



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



[www.tcd.ie /healthsciences/](http://www.tcd.ie/healthsciences/)



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

The Faculty of Health Sciences
presents

The Inaugural Lecture of Professor Mark Cunningham |

23 March 2023

[www.tcd.ie /healthsciences/](http://www.tcd.ie/healthsciences/)

Hacking the brain's accelerator: novel therapies for epilepsy?

Professor Mark Cunningham



Mark Cunningham is the Ellen Mayston Bates Professor of Neurophysiology of Epilepsy at Trinity College Dublin and the Head of the Discipline of Physiology.

He was born in Newry and received his early education at St Colman's Abbey Primary school and the Abbey Grammar CBS. After reading Physiology at Queen's University Belfast, he gained his PhD in Physiology from University of Bristol.

During his PhD, Mark examined the impact of several anti-seizure medications on synaptic transmission, focusing on the spontaneous release of glutamate and GABA at cortical synapses. Following a yearlong post-doctoral position at Bristol University in 2001 he moved to the University of Leeds to undertake a research fellowship with Professor's Eberhard Buhl and Miles Whittington where he worked on neuronal oscillations in health and disease states. In 2004 he was a visiting scientist at the University of Heidelberg working with Professor Hannah Monyer to combine state of the art transgenics with electrophysiology. In 2006 Mark moved to Newcastle to take a Research Council UK Academic Fellowship and he stayed in Newcastle until 2018 during which time he gained tenure and then subsequently was appointed to a Professorship in Neuronal Dynamics. During this time in Newcastle he established, for the first time in the UK, the capacity to conduct live human brain tissue studies from patients with refractory epilepsy.

In the summer of 2018 Mark was appointed to his current position and over the last five years he has established a research group that uses neurophysiological techniques to study the mechanisms by which neuronal microcircuits generate organised electrical activity in the brain. He has a particular interest in understanding how pathological electrical activity is generated by the epileptic brain and how this can help develop better treatments for epilepsy. He is a funded investigator at the FutureNeuro SFI Research Centre in Dublin.

Inaugural lectures provide newly appointed professors with the opportunity to showcase their academic activity to the College community and members of the public. An inaugural lecture is a significant event in an academic staff member's career. At Trinity College, inaugural lectures are a ceremonial occasion, which is why academic robes are worn by the inaugural professor and the rest of the platform party.

Working with the FutureNeuro team and neurosurgeons at Beaumont Hospital he has established electrophysiological recordings in human epileptic brain slices for the first time in Ireland.

Mark's research has been funded by the BBSRC, MRC, Wellcome Trust, Epilepsy Research UK, Action on Hearing Loss, Hadwen Trust, Innovate UK, Wolfson Foundation, The Royal Society and Science Foundation Ireland. He has also had funding from several global pharmaceutical companies. He was a member of the Wellcome Trust Biomedical Resource and Technology Development Committee (2018-2021) and the Scientific Advisory Committee at Epilepsy Research UK (2014-2018). He is a fellow of the Centre for the Advancement of Sustainable Medical Innovation (CASMI) which is based at University College London. He has also acted on numerous advisory boards and as a consultant to several pharmaceutical companies. He is a member of the British Neuroscience Association, The Physiological Society, the British Clinical Neurophysiology Society and the International League against Epilepsy (ILAE) (UK and Ireland chapters). He is a member of the Brain Tumour-related epilepsy international research consortium. Mark has also been the lead for the TASK1-Working Group 3 American Epilepsy Society/ILAE translational task force of the ILAE which will report on *in vitro* models of epilepsy later this year.

It is Mark's firm belief is that science can transform society for the better. He believes engagement and communication of science will change scientific practice by improving the diversity and inclusion issues that are inherent in science. To this end, he has participated in numerous public engagement events (Pint of Science, Festival of Curiosity, International Epilepsy Day). He takes a keen interest in STEAM (Science, Technology, Engineering, Art, and Math) activities with and collaborates with ANU Productions and the interdisciplinary artist, Fiona McDonald. His interactions with ANU Productions, which began as Science Gallery Rapid Residency, culminated in the exhibition 'The Wernicke's Area' at the Irish Museum of Modern Art in 2023. Mark is also an Equality, Diversity and Inclusion advisor at the Photo Museum Ireland.

Mark lives in Newry with Laura, their two children Evie and James and the 'third child' Pixie.

To learn more about the Cunningham lab's research progress visit www.cunninghamlab.org