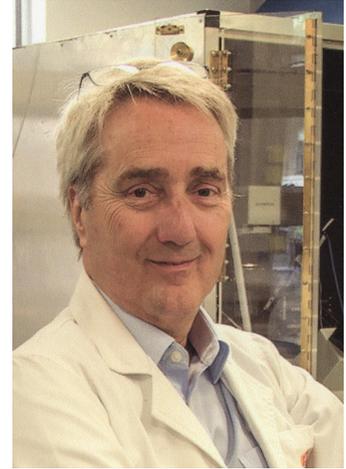


INRC 2018 AWARDEES

Founders' Lecture – Professor Macdonald Christie

Dr. Macdonald (Mac) Christie is Professor of Pharmacology, University of Sydney School of Medical Sciences. Mac is a neuropharmacologist, an internationally renowned electrophysiologist and expert in ion channel and synaptic physiology and pharmacology and the leading basic opioid pharmacologist in Australia. He leads a research team that studies cellular and molecular mechanisms in opioid receptor signaling in pain pathways, the biological basis of adaptations that produce chronic pain and drug dependence and is Chief Investigator on a NHMRC Program grant involving preclinical development of novel pain therapeutics. Professor Christie is internationally renowned for his studies on ion channel function and neural network plasticity in nervous system disorders such as chronic pain and drug dependence. His research is fundamentally important given the increasing use of opioids to manage moderate to severe chronic pain is complicated by adverse effects such as tolerance, opioid dependence and in some cases, addiction. Mac is a past Director (Basic Research) and Professor at the Pain Management Research Institute, Royal North Shore Hospital, and Director of Pain and Addiction Research at the Brain and Mind Research Institute, University of Sydney. He is a member of the Board of Directors of the Woolcock Institute of Medical Research and of the Sydney Cancer Institute and member of the NSW Tissue Resource Centre Management Committee.



Professor Christie's research has heralded numerous 'firsts'. He contributed to the first cloning of the D2 dopamine receptor (*Nature*) and achieved the first expression of a mammalian voltage-gated potassium channel (*Science*), and first functional demonstration of its heteropolymerisation (*Neuron*). His later research uncovered the mechanisms of plasticity of G-protein receptor coupling in neurons that are transforming thinking regarding opioid tolerance and ion channel plasticity in chronic pain states. His group discovered that μ and δ opioid receptors in nerve cells share common G-Protein receptor coupling mechanisms and provided the first evidence of direct coupling of μ -receptors to GIRK channels and of coupling of the opioid-related receptor ORL1, to GIRK channels in brain as well as in cannabinoid signaling. He discovered a novel signalling mechanism for G-Protein Coupled Receptors (GPCR) in synapses in brain (*Nature*). This provided a basis for seminal findings on plasticity of signaling in opioid withdrawal published in *Neuron* (2005) and recently in *Nature Neuroscience* (2011).

Mac received a BSc (Hons, First Class) from the School of Biological Sciences, Flinders University of South Australia in 1978 and Ph.D. From the Department of Pharmacology at The University of Sydney in 1983. Mac had postdoctoral fellowships at the University of Melbourne and MIT and was a Senior Research Associate at the Vollum Institute, Oregon Health Sciences University, where he produced his seminal work on opiate receptors with Dr. Alan North. He returned to the University of Sydney in 1990 and has been there ever since.