Early Cancer Institute 2023 Annual Symposium
Meet the speakers

Introduction

Prof Rebecca Fitzgerald OBE FMedSci: ***Welcome and introduction – our first year***

Rebecca became the inaugural director of the Early Cancer Institute at the University of Cambridge in 2022. After training in Cambridge, Stanford University, St Barts and the London Hospitals, she started her own group focussing on earlier detection of oesophageal and gastric cancer which have some of the poorest outcomes of all solid tumours.

Her pioneering work to devise a first-in-class, non-endoscopic capsule sponge test for identifying individuals at high risk for oesophageal cancer has won numerous prizes, including the Westminster Medal, and this test is now being rolled out in the NHS and beyond by her spin-out Cyted Ltd. Rebecca is passionate to bring translational science and entrepreneurship to the Early Cancer Institute so that we can fulfil our vision to predict and prevent cancer.

Session 1

Session chair – Dr Daniel Muñoz Espín

Daniel studied Biology and Molecular Biology at the Autonomous University of Madrid in Spain, where he also completed his PhD with cum laude honours within the Viral DNA Replication Group at the Centre of Molecular Biology Severo Ochoa (CMBSO), under the supervision of Dr Margarita Salas. He then moved to Dr Manuel Serrano's group at the Spanish National Cancer Research Centre (CNIO), where his main work, published in Cell and Nature Reviews Molecular Cell Biology, culminated with two grants: a "Ramon y Cajal Programme Senior Grant" and a "National Programme Grant for Researched Aimed at the H2020 Societal Changes".

In 2016, Daniel joined the Department of Oncology at the University of Cambridge as a Senior Research Associate and Principal Investigator with the Cancer Research UK Cambridge Centre Early Detection Programme. The experimental outputs of Muñoz-Espín's lab have been published in EMBO Molecular Medicine and Aging Cell, among other peer-reviewed journals.

KEYNOTE - Prof Xin Wei Wang: ***Exploring challenges and opportunities in early detection and risk prediction of liver cancer***

As Deputy Director and Senior Investigator at the NCI-CCR, Dr. Wang dedicates his professional life to improving early detection, diagnosis, and treatment of liver cancer. He is also co-Director of the Multidisciplinary CCR Liver Cancer Program and Deputy Chief of the CCR Laboratory of Human Carcinogenesis. He is co-PI of the NCI-CLARITY study and the TIGER-LC consortium.

Dr. Wang's research centres on functional genomics of liver cancer using genome-scale technologies paired with several international collaborative initiatives and clinical studies. His lab focuses on basic/translational research through building a global liver cancer database and employing integrated omics to understand tumour heterogeneity. He explores cutting-edge technologies such as genomics, transcriptomics, metabolomics, microbiomics, viromics and single cell analysis to define tumour subtypes, tumour cell evolution and subtype-specific biomarkers/drivers for early detection, diagnosis, prognosis, and prediction, and to delineate molecular mechanisms of liver cancer initiation and metastasis with applications towards precision oncology.

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Meet the speakers

Dr Tom Mitchell: ***The natural history of kidney cancer; prevention and predicting behaviour***

Tom studied medicine at Oxford University before training in urology in the East of England (2011-2018). He was awarded Fellowship of the Royal College of Surgeons in 2018. He now practices as a Consultant Urologist at Addenbrooke's Hospital, where he specialises in the surgical management of patients with kidney cancer.

His scientific training includes a DPhil in Engineering Science from Oxford University. During his clinical training he held an Academic Clinical Lectureship at Cambridge University (2014-2018). In 2018 he was awarded a Cancer Research UK Clinical Scientist Fellowship at the Wellcome Sanger Institute, prior to becoming a Group Leader in the Early Cancer Institute in 2023. His group aims to improve outcomes for patients with urological malignancies through developing clinically useful methods to predict tumour behaviour and implementing strategies to prevent incurable disease.

Dr Alex Frankell: ***Constructing tumour evolutionary histories for minimally-invasive tracking***

Alex graduated in Cell Biology from the University of Durham in 2014. He then went on to complete his doctoral training in Rebecca Fitzgerald's lab at the MRC Cancer Unit (now Early Cancer Institute).

From 2019 his postdoctoral research in Charles Swanton's lab at the Francis Crick Institute saw him working on the TRACERx project, for instance, studying how DNA released by lung tumours into the bloodstream can be used for non-invasive tracking of cancer evolution.

In the latter half of 2023, Alex will return to the Cambridge as a Junior Group Leader in the Early Cancer Institute. His new lab will develop further technologies to sensitively detect and characterise tumours, as well as pre-cancerous cells, using minimally-invasive samples The Frankell group will aim to unlock their potential for unbiased sampling and longitudinal monitoring to increase our understanding of cancer development and progression and form the basis of biomarkers for pre-malignant risk prediction, early cancer diagnosis and detection of treatment resistance.

Session 2

Session chair – Dr Harveer Dev

Harveer graduated with a BA(Hons) in Natural Sciences (2008) and an MB BChir (2011) from the University of Cambridge, before completing his basic surgical training at Addenbrooke's Hospital.

He developed his research interest in the role of DNA repair in cancer as a Fulbright Scholar at the Dana- Farber Cancer Institute (Boston, USA), and as a Wellcome Trust Doctoral fellow at the Gurdon Institute (Cambridge, UK). He is currently a Group Leader at the University of Cambridge Early Cancer Institute, and Prostate Cancer Foundation Young Investigator (2021).

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KEYNOTE - Prof Róisín M. Owens: ***Bioelectronic tools to model and detect early stages of cancer in-vitro***

Róisín is Professor of Bioelectronics at the Department of Chemical Engineering and Biotechnology in the University of Cambridge and a Fellow of Newnham College. She received her BA in Natural Sciences at Trinity College Dublin, and her PhD in Biochemistry and Molecular Biology at Southampton University.

She carried out two postdoctoral fellowships at Cornell University, on host-pathogen interactions. From 2009-2017 she was a group leader in the Department of Bioelectronics at Ecole des Mines de St. Etienne, on the microelectronics campus in Provence. Her current research centres on application of bioelectronic devices for monitoring biological systems in vitro, with a specific interest in the gut-brain-microbiome axis.

Dr Caroline Watson: ***A longitudinal multi-omic approach to understanding the development of blood cancer***

Caroline qualified in Medicine from the University of Oxford in 2010, before specialising in haematology in 2014. In 2017, she moved to Cambridge to join Jamie Blundell's lab in the CRUK Cambridge Centre Early Detection Programme as a CRUK-Clinical Research Fellow. She obtained her PhD in 2022 for her thesis titled '*The evolutionary dynamics of clonal haematopoiesis and its progression to acute myeloid leukaemia'*, for which she was awarded a Milo Keynes PhD thesis prize from the University of Cambridge.

In 2023, Caroline was awarded a Wellcome Early Career Award and was appointed as a Junior Group leader at the Early Cancer Institute. Her group is focused on using longitudinal state-of-the-art multi-omic approaches to gain a better understanding of the factors that affect progression of 'pre-leukaemic' conditions to leukaemia, with the goal of developing therapeutic strategies that may ultimately prevent the development of leukaemia. Caroline also works as an Honorary Haematology Consultant at Addenbrooke's Hospital.

Dr Siddhartha Kar: ***The inherited genetics of somatic genomic changes in cancer***

Siddhartha studied medicine at the Byramjee Jeejeebhoy Government Medical College and trained at the Sassoon General Hospitals in Pune, India. He holds an MPH degree from the University of Texas at Houston in the US and a PhD from the University of Cambridge, where he was a Gates Cambridge Scholar between 2012 and 2015. His scientific training has also included research posts at the MD Anderson Cancer Center in Houston, Texas (2010-2012) and as a Junior Research Fellow of Homerton College, Cambridge (2015-2019).

Siddhartha was awarded a UKRI Future Leaders' Fellowship in 2020 enabling him to establish his independent research group within the Medical Research Council (MRC) Integrative Epidemiology Unit at the University of Bristol. He returned to Cambridge as a Group Leader at the Early Cancer Institute in the Department of Oncology in March 2023.

Dr Jamie Blundell: ***Closing remarks***

Jamie trained as a theoretical physicist at the Cavendish laboratory, University of Cambridge with Eugene Terentjev studying the statistical physics of polymers. He moved to Stanford University in 2012 as a postdoctoral scholar working on the dynamics of clonal evolution with Daniel Fisher, Sasha Levy, Dmitri Petrov and Gavin Sherlock. He joined the CRUK Cambridge Centre Early Detection program in July 2017 and was awarded a UKRI Future leaders fellowship in September 2019. His research interests lie in quantitatively understanding somatic evolution in human tissues and using this understanding to detect cancer earlier. He is also the Anthony L. Lyster fellow at Queens' College, Cambridge.