



RE-IMAGINING THE GLUTAMATERGIC SYNAPSE: FROM STRUCTURE-FUNCTION TO NEUROLOGICAL DISEASE

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The Bowie Lab uses a combination of techniques to study ionotropic glutamate receptors (iGluRs), GABA-A receptors and more recently, sodium and potassium channels. All ion-channel families are widespread in the vertebrate brain and fulfill many important roles in healthy individuals as well as being implicated in disease states associated with postnatal development (e.g. autism, schizophrenia), cerebral insult (e.g. stroke, epilepsy) and aging disorders (e.g. Alzheimer's disease, Parkinsonism).

We are looking at iGluRs, GABA-A receptors, Na⁺ and K⁺ channels at two inter-related levels. In molecular terms, we are examining the events that occur when each ion-channel family is activated with the aim of developing novel therapeutic compounds. At the cellular level, we are studying the role they fulfill in shaping the behaviour of neuronal circuits and how these processes may be corrected in disease states. The talk will focus on recent work from the lab on a subclass of iGluRs, called AMPA receptors.

Dr. Derek Bowie is a Professor of Pharmacology & Therapeutics at McGill University and co-Director of the Cell Information Systems. The Bowie lab focuses on several major ion-channel families with a special emphasis on their role in neurodevelopmental disorders. He earned his Ph.D. at the University of London after completing his undergraduate degree at Strathclyde University in Scotland. He then carried out postdoctoral training in France (Université Louis Pasteur), Switzerland (Universität Zürich) and the US (National Institutes of Health) before taking a faculty position at Emory University (Atlanta, GA, USA). He started his research program at McGill in 2002 and is currently a Full Professor. He was recently a Visiting Professor in Japan (Natl. Institutes for Physiological Sciences). He is the recipient of the Canada Research Chair award in Receptor Pharmacology and has served on numerous national and international advisory panels including IBRO. Current Opinion in Physiology and Frontiers in Neural Circuits. In 2022, he co-founded the McGill spin-off company, Nospharma, to develop and bring to market therapeutics for the treatment of rare neurological disorders.



Hosted by: **Xavier Altafaj**

October 6th
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Faculty of Medicine and Health Sciences
Campus Clinic | Aula 2 "August Pi i Sunyer"

