Australian National University

Dissecting host-parasite interactions through metabolomics analysis

Monday 26 November 2012 1pm

Professor Malcolm McConville University of Melbourne and Bio21 Institute

Slatyer Seminar Room RN Robertson Building (46), ANU

Protozoan parasites such as *Plasmodium falciparum*, *Toxoplasma gondii* and *Leishmania spp* are the cause of the some of the most devastating and/or prevalent infections to afflict humanity. Current drug therapies for treating malaria, toxoplasmosis and the leishmaniases are limited and are continuously being undermined by the development of drug resistance. Despite intensive research over several decades, we still have relatively limited information on the basic nutrient requirements and core metabolism of these pathogens *in vivo*, which in turn has hampered the development of better anti-parasite drugs. Malcolm McConville's research has focused on developing new metabolomics approaches for probing the metabolic and physiological state of the obligate intracellular parasite stages that are responsible for both acute and long-term chronic infections. Using a combination of metabolite profiling and stable isotope labeling his group have identified unanticipated and novel metabolic pathways that are essential for parasite pathogenesis. These approaches highlight the need to study parasite metabolism in vivo and are broadly applicable to other host-pathogen systems.

Malcolm McConville's research group are interested in dissecting the core metabolism of protozoan and bacterial pathogens with the view of identifying new therapies for diseases such as malaria, leishmaniasis and tuberculosis. Malcolm is an NHMRC Principal Research Fellow and acting director for the Bio21 Institute of Molecular Science and Biotechnology, University of Melbourne. He also heads the University of Melbourne node of Metabolomics Australia, a NCRIS-funded facility charged with delivery of advanced analytical and informatics capability in metabolomics to Australian researchers.

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