

Model systems: Organoids and animal models for therapeutic development

The development of therapeutics and understanding of pathogens of pandemic potential requires appropriate model systems. With a recent shift away from cell lines, primary tissue or organoids as well as appropriate mouse models, are of increasing interest.

Organoids can be derived from either adult tissue or stem cells and can provide a more physiological system to assess pathogen replication and pathogenesis. Similarly, mice with a humanized immune system allow for more biologically relevant studies, especially in relation to immunopathogenesis.

The Doherty Institute and the University of Melbourne have significant expertise in a range of organoid models, both tissue and stem cell derived, for the upper and lower respiratory tract, gut and brain with an increasing interest in more complex models that can also mimic the immune response. A state of the art animal facility houses numerous mouse models, at both BSL2 and BSL3 containment, and a recent new program is developing humanized mouse models. A critical mass of researchers extends across the precinct including organoid programs at MCRI, Peter Macallum Cancer Hospital and WEHI.

University of Melbourne is seeking new researchers at academic Level C-D who can join in and benefit from the developing critical mass of research talent and facilities for immunotherapy research. We are seeking researchers or technical experts with demonstrated expertise to build an internationally competitive research program in:

Examples of expertise

- Expertise in tissue or stem cell derived organoid systems
- Expertise in animal models of infection, including humanized mouse models

