

Centre for Cell Therapy and Regenerative Medicine





Joint 6th Margaret River Region Forum and 9th ASSCR **Annual Scientific Meeting** Stem Cells: Fundamental Biology and Clinical Translation

Program

DAY ONE - Sunday 4th December 2016			
1.00 - 5.30pm	Registration		
2:00 - 2:15pm	Welcome and Opening		
Session 1	Genome Organization in Stem Cells Chairs: A/Professor Julian Heng and Dr Michael O'Connor		
2:15 - 3:00pm	Professor Melissa Little Murdoch Childrens Research Institute, The University of Melbourne <i>Generating kidney tissue from human pluripotent stem cells</i>		
3:00 - 3:30pm	A/Professor Jose Polo Monash University <i>Reprogramming into the human pluripotent naive state</i>		
3:30 - 3:45pm	O1: Miss Alicia-Jane Twigger The University of Western Australia Normal expression of cancer-related genes in the mammary gland during pregnancy and lactation		
3:45 - 4:00pm	O2: Ms Hannah Glover University of Sydney <i>L-Proline activates mTOR and MAPK in mouse embryonic stem cells to produce a</i> <i>spatially distinct population of primed primitive ectoderm-like cells and induce neural</i> <i>differentiation</i>		

4:00 - 4:30pm	Afternoon Tea with Trade Display
Session 2	Clinical Session: Defining the Boundaries of Clinical Practice in Stem Cell Therapy (Sponsored by Orthocell)
4:30 - 6:00pm	Professor Minghao Zheng & Panel of Invited Speakers
6:00 - 7:00pm	Welcome Reception

DAY TWO - Monday 5th December 2016

8:00am - 5:00pm	Registration
Session 1	Epigenetics of Reprogramming (Sponsored by Thermofisher Scientific) Chairs: A/Professor Jose Polo and Professor Hui Yao Lan
8:30 - 9:00am	Dr Clare Weeden Walter and Eliza Hall Institute of Medical Research <i>Human lung basal stem cells display enhanced propensity for error-prone DNA repair</i>
9:00 - 9:15am	Dr Oz Bogdanovic Harry Perkins Institute of Medical Research, The University of Western Australia Active DNA demethylation regulates vertebrate body plan formation during embryogenesis
9:15 - 9:30am	O3: Christian Nefzger Monash University <i>Transcriptional and functional decline of the intestinal stem cell niche during ageing</i>
9:30 - 9:45am	O4: Ms Sara Alaei Monash University <i>The m3 reverse transcriptional transactivator enhances the reprogramming efficiency</i> <i>of the oksm mouse model</i>
9:45 - 10.00am	O5: Mr Xiaodong Liu Monash University Dissecting the cellular pathways of human reprogramming
10:00 - 10:15am	O6: Nadeeka Bandara Charles Sturt University <i>Nitric oxide reprograms rat bone marrow derived mesenchymal stem cells to</i> <i>endothelial-like cells through activation of canonical wnt signalling</i>
10:15 - 10:30am	O7: Dr Rebecca Lim Hudson Institute of Medical Research, Monash University <i>Phase 1b clinical trial assessing safety of allogeneic amnion epithelial cells in</i> <i>premature babies with established bronchopulmonary dysplasia</i>
10:30 - 11:00am	Morning Tea with Trade Display
Session 2	Single Cell Studies of Stem Cells (Sponsored by Eppendorf) Chairs: Dr Samuel McLenachan and A/Professor Pritinder Kaur
11:00 - 11:30am	Professor Edouard Stanley Murdoch Childrens Research Institute, The University of Melbourne <i>Differentiation and genetic modification of human pluripotent stem cells</i>
11:30 - 11:45am	O8: Mrs Nona Farbehi The University of New South Wales <i>Unraveling heterogeneity of cardiac MSCs by single cell RNA seq</i>

11:45 - 12:00pm	O9: Ms Bianca Nowlan Queensland University of Technology <i>Hematopoietic stem cells antigen expression of CD27 and CD201 in NSG and NOD-SCID</i> <i>mice</i>
12:00 - 12:15pm	O10: Darryl Knight The University of Newcastle Using maldi-imaging to investigate region-specific proteome in lungs of patients with pulmonary fibrosis
12:15 - 12:30pm	O11: Dr Dandan Zhu Hudson Institute of Medical Research, Monash University Human amnion epithelial cells as a treatment for bronchopulmonary dysplasia and associated pulmonary hypertension
12:30 - 2:00pm	Lunch Break with Trade Displays Poster Session 1 (Odd Numbered Posters)
Session 3 Part 1	Stem Cell, Matrix and Scaffold Chairs: A/Professor Mike Doran and Professor Deirdre Coombe
2:00 – 2:45pm	Professor Shulamit Levenberg Technion, Israel Institute of Technology <i>Stem Cells and Tissue Engineering</i>
2:45 - 3:15pm	Professor Justin Cooper-White Australian Institute for Bioengineering & Nanotechnology <i>Release the Wolverine! Target? Reprogramming</i>
3:15 - 3:30pm	O12: A/Professor David Nisbet Australian National University Scaffolds that support stem cell transplants
3:30 - 3:45pm	O13: Dr Yu Suk Choi The University of Western Australia <i>Tunable stiffness gradient hydrogels for stem cell mechanotransduction</i>
3:45 - 4:15pm	Afternoon Tea with Trade Display
Session 3 Part 2	Stem Cell, Matrix and Scaffold (Sponsored by Stem Cell Technologies) Chairs: Dr Yu Suk Choi and A/Professor David Nisbet
4:15 - 4:30pm	Dr Brendan Kennedy Harry Perkins Institute for Medical Research, The University of Western Australia Imaging the micro-scale mechanical properties of tissues and cells using optical elastography
4:30 - 4:45pm	Dr Barry Doyle Harry Perkins Institute for Medical Research, The University of Western Australia <i>Cardiovascular biomechanics in health and disease</i>
4:45 - 5:00pm	O14: Dr Damian Hernandez The University of Melbourne Effects of electrical stimulation on cardiac tissue grown from human induced pluripotent stem cells
5:00 - 5:15pm	O15: A/Professor Ann Chidgey Monash University <i>Native thymic extracellular matrix improves in vivo thymic organoid T cell output and</i> <i>in vitro thymic epithelial stem cell self-renewal and differentiation.</i>
5:15 - 5:20pm	Student Presentations

Session 4	Young Investigators Session Chairs: A/Professor Bronwen Connor and Professor John Challis
5:20 - 5:35pm	O16: Miss Hananeh Fonoudi Victor Chang Cardiac Research Institute, The University of New South Wales <i>Unraveling genetic causation of hypoplastic left heart using induced pluripotent stem</i> <i>cells</i>
5:35 - 5:50pm	O17: Mr Tim Kao Murdoch Childrens Research Institute GAPTrap: a simple expression system for pluripotent stem cells and their derivatives
5:50 - 6:05pm	O18: Miss Amy Chapman The University of Auckland <i>Investigating the functional maturation of human induced neural precursor-derived</i> <i>neurons</i>
6:05 - 6:20pm	O19: Dr Elizabeth Ng Murdoch Childrens Research Institute Differentiation of human embryonic stem cells to HOXA+ hemogenic vasculature that resembles the aorta-gonad-mesonephros
6:20 - 6:35pm	O20: Dr Duncan Crombie Centre for Eye Research Australia <i>Friedreich ataxia-induced pluripotent stem cell-derived cardiomyocytes; phenotypes</i> <i>and therapy</i>
6:35 - 6:50pm	O21: Dr Melanie Domingues CSIRO Bone marrow sinusoidal endothelium: a hierarchically organised system with scavenging endothelial stem cells giving rise to functional blood vessels
7:00 - 11:00pm	BBQ & Young Investigators Networking Event (Sponsored by Western Australian Health Translation Network and Cancer Council of WA)

DAY THREE - Tuesday 6th December 2016

8:00 - 8:30am	Registration
Session 1	Stem Cell Genetics and Disease (Sponsored by Cynata Therapeutics) Chairs: A/Professor Susie Nilsson and A/Professor Helen Abud
8:30 - 9:00am	A/Professor Natasha Harvey Centre for Cancer Biology GATA2 and the transcriptional programming of endothelial cell identity
9:00 - 9:15am	A/Professor Pritinder Kaur Curtin University of Technology <i>Pericytes promote human skin tissue regeneration by increasing symmetric divisions</i>
9:15 - 9:30am	O22: Dr Nathan Palpant The University of Queensland <i>Epigenetic and transcriptional analysis of mesoderm progenitors identifies HOPX as a</i> <i>novel regulator of hemogenic endothelium</i>
9:30 - 9:45am	O23: Ms Alison Conquest Centre for Eye Research Australia <i>Modelling AMD pathogenesis using human induced pluripotent stem cells</i>

9:45 - 10:00am	O24: Dr Kathryn Jones The University of Auckland <i>Generating induced dopamine precursor cells from human dermal fibroblasts using</i> <i>direct mRNA reprogramming.</i>
10:00 - 10:15am	O25: Dr Anna Brooks The University of Auckland In search of the elusive tissue-resident mesenchymal stem cell: Using multicolour flow cytometry to facilitate characterisation of stromal cell populations in human dissociated tissue
10:15 - 10:20am	Dr Kilian Kelly Cynata Therapeutics <i>Next Generation iPSC-Derived MSC Therapies</i>
10:20 - 11.00am	Morning Tea with Trade Display
Session 2	Stem Cells Asia Chair: Dr Caroline Gargett and Professor Minghao Zheng
11:00 - 11:20am	Professor Li Gang Chinese University of Hong Kong Allogenic mesenchymal stem cells and cell products in musculoskeletal regeneration
11:20 - 11:40am	Professor Hui Yao Lan Chinese University of Hong Kong Macrophage-myofibroblast transition in tissue scarring: role of Smad3
11:40 - 12:00pm	Professor Gao Xiang Model Animal Research Centre, Nanjing University <i>Fatty acid regulates iPSC reprogramming</i>
12:00- 1:00pm	Lunch Break with Trade Displays
1:00 - 2:00pm	ASSCR AGM
Session 3	Organ-based Stem Cell Therapies Chairs: Professor Melissa Little and Dr Andrew Lucas
2:00 - 2:30pm	A/Professor Christine Wells Centre for Stem Cell Systems, The University of Melbourne A molecular Atlas of Stem Cells
2:30 - 2:45pm	O26: A/Professor Susie Nilsson CSIRO Modulating stem cell interactions with their niche rapidly mobilises HSC
2:45 - 3:00pm	O27: Dr Caroline Gargett Hudson Institute of Medical Research <i>Culture expansion of undifferentiated mesenchymal stem/stromal cells using a small</i> <i>molecule inhibitor</i>
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3:00 - 3:15pm	O28: Dr Jean Tan Hudson Institute of Medical Research, Monash University <i>Human amnion epithelial cell exosomes as treatment for lung fibrosis – breathing in the</i> <i>secretomes of cell therapy</i>

	3:30 - 3:45pm	O30: A/Professor Mike Doran Translational Research Institute, Queensland University of Technology <i>Polydimethylsiloxane (PDMS) modulates CD38 expression, absorbs retinoic acid and</i> <i>may perturb retinoid signalling</i>
	3:45 - 4:00pm	O31: Professor Graham Jenkin Hudson Institute of Medical Research, Monash University <i>Umbilical cord blood derived mesenchymal stromal cells protect against preterm white</i> <i>matter brain injury following hypoxia-ischaemia</i>
	4:00 - 5:15pm	Afternoon Tea with Trade Display Poster Session 2 (Even Numbered Posters)
	Session 4	Best of the Best Poster Presentations Chairs: Professor George Yeoh and Dr Rod Dilley
-	5:15 - 5:20pm	P1: Kiryu K Yap O'Brien Institute <i>Bio-engineering vascularised human liver organoids from adult stem/progenitor cells</i>
-	5:20 - 5:25pm	P2: Ms Yi Wang Australian National University Self assembled peptide scaffold to support primary cortical neuron survival and growth in vitro
-	5:25 - 5:30pm	P3: Mr Majid Alhomrani Hudson Institute of Medical Research, Monash University <i>Human amnion epithelial cells-derived extracellular vesicles reduce fibrosis in a mouse</i> <i>model of liver fibrosis.</i>
•	5:30 - 5:35pm	P5: Ms Ena Music Queensland University of Technology Constant and pulsed parathyroid hormone(1-34) administration mitigates mesenchymal stem/stromal cell hypertrophy but at the expense of chondrogenesis
•	5:35 - 5:40pm	P6: Ms Grace Lidgerwood Centre for Eye Research Australia Lysophosphatidic acid signalling in human pluripotent stem cell-derived retinal pigment epithelial cells
	5:40 - 5:50pm	Poster Discussion
	6:15pm	Buses to depart for Dinner Venue
	7:00 - 10:00pm	Conference Dinner and Announcement of Young Investigator Prize and Poster Prize

DAY FOUR – Wednesday 7th December 2016		
Session 1	Immunotherapies and Stem Cells (Sponsored by Lonza Australia) Chairs: Dr Michael O'Connor and Professor Andrew Elefanty	
8:30 - 9:00am	Professor Marian Sturm Cell and Tissue Therapies WA, Royal Perth Hospital <i>Mesenchymal stem cell therapy for immunomodulation; clinical trials in WA</i>	
9:00 - 9:15am	O32: Dr Bryan Leaw Hudson Institute of Medical Research <i>Amnion cells promote microglia survival and reduce cell death in a model of perinatal</i> <i>brain injury</i>	

9:15 - 9:30am	O33: Dr Rebecca Lim Hudson Institute of Medical Research, Monash University Human amnion epithelial cells and its secretome - a potential cell-free therapy
9:30 - 9:45am	O34: Professor Minghao Zheng The University of Western Australia <i>Regulation of mitochondrial transfer and mitophagy in osteocytes</i>
9:45 - 10:00am	O35: Mr Joe Yasa Harry Perkins Institute for Medical Research, The University of Western Australia A potential role for Insulin-like Growth Factor-1 in lung regeneration revealed following longitudinal micro-CT imaging of very old pneumonectomised mice.
10:00 - 10:20am	Professor Fiona Wood The University of Western Australia <i>The systemic impact of acute burn injury</i>
10:20 - 10:30am	Meeting Close
10:30 - 10:55am	Packed lunch pickup
11.00am	Bus departure

Posters		
Poster Session One: Monday 5th December 12:30 - 2:00pm		
#101	Infantile Neurodegenerative Disorder Associated with Mutations in TBCD	Hayley Cullen
#103	Wnt regulates muscle stem cell differentiation through miRNA mediated Pax7 degradation	Shuang Cui
#105	Liver progenitor cells derived from pluripotent stem cells	Ken Woo
#107	Encapsulated human embryonic stem cells partially differentiated in vitro, express insulin mRNA and C-peptide when transplanted into diabetic mice.	Luke M Carroll
#109	A novel growth factor-like role for the amino acid L-proline in driving neural lineage commitment of mouse embryonic stem cells through EPL cell, definitive ectoderm and neurectoderm populations	Rachel Shparberg
#111	The utility of GCTM-5 antibody as a diagnostic marker for severe and chronic liver disease and potential as a prognostic marker for hepatocellular carcinoma	Luke Diepeveen
#113	Bone marrow-derived mesenchymal stromal cells utilization in mimicking prostate cancer-invaded bone marrow niche	Eman Mosaad
#115	The role of YAP/TAZ in stem cell mechanobiology	Meg McFetridge
#117	Bio-engineering Vascularised Human Liver Organoids from Adult Stem/Progenitor cells	Kiryu K Yap
#119	Benefits of mesenchymal stem cells for wound healing in the eardrum	Huan Ting Ong

#121	Establishing the genetic causes of human brain growth disorders using a 3D based organoid system	Martina Mariano
#125	Feeder-free effective maintenance of human embryonic stem cell pluripotency and functional biomimetic extracellular matrix	Ricky Lareu
#127	The decline in ovarian cell signalling with ageing and the effect on oocyte quality in humans	Sheena Regan
#129	Hypoxia and colorectal cancer stem cells	Reem Alhulais
#131	A Novel 3D Tympanic Membrane Organ Culture System Using Cell Culture Well Inserts Engrafted With Tympanic Membrane Tissue Explants	Lawrence Liew
#133	Development and pharmacological profiling of human embryonic stem cell-derived medium spiny neurons	Cameron P Hunt
#135	Evaluating anti-CD20 therapy for STAT3-mediated lung fibrosis	Cecilia Prele
#137	Human amnion epithelial cells-derived extracellular vesicles reduce fibrosis in a mouse model of liver fibrosis.	Majid Alhomrani
#139	Constant and pulsed parathyroid hormone(1-34) administration mitigates mesenchymal stem/stromal cell hypertrophy but at the expense of chondrogenesis	Ena Music

Poster Session Two: Tuesday 6th December 4:00 - 5:15pm			
#104	Fabrication of engineered tendon by uni-axial loading induced AKT signal pathway	Tao Wang	
#106	Human amnion epithelial cells modulate liver progenitor cell proliferation, differentiation and chemotaxis	Neil Andrewartha	
#108	Towards the development of a bioengineered uterus: Evaluation of host immune response after transplantation of decellularized uterus segments in the rat	Mats Hellstrom	
#110	Neurogenesis in the supraependymal region of the adult rat	Thazhumpal Mathew	
#112	Is human HSC engraftment compromised following direct bone marrow transplantation in NSG mice?	Kathryn Futrega	
#114	Mammary cell transcriptome variation during different stages of development	Alecia-Jane Twigger	
#116	Jagged2/Notch2 signaling is required for the maintenance of liver cancer stem cells	Guang Wu	
#118	SOCS1 and 3 expression is determined by fibroblast phenotype in Idiopathic Pulmonary Fibrosis	Cecilia Prele	
#120	Neurons ex machina: 3D in vitro models of neurological development from human iPSCs	Tom Barsby	
#122	RP58 and p27 coordinate neural stem cell proliferation and radial migration within the embryonic mouse cerebral cortex	Isabel Hemming	

#124	Using mIPSCs to elucidate the downstream mediators of miR- 196 activity during Hox gene activation.	Heidi Bildsoe
#126	Exploring a liver progenitor cell cancer model: The loss of Cdkn2a contributes to liver progenitor cell transformation in vitro	Robyn Strauss
#128	Induced pluripotent stem cells for modeling retinal diseases	Samuel McLenachan
#132	Effects of CSF-1-induced maturation and IL-4 activation on macrophage migration	Eloise Greenland
#134	A role for CDK4 in the regulation of growth and maturation of islet beta cells in the pancreas	Gerard Hoyne
#136	Multilineage differentiation potential of luminal mammary cancer stem cells	Lesley G Ellies
#138	Self assembled peptide scaffold to support primary cortical neuron survival and growth in vitro	Yi Wang
#140	Lysophosphatidic acid signalling in human pluripotent stem cell- derived retinal pigment epithelial cells	Grace Lidgerwood

