

**Title:****Mammalian gene transcription: structure, function and design****Abstract:**

Our work is focused on trying to ask questions about the molecular events that take place to allow transcription factors to turn genes on and off. What are the players involved, how do they interact with each other and how does the interplay between these interactions give rise to the functional outcomes that we observe in an organism?

In this seminar, I will describe some of our efforts in this area. This will include trying to come to grips with the structure and function of the nucleosome remodelling and deacetylase (NuRD) complex – a widely expressed and conserved chromatin remodeller – as well as trying to get our heads around the connection between this complex and the intricacies of epigenetic gene regulation centred on BET bromodomain proteins.

**Short bio:**

**Joel Mackay** trained as a chemist at the University of Auckland and a chemical biologist at The University of Cambridge before moving to Australia to postdoc with Glenn King at the University of Sydney. Over the course of the subsequent twenty years, he has succeeded in moving a total of about 20 metres up the corridor to where he runs a laboratory that has as its main focus understanding the molecular mechanisms underlying mammalian gene regulation. His main expertise is in protein NMR spectroscopy and the analysis of protein interactions, but the lab's efforts have diversified considerably in the last decade. The work of his group has been recognized by a number of national scientific awards, including the Gottschalk medal from the Australian Academy of Science, the Roche medal from the ASBMB and the Prime Minister's Life Scientist of the Year award. Most recently, he was awarded the 2016 Labgear Discovery Science award from the ASBMB for distinguished contributions to the field of biochemistry and molecular biology.