin P, Surana U, **Venkitaraman** AR. Nat Commun. 2014 Jun 4;5:4048. doi: 10.1038/ncomms5048.

Investigating peptide sequence variations for 'double-click' stapled p53 peptides.

Lau YH, de Andrade P, Sköld N, McKenzie GJ, **Venkitaraman** AR, Verma C, Lane DP, Spring DR. Org Biomol Chem. 2014 Jun 28;12(24):4074-7. doi: 10.1039/c4ob00742e.

Cancer suppression by the chromosome custodians, BRCA1 and BRCA2.

Venkitaraman AR. Science. 2014 Mar 28;343(6178):1470-5. doi: 10.1126/science.1252230.



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MRC Cancer Unit
University of Cambridge
Hutchison/MRC Research Centre
Box 197, Cambridge Biomedical Campus, Cambridge CB2 0XZ

Tel: 01223 763240
Email: contact@mrc-cu.cam.ac.uk

www.mrc-cu.cam.ac.uk