Functional High Throughput Technologies Australia

Organoid Nexus 2024: High Throughput Innovation Meeting

When: November 7, 2024 Time: 8:45am arrival for 9am start, concludes at 5:15pm Where: Bio21 Institute, 30 Flemington Rd, Parkville VIC Attendance: In-person only





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Program

Organoids represent a revolutionary approach to biomedical research and are now widely accepted as a tool for personalised medicine. This meeting focuses on high throughput methodologies to characterise and quantify simple and complex cultures, perform and analyse drug screens and applications towards personalised medicine.

Come and join our national thought collective as we progress the field forwards. Short oral presentations only, lots of discussion and networking opportunities. All welcome!

Welcome							
8:45-9:00	Registration						
	Tea and Coffee on arrival						
9:00-9:05	Conference Welcome and Housekeeping						
	Kaylene Simpson						
9:05-10:45	National Service Providers						
Chair	r Twishi Gulati						
	National Collaborative Research Infrastrucuture Strategy						
	Stuart Newman, Therapeutic Innovation Austalia						
	Translational Cancer Research Program						
	Louise Winteringham, Harry Perkins Medical Research Institute						
	Monash Organoid Program						
	Eglantine Ballad, Monash University						
	Brain Organoid Therapeutics						
	Cedric Bardy, South Australia Health and Medical Research Institute						
	Australian Organoid Facility						
	Nathan Godde, University of Queensland						
	<u>3D Culture Facility</u>						
	Alison Ferguson, University of New South Wales						
	Innovation Centre						
	Jacek Kolanowski, Victor Chang Cardiac Research Institute						
	<u>Compounds Australia</u> Rebecca Lang, Griffith University <u>ANU Centre of Therapeutic Discovery</u> Amee George, Australian National University						
	Victorian Centre for Functional Genomics						
	Kaylene Simpson, Peter MacCallum Cancer Centre						
	Drug Discovery Centre						
	Tim Failes, Children's Cancer Institute Australia						



9:05-10:45 High-Throughput Organoid Screening and Automation

Chair Kaylene Simpson

Developing a high-throughput iPSC-derived kidney organoid model for high-quality, rapid, and efficient screening

Roelof Dinkelberg, Monash University

Patient-derived organoids for liver cancer research

Sara Pasic, Curtin University

Drug screen and machine learning predict neuroprotective agents in a preclinical human model of childhood dementia

Cedric Bardy, South Australia Health and Medical Research Institute

Designing meaningful 3D cultures for optimal readout compatibility

Martin Engel, Inventia

Utilising high-throughput organoid drug screening to reveal personalised treatment opportunities for late-stage colorectal cancer

Harrison Boka, Monash University

High-throughput screening of cardioprotective compounds using multicellular cardiac organoids derived from Friedreich ataxia iPSCs

Jarmon Lees, St Vincent's Institute

Development of an end-to-end therapeutic screening platform for glioblastoma

Zachery Moore, Walter Eliza Hall Institute

3D bioprinting of organoid models for drug discovery

Amee George, Australian National University

Drug screening in organoid models to identify novel combinations for treatment of rare gynaecological cancers

Andrew Farrell, Walter Eliza Hall Institute

Into the third dimension: Integration of the Rastrum bioprinter and Janus liquid handling platforms for long term PdxDO drug screens

Joe Polidano, Walter Eliza Hall Institute

Open discussion

10:45-11:15 Morning Tea

11:15-13:00 High-Throughput Organoid Screening and Automation (continued)

Chair Amee George

Establishment of a platform for automated generation and high-throughput screening of brain organoids: a versatile tool to advance new therapies for neurological conditions Maria Giovanna Garone, Murdoch Children's Research Institute

Stem cell-based pre-clinical screening of new treatments for glomerular disease Aude Dorison, Murdoch Children's Research Institute

3D modelling of tumor-NK cell interactions in metastatic colorectal cancer Robin Wagner, The University of Melbourne



	Development of a Staphylococcus aureus human nasal colonisation model						
	Abdou Hachani, Peter Doherty Institute						
	Novel organoid models enable pre-clinical chemotherapy screening for Mucinous Ovarian						
	Carcinoma						
	Olivia Craig, Peter MacCallum Cancer Centre						
	Pipeline for long-term phenotypic monitoring of organoids maturation and heterogeneity						
	for screening						
	Pallavi Srivastava, Victor Chang Cardiac Research Institute						
11:15-13:00	Multi-Omics Integration and Functional Genomics in Organoid Research						
Chair	Amee George						
	Identification of Multipotent Progenitor Cells in Oesophageal Submucosal Glands through						
	Single-Cell Transcriptomics and Organoid Cultures- Implications for Barrett's Metaplasia						
	Ibukun Adejumobi, Peter MacCallum Cancer Centre						
	Whole genome CRISPR-Cas9 screening in pancreatic cancer organoids						
	Antonin Serrano, The University of Melbourne						
	Multi-omics characterisation of breast cancer organoids						
	Dilys Leung, Monash University						
	A high-throughput imaging assay for drug screening with prostate cancer organoids						
	Nicholas Choo, Monash University						
	Multi-omic analysis of hypoxic injury and maladaptive repair in human kidney organoid						
	Alex Combes. Monash University						
	Open discussion						
11:15-13:00	Vendor talks						
Chair	Amee George						
	Introduction to RASTRUM: Inventia's High-Throughput 3D Cell Modelling Platform						
	Kelly von Egmond, Inventia						
	Integrated Solutions for Organoids						
	Jonathan Cechetto, Revvity						
	Tools for high content in the third dimension						
	Oliver Trusler, Thermo Fisher						
	Ignite Your Organoid Research with Millennium Science						
	Marta Gabryelska, Millennium Science						
13:00-14:00	Lunch (and optional VCFG lab tour)						
14:00-15:30	Personalized Medicine through Organoid Technologies						
Chair	Twishi Gulati						
	Utilising CRISPR and drug HTS in cancer cell lines to prioritise biomarkers in organoids						
	Michael Menden, University of Melbourne						
	FIS assay in cystic fibrosis research						
	Bala Umashankar, University of New South Wales						



Developing	а	patient-derived	organoid	platform	for	personalized	chemotherapy	in
advanced gastric cancer								

Tharindie Silva, University of Adelaide

Generation of patient derived micro-organoids for precision medicine in endometriosis Brett McKinnon, The University of Queensland

Developing a fluorescence-based colorectal cancer organoid/CAR-T cell co-culture assay to assess CAR-T cell cytotoxicity

Milton Mui, Peter MacCallum Cancer Centre

Multiplexed High-throughput 3D Co-culture Screening Pipeline

Mark Li, Peter MacCallum Cancer Centre

Mapping chemotherapy resistance mechanisms in mucinous ovarian cancer via barcode clonal tracking using MAC-seq

Suad Abdirahman, Peter MacCallum Cancer Centre

The development of personalised medicine strategies for rectal cancer

Krystal Lianos, Queensland Institute of Medical Research

The use of semi-synthetic matrices to develop personalised breast cancer organoid platforms

Anu Thomas Koikalethu, Queensland University of Technology

Single Organoid Analyses for Precision Medicine

Susanne Ramm, Peter MacCallum Cancer Centre

PREDICTORG: a translational personalised medicine approach in colorectal peritoneal metastases

Anshini Jain, Peter MacCallum Cancer Centre

Engineered paediatric tumour models for precision medicine

Valentina Poltavets, Children's Cancer Institute

Organoids Model Authentic Infection

Elizabeth Vincan, Peter Doherty Institute

Dynamic Interface Printing: a Novel Biofabrication Method for Organoid Research

Callum Vidler, University of Melbourne

Open discussion

15:45-16:15	Afternoon Tea		
Session 6	Future of Organoid Screening		
Chair	Amee George		
16:15-17:15	Open discussion		
17:15 onwards	Conference concludes		

