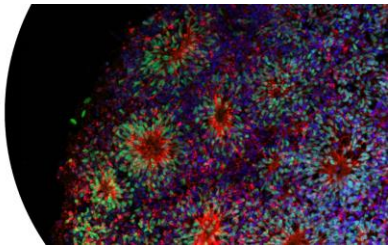
CRUK Cambridge Centre Neuro-oncology Conference 2021

Tues 18th & Wed 19th May 2021 | Online

CANCER RESEARCH UK | CAMBRIDGE CENTRE

NEURO-ONCOLOGY PROGRAMME

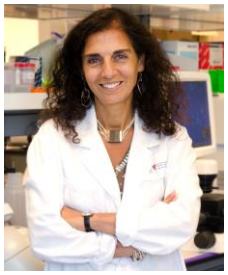


Keynote speakers

Ralph DeBerardinis joined the faculty of UT Southwestern Medical Center in 2008 and joined the Children's Medical Center Research Institute at UTSW (CRI) shortly after its founding in 2012. He is Chief of Pediatric Genetics and Metabolism at UTSW and Director of the Genetic and Metabolic Disease Program at CRI. Dr. DeBerardinis is a Howard Hughes Medical Institute Investigator and has received numerous awards including the William K. Bowes, Jr. Award in Medical Genetics, the National Cancer Institute's Outstanding Investigator Award and The Academy of Medicine, Engineering & Science of Texas's Edith and Peter O'Donnell Award in Medicine. He has been elected to the National Academy of Medicine and the Association of American Physicians.

Dr. DeBerardinis' laboratory studies the role of altered metabolic pathways in human diseases, including cancer and pediatric inborn errors of metabolism. The lab has pioneered the use of metabolomics and isotope tracing to characterize disease-associated metabolic states directly in patients, and to use disease-relevant model systems to explore how metabolic perturbations contributes to tissue dysfunction. Work from the DeBerardinis laboratory has produced new insights into disease mechanisms in numerous metabolic diseases, including by defining unexpected fuel preferences in human cancer and uncovering new metabolic vulnerabilities in cancer cells.

Dr. DeBerardinis received a Bachelor of Science in Biology from St. Joseph's University in Philadelphia before earning M.D. and Ph.D. degrees from the University of Pennsylvania's School of Medicine. He completed his post-graduate clinical training at The Children's Hospital of Philadelphia (CHOP) in Pediatrics, Medical Genetics and Clinical Biochemical Genetics. Before coming to UT Southwestern, he performed postdoctoral research at the Penn Cancer Center.



Nada Jabado is a Professor of Pediatrics at McGill University and pediatric neuro-oncologist at the Montreal Children's Hospital. She completed her residency in pediatrics with a specialization in hemato-oncology. She also obtained a PhD in Immunology in Paris, France, followed by a postdoctoral fellowship in biochemistry at McGill. She began her career as an independent investigator at McGill in 2003, pioneering a research program in pediatric brain tumors which is now unparalleled. Her group uncovered that pediatric high-grade astrocytomas (HGA) are molecularly and genetically distinct from adult tumors. More importantly, they identified a new molecular mechanism driving pediatric HGA, namely recurrent somatic driver mutations in the tail of histone 3 variants

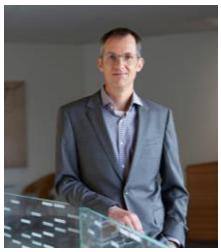
(H3.3 and H3.1).

Dr. Jabado's ground-breaking work has created a paradigm shift in cancer with the identification of histone mutations in human disease which has revolutionized this field, as the epigenome was a previously unsuspected hallmark of oncogenesis, thus linking development and what we now know are epigenetic-driven cancers. She has over 200 peer-reviewed publications to her credit, with an impressive number of senior-author, high-impact publications in such prominent journals as Nature, Science and Cell. She has over 27,000 citations and an h-index of 85 and many of her publications are considered landmark papers. Nada is an international leader in the field of neuro-oncology/cancer, honored by invitations as a keynote speaker at top ranked symposia and universities.

Dr. Jabado has been inducted as a Fellow to the Royal Society of Canada, is an appointed member of the CIHR Governing Council, and holds a Canada Research Chair in Pediatric Oncology.

Richard Gilbertson trained as a paediatric oncologist in the UK before moving in 2000 to St Jude Children's Research Hospital, USA where he served as Scientific and Comprehensive Cancer Centre Director, Executive Vice President and Lillian R Cannon Endowed Chair.

In August 2015, he moved back home to England where he Chairs the Department of Oncology and Directs the CRUK Cambridge Centre at the University of Cambridge. His laboratory research is focused on understanding the link between normal development and the origins of cancer, particularly brain tumors.



Roel Verhaak, PhD., is a Professor and Associate Director of the Jackson Laboratory for Genomic Medicine in Farmington, CT. The Verhaak lab studies glioma using genomic characterization and computational analyses, work that has helped redefine the way glioma in adult patients is classified. More recent efforts are focused on tumor evolution, which the lab is investigating using longitudinal tumor sequencing, single-cell sequencing, and via comparative oncology approaches. Roel Verhaak is a recipient of the AAAS Wachtel Award, the Agilent Early Career Professor Award, and the Peter Steck Memorial Award. He is a co-founder of Boundless Bio, a biotech company developing therapies against cancers containing extrachromosomal DNA amplifications.

Johanna Joyce is a Professor at the University of Lausanne, Switzerland, and Full Member of the international Ludwig Institute of Cancer Research. Prior to relocating her lab to Switzerland in 2016, she was a Full Member at Memorial Sloan Kettering Cancer Center and a Full Professor at Weill Cornell Medical School in New York.

Prof. Joyce's laboratory investigates the microenvironment in which

a tumor arises and the critical influence that non-cancerous immune and stromal cells can have on tumor progression, metastasis and therapeutic response. They have uncovered regulatory signals provided by the normal tissue stroma and immune cells to the cancer cells, and determined how normal cells can be modified by the cancer cells to produce a variety of factors that enhance tumor malignancy. A major focus of the lab's recent research has been to deeply and comprehensively interrogate the immune landscape of brain tumors, and then use this gained knowledge to develop novel strategies to therapeutically target the tumor microenvironment.

Prof. Joyce has been recognized for her contributions to cancer research through a series of awards including the Robert Bing Prize, Cloetta Prize, Swiss Bridge Award, American Cancer Society Scholar Award, Rita Allen Foundation Award, V Foundation Award, Sidney Kimmel Foundation Award, and many others. In 2017, she was elected as a Member of EMBO and a Fellow of the European Academy of Cancer Sciences, and in 2020 she was elected to the Women in Cancer Research Council of the AACR. She currently serves on the advisory boards of the CRUK Cambridge Institute and Cancer Center, Cambridge, UK, IRB Institute, Barcelona, Spain, and the Robert Bosch Center for Tumor Diseases, Stuttgart, Germany, and on the editorial boards of Cancer Cell, The Journal of Experimental Medicine, Cell Reports, and Trends in Cancer.

Flashtalk speakers

Silvia Benito-Kwiecinski is currently a postdoctoral researcher in Dr Madeline Lancaster's laboratory at the MRC Laboratory of Molecular Biology where she recently completed her PhD with the University of Cambridge. Silvia is interested in neurodevelopment and evolution and her research involves comparing early development of brain organoids derived from human and non-human ape species to identify and study human-specific features of brain development.

Harry Bulstrode is finishing his neurosurgical training at Addenbrooke's this year. He was awarded the British Neuro-Oncology Society Young Investigator of the Year Award in 2017 for PhD work on transcription factor regulation of glioma stem cell identity. Funded by a CRUK Pioneer Award he has gone on to study Zika virus targeting of parallel stem cell populations in the developing brain and in malignant glioma alongside his clinical training. Harry will be starting a Postdoctoral Clinician Scientist Fellowship at the Francis Crick Institute in London in August.

Tanay Ghosh is a Research Associate, working in the Franklin Lab, Wellcome-MRC Cambridge Stem Cell Institute, University of Cambridge. Tanay studied mathematics, genetics and received PhD (in Biotechnology) from the Institute of Genomics and Integrative Biology, India. He investigated transcriptional and posttranscriptional regulations in neurons. During his postdoc at INSERM Paris, he discovered microRNAs function to buffer progenitor's cell fate decision during cerebral cortex development. Throughout his research career he worked on functional genomics, non-coding RNAs and undertook data driven approach. His present research is targeted to investigate the functions of transposable genetic element during the differentiation of oligodendrocyte progenitor cells. Tanay is also a developer of web applications like gSWITCH (for identification of switch genes), gMARKER (for identification of cellular markers).

Petra Hamerlik Petra Hamerlik was born in Slovakia where she successfully graduated with a M.Sc. degree in Molecular Biology (2005). Petra continued her postgraduate (2008 Ph.D. degree in Medical Biology) and postdoctoral studies (2008-2010) in the Czech-Danish laboratory headed by Professor Bartek, who is among the leading figures in the field of DNA repair. Followed by a 2-year research scholarship in the laboratory of Professor Rich at Cleveland Clinic, she has returned to Denmark (2012) as a Group leader at the Danish Cancer Society (DCS). In 2014, Petra was appointed an Associate Professor at the University of Copenhagen. Petra's first priority as a group leader was to establish the Brain Tumor Tissue Repository. This well-characterized and robustly curated resource has underpinned a series of novel discoveries. In search for factors contributing to bevacizumab resistance in glioblastoma (GBM), Petra's work identified autocrine VEGFR2/VEGF-A signaling as a key factor in the maintenance of GBM stem-like cells (GSCs). Petra's team found that GSCs adopted a unique evasion mechanism, where VEGF-C aberrantly binds VEGFR2 in the absence of VEGF-A, and activates pro-survival signaling. This work supported the candidacy of VEGF-C as a novel therapeutic target in this cancer of unmet need. Petra's group identified a novel pro-oncogenic role for BRCA1 in GBM and investigated other molecular mechanisms such as the role of histone deacetylation or methylation in regulating DNA repair. Among her achievements are the prestigious DFF Young Elite Scientist, Hallas-Møller Investigator and Danish Cancer Society Young Researcher Awards, which enabled her to establish an independent research line primarily focused on improving our understanding of DNA damage response (DDR) regulation and its impact on genomic instability of GBM. In August 2020, Petra joined AstraZeneca as an Associate Director in Bioscience to lead drug discovery programs in the DDRi team.

Chao Li is a Research Fellow at the Cambridge Mathematics of Information in Healthcare and Cambridge Brain Tumour Imaging Laboratory in the University of Cambridge since 2019. He did his PhD in Clinical Neurosciences from 2015 to 2018 in Cambridge. Before his PhD, Chao was a neurosurgeon trained in Shanghai Jiao Tong University and Fudan University. Since PhD, his research focuses on characterising tumour heterogeneity of glioblastoma using multi-parametric MRI. Radiomics, radiogenomics and machine learning approaches are developed and leveraged to identify the invasive tumour phenotypes and tumour subregions in glioma patients for risk stratification and targeted treatment. At the same time, Chao is developing novel artificial intelligence tools to transform the patient care of neuro-oncology. He has particular researcj interests in developing explainable artificial intelligence tools to bridge the gap between model development and real-world clinical application. New approaches, including those integrating mathematical modelling or multi-omics data with deep learning, are developed to more accurately predict tumour invasion, malignancy transformation and disease progression in a range of brain tumours. The research outputs from these research projects could provide clinical decision support for tailored treatment in brain tumour patients

Ayan Mandal BS, is a PhD candidate and Gates Cambridge Scholar in the Department of Psychiatry at the University of Cambridge. His work leverages recent advances in network neuroscience and neuroimaging-genetics to better understand the origins, migration patterns, and cognitive consequences of glioma brain tumours. He completed his undergraduate training at Georgetown University, where he studied Neurobiology and Physics, and was awarded the Barry Goldwater Scholarship for his work in mapping brain structures vital for the self-monitoring of speech errors in patients with aphasia. He aspires to be a physician-scientist, translating modern neuroimaging tools to improve care for patients with neurological conditions. His research has been presented at several national and international conferences and published in multiple peer-reviewed journals, including Brain, Neurobiology of Language, and Neurorehabilitation and Neural Repair.

Michael McNicholas is a research assistant, working in Dr Manav Pathania's laboratory in the Department of Oncology and the CRUK Children's Brain Tumour Centre of Excellence. He graduated with a BSc in Biochemistry from the University of Surrey where he carried out a wide variety of projects as part of a research-intensive undergraduate degree. These included studying the DNA damage response in cancer cell lines with Lisiane Meira at Surrey, and the role of the opioid system and G-protein coupled receptors in addiction and associative learning in Brigitte Kieffer's lab at McGill. In the Pathania Lab he is working on understanding how histone mutations rewire the epigenome to induce DIPGs and the role of different co-occurring mutations in this process.

Shaun Png is from Singapore and did his undergraduate studies in Biochemistry in Imperial College London from 2015-2018. This included an internship at the Babraham Institute in Rahul Roychoudhuri lab studying tumour immunology under the Wellcome Trust Biomedical Vacation Scholarship in 2017. For his final year project, he worked on CRISPR/Cas and gene editing in malaria in Andrea Crisanti's Lab. Shaun joined the Halim Lab at the CRUK Cambridge Institute in 2018 where his PhD focuses on the immune response to radiotherapy in lung cancer.

Roy Rabbie is a registrar in medical oncology at Cambridge University Hospitals. He previously undertook an MSc in pharmacology at the University of Oxford and has trained in internal medicine and medical oncology in London and Cambridge. He recently completed a PhD at the Wellcome Trust Sanger Institute focussing on the genomics of cutaneous melanoma, which has been published in several journals. He will discuss his work on the molecular profiling of melanoma brain metastases.

Eric Rahrmann is currently a Senior Research Associate in Prof Richard Gilbertson's laboratory at CRUK Cambridge Institute. Eric completed is graduate school training in the laboratory of Dr. David Largaespada at the University of Minnesota, where he acquired expertise in mouse genetics and use of genome engineering tools. Using forward genetic screens of mouse models, he identified new cancer genes and potential therapies of prostate, B cell and peripheral nerve tumorigenesis. Having received a Marie Sklodowská-Curie individual Fellowship, continued his post-doctoral training with Prof Gilbertson. His current work focuses on the contribution of cell membrane potential in maintaining stem cell potency in normal and malignant tissues.

Jessica Taylor is a Postdoctoral Research Associate in the Gilbertson lab at CRUK Cambridge Institute, having recently completed her PhD studies in repurposing chemotherapeutics to treat Glioblastoma Multiforme at the University of Manchester. Her current work in developmental paediatric brain tumours focuses on novel therapeutics that will mitigate post-therapeutic morbidity in brain cancer survivors.

Anastasia Tsyben is an Academic Clinical Research Fellow at CRUK. She completed her undergraduate degree in Neurosciences at Queen's University, Canada and her medical degree at the University of Cambridge. She is currently completing her PhD in the Brindle lab looking at the metabolism of Glioblastoma.