



## Institute of Biology of Ireland Activity Series, 2019/20

**The Institute of Biology of Ireland, as part of the 2019/20 Activity Series, invites its members, the general public, families and friends to a free lecture at**

**TUDUBLIN, Cathal Brugha St., Dublin 1**

**Title: "Gene therapy approaches to treat disrupted brain waves: how worms could hold the key"**

**Date and Time: Thursday, November 7<sup>th</sup> @ 7.30 pm**

**Location: Kathleen O'Sullivan (KOS) Lecture Theatre, TUDUBLIN, Cathal Brugha, Street, Dublin 1 (Previously DIT)**

**Keynote Speaker: Mark Cunningham, Professor of Neurophysiology of Epilepsy (Physiology)**



Mark Cunningham is the Ellen Mayston Bates Professor of Neurophysiology of Epilepsy at Trinity College Dublin. He uses electrophysiology 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 was born in Newry, Co. Down and educated at the Abbey Grammar CBS. After reading Physiology at Queen's University Belfast, he received a PhD in Physiology from Bristol

University. He then undertook post-doctoral research positions at Bristol University, University of Leeds, Heidelberg University and Newcastle University. Before joining Trinity, Professor Cunningham held a Professorship in Neuronal Dynamics at the Institute of Neuroscience, Newcastle University. His research has been funded by the BBSRC, MRC, Wellcome Trust, Epilepsy Research UK, Action on Hearing Loss, Hadwen Trust, Innovate UK, Wolfson Foundation and The Royal Society. He has also had significant funding from a number of global pharmaceutical companies. Professor Cunningham currently sits on the Biomedical Resource and Technology Development

Committee at the Wellcome Trust. He is a fellow of the Centre for the Advancement of Sustainable Medical Innovation (CASMI). He has also acted on numerous advisory boards and as a consultant to numerous pharmaceutical companies. He is a member of the British Neuroscience Association, The Physiological Society (UK) and the International League against Epilepsy (ILAE). He has over 55 peer-reviewed publications. In 2019 he was elected as a Professorial Fellow at Trinity College Dublin.

## About the Lecture

Seizures are a frequent symptom for patients with brain tumours and are poorly controlled. These seizures are due to an increased level of a chemical messenger, or neurotransmitter, around the tumour. Neurotransmitters such as glutamate allow brain cells to talk to one another. Glutamate does this by exciting brain cells. I will present evidence that shows the role of excessive glutamate in overexciting brain cells around the tumour and how this leads to seizure activity. During the talk I will outline how we aim to develop a gene therapy method to stop brain tumour related seizures. This approach will use an inhibitory ion channel, found in helminths (worms), that is activated when it detects increases in the neurotransmitter glutamate. We anticipate that this novel approach will stop abnormal brain wave activity that occurs during a seizure.

## Location Details

**TUDUBLIN, *Cathal Brugha Street is just off O'Connell Street and is served well by bus and Luas (Green Line). There is pay-parking in the nearby Q-Park Clerys in Marlborough Street, North City, Dublin, D01 W207***

