SPECIAL SEMINAR
MONDAY 27 APRIL 2015 AT 1:00 PM
AUDITORIUM, CENTRAL BUILDING, QIMR BERGHOFER

**NeuroMetals as new targets for anti-inflammatory therapeutics**

Associate Professor Anthony White
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Hosted by Professor Greg Anderson, Iron Metabolism,
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Associate Professor White investigates the cellular pathology of neurodegenerative diseases, and has a strong focus on the role of biometals in neurodegenerative processes and as novel targets for neurotherapeutics. His research has led to the development of first-in-class metal-drugs as a new therapeutic approach to treat motor neurone, Parkinson’s and Alzheimer’s diseases through the targeting of complementary biometal pathways in these disorders.

Associate Professor White has published over 100 original research papers, reviews and book chapters, secured $10 million in competitive funding, is Associate Editor for *Neurochemistry International* and an Editorial Board member on seven international journals. He co-founded a start-up biotech company, Procypra Therapeutics, that is bringing a novel copper-based metal-drug to clinical trials for motor neurone disease.

Neurodegenerative diseases are caused by complex molecular pathways resulting in common neuropathological outcomes including protein aggregation, neuroinflammation and neuronal cell degeneration. An increasingly well-recognised factor in these pathogenic changes is a loss of biological metal (biometal) homeostasis resulting in abnormal accumulation and function of copper, zinc, iron and additional key NeuroMetals. Associate Professor White’s research has demonstrated that changes to glial biometal metabolism has a critical role in early neurodegenerative disease processes and is likely to be a major factor in subsequent neuroinflammatory responses.

Associate Professor White’s research has demonstrated that bis(thiosemicarbazone)-metal complexes offer an exciting new approach to treat neuroinflammation by inducing Nrf2-mediated anti-oxidant and anti-inflammatory responses in astrocytes and microglia. Ongoing research indicates that these compounds have the potential to shift neuroinflammatory responses from a cytotoxic M1 response to protective M2 response, potentially involving the mobilization of iron. The metal-complexes have generated robust anti-inflammatory and neuroprotective outcomes in multiple cell and animals of neurodegenerative diseases and are currently being developed for clinical application.