

PROGRAM

The Victor Chang Cardiac Research Institute
17th International Symposium
& Princesses' Lecture

In conjunction with St Vincent's Hospital and NSW St Vincent's Clinical School

From Cardiovascular Development to Regenerative Medicine

Incorporating the annual Cardiac Theme meeting of Stem Cells
Australia and the annual meeting of The Australian Network of Cardiac
and Vascular Developmental Biologists

& Public Lecture:

Stem Cells – Hype and Hope

Sydney, Australia
Sunday 6 – Tuesday 8 November 2016

<http://www.victorchang.edu.au/home/news-events/event/symposium/>

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Welcome

Dear Colleagues and Participants,

Despite clinical advances over many decades, salvaging the loss of life from acute coronary syndrome, heralded as a triumph of modern medicine, many patients inevitably progress to heart failure, which is now in epidemic proportions. One in three will die from cardiovascular causes worldwide. The engrained dogma is that the adult mammalian heart is refractory to regeneration after insult – instead undergoing maladaptive remodelling leading to scar formation and irreversible contractile dysfunction and pathology. This is in contrast to the robust regeneration seen in fetal and neonatal mammalian hearts, and in the adult hearts of amphibians and other species.

Inspired by research into these permissive models, researchers have made exciting discoveries over the last few years that have begun to erode the view that adult mammalian hearts cannot regenerate after injury. Stem cells are present in adult hearts and their therapeutic potential is being explored in the clinic. Furthermore, genetic, growth factor and bioengineering approaches have shown that heart regeneration can be stimulated and lost capacity rejuvenated after aging. Cardiomyocytes can to some degree be coaxed to re-enter the cell cycle and contribute to tissue replacement.

Healthy aging and heart regeneration after a catastrophic injury such as a heart attack is our ultimate goal. The latter will inevitably involve a complex dialogue between the different cell types in the damaged organ, including vascular cells and the immune cells that invade to clear debris and foster repair. Resolution of fibrous scar and replacement of lost tissue will occur through expansion of existing cardiomyocytes and vascular cells, and may also involve stem cell-based and paracrine support mechanisms. Importantly, the pathways and processes active during heart development form the template for heart regeneration.

The 17th Victor Chang International Symposium, *From Cardiovascular Development to Regenerative Medicine*, will take stock of this exciting, rapidly moving and controversial field. We will ask how far we have come and how far we need to travel to realise the dream of heart regeneration. The meeting will detail how regeneration in permissive models helps us understand and overcome the roadblocks to heart regeneration in adult humans. It will span new discoveries in heart and vascular development and growth pathways, and explore the role that stem cell systems, immune cells and cardiomyocytes play in heart regeneration and rejuvenation. It will consider the state-of-the-art in human cardiac stem cell clinical trials, and through our Public Lectures, cover the ethics and public perceptions of stem cell research and provision of unproven commercial therapies. Regeneration science is empowered by contemporary genetics and genome science, animal biology, bioengineering and clinical medicine, all of which will be showcased at this meeting. The Symposium will feature international leaders and opinion makers in regeneration biology, as well as the emerging leaders in this field in Australia.

Welcome to this event and I hope you find many stimulating moments and interactions.

On behalf of the Organising Committee,



Richard P Harvey PhD



Organising Committee

Symposium Conveners:

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Symposium Day One

Morning - Sunday 6 November		
11:30 – 12:15	Registration (Coffee & Tea)	Garvan Auditorium 384 Victoria Street Darlinghurst NSW 2010 (Burton Street, Entrance)
12:15 – 12:20	Welcome and Opening Dr Antonio Penna Department of Health	Garvan Auditorium
Afternoon - Sunday 6 November		
Session I	Vascular Development and Disease Garvan Auditorium Sponsored by: Gordon's Specialty Feeds	Chairs: Natasha Harvey, Ben Hogan
12:20 – 12:40	<i>TBA</i>	Jose-Xavier Neto Brazilian Biosciences National Laboratory San Paulo, Brazil
12:40 – 13:00	<i>Building blood and lymphatic vessels in vertebrates: Insights from zebrafish</i>	Karina Yaniv Weizmann Institute, Rehovot, Israel
13:00 – 13:20	<i>Development and function of a novel perivascular lineage in the zebrafish brain</i>	Ben Hogan Institute for Molecular Bioscience, University of Queensland, Australia
13:20 – 13:40	<i>Regulation of lymphatic vessel morphogenesis by GATA2</i>	Natasha Harvey Centre for Cancer Biology, SA Pathology, University of South Australia, Adelaide, Australia
13:40 – 14:00	<i>SoxF factors induce Notch1 expression via direct transcriptional regulation during early vascular development</i>	Mat Francois Institute for Molecular Bioscience, University of Queensland, Australia
14:00 – 14:20	<i>Investigating the ancestry of early blood cells</i>	Samir Taoudi Walter and Eliza Hall Institute of Medical Research, Victoria, Australia
14:20 – 15:00	Afternoon Tea	

Afternoon - Sunday 6 November			
Session II	Cardiovascular Development and Disease Garvan Auditorium Sponsored by: The Company of Biologists		Chair: Richard Harvey
15:00 – 15:20	<i>Why do cold-blooded vertebrates have a spongy cardiac ventricle and warm-blooded vertebrates a compact ventricular wall?</i>	Antoon Moorman Sponsored by: The Company of Biologists	Academic Medical Centre, Amsterdam
15:20 – 15:40	<i>Modification of hyaluronic acid by Tmem2 is required for cardiovascular development</i>	Kelly Smith	Institute for Molecular Bioscience, University of Queensland, Australia
15:40 – 16:00	<i>Cardiac jelly dynamics reveal a new model for cardiac trabeculation</i>	Gonzalo del Monte	Victor Chang Cardiac Research Institute, Sydney, Australia
16:00 – 16:20	<i>Gestational stress induces the unfolded protein response, resulting in heart defects</i>	Hongjun Shi	Victor Chang Cardiac Research Institute, Sydney, Australia
16:20 – 16:40	<i>A chromatin modifying complex regulating heart development</i>	Anne Kathrin Voss	Walter and Eliza Hall Institute of Medical Research, Victoria, Australia
16:40 – 17:00	Poster Teasers – 1		

Evening - Sunday 6 November			
Poster Session & Drinks /Canapés	Galleria – Garvan Institute 384 Victoria Street Darlinghurst NSW 201 (Victoria St Entrance)		Judges: Sally Dunwoodie, Kazu Kikuchi, Kelly Smith, Mat Francois, Vaibhao Janbandhu, Enzo Porrello, James Hudson
17:00 – 18:30	Poster Session 1 & Drinks / Canapés		
18:30 – 20:30	BBQ Dinner		Cloud 9 Café Victor Chang Institute Lowy Packer Building Level 9, 405 Liverpool Street

Symposium Day Two

Morning – Monday 7 November

08:00 – 08:35	Registration (Coffee & Tea)	Garvan Auditorium 384 Victoria Street, Darlinghurst NSW 2010 (Burton Street, Entrance)
08:35 – 08:40	Welcome	Garvan Auditorium

Morning – Monday 7 November

Session I	Developmental Origins of Cardiovascular Disease - Cardiogenomics and Epigenomics Garvan Auditorium		Chairs: Mirana Ramialison, David Elliott
08:40 – 09:00	<i>Exploring the cardiac regulatory genome</i>	Mirana Ramialison	Australian Regenerative Medicine Institute, Monash University, Victoria, Australia
09:00 – 09:20	<i>Identifying the genetic causes of congenital heart disease</i>	Sally Dunwoodie	Victor Chang Cardiac Research Institute, Sydney, Australia
09:20 – 09:40	<i>Genetic regulation of human cardiomyogenesis</i>	David Elliott	Murdoch Childrens Research Institute, Victoria, Australia
09:40 – 10:00	<i>Using chromatin dynamics to identify genes regulating cell identity and fate</i>	Nathan Palpant	Institute for Molecular Bioscience, University of Queensland, Australia
10:00 – 10:20	<i>Probing the cardiac gene regulatory network in development and disease using DamID</i>	Romarc Bouveret	Victor Chang Cardiac Research Institute, Sydney, Australia
10:20 – 11:00	Morning Tea		

Morning – Lunch - Monday 7 November

Session II	Organ Function in Health and Disease Garvan Auditorium		Chairs: Diane Fatkin, Rob Bryson Richardson
11:00 – 11:20	<i>Post-GWAS: a new era of discovery in atrial fibrillation?</i>	Diane Fatkin	Victor Chang Cardiac Research Institute, Sydney, Australia
11:20 – 11:40	<i>The role of blood flow in patterning the embryonic heart</i>	Rob Bryson-Richardson	School of Biological Sciences, Monash University, Victoria Australia
11:40 – 12:00	<i>Molecular signaling in CCM pathogenesis</i>	Xiangjian Zheng	Centenary Institute, Sydney, Australia
12:00 – 12:20	<i>Role of hypoxia signaling in adult cardiac CFU-Fs</i>	Vaibhao Janbandhu	Victor Chang Cardiac Research Institute, Sydney, Australia
12:20 – 12:40	<i>Rationale, evidence and delivery strategy for autologous cord stem cells utilization during the first stage surgical palliation of hypoplastic left heart syndrome</i>	Christian Brizard	The Royal Children’s Hospital, Melbourne, Australia
12:40 – 13:40	Lunch		

Afternoon – Monday 7 November

Session III	Cardiovascular Bioengineering and Reprogramming Garvan Auditorium		Chairs: Jose Polo, James Hudson
13:40 – 13:50	<i>Bioengineering cardiac regeneration</i>	Nenad Bursac	Duke Biomedical Engineering Duke University, Durham, North Carolina, USA
13:50 – 14:10	<i>Bioengineering cardiac organoid models</i>	James Hudson	School of Biomedical Sciences, University of Queensland, Australia
14:10 – 14:30	<i>Targeted direct reprogramming for improved function post AMI</i>	Justin Cooper-White	Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, Australia
14:30 – 14:50	<i>Conversion of somatic cells into tissue-regenerative multipotent stem cells</i>	John Pimanda	Prince of Wales Clinical School, UNSW Medicine, University of New South Wales, Sydney, Australia
14:50 – 15:10	<i>Crating specific cell types by transcription factor-mediated reprogramming</i>	Jose Polo	Monash Biomedicine Discovery Institute, Monash University, Victoria, Australia
15:10-15:20	Poster teasers 2		

15:30 – 16:30	<p>Princesses' Lecture Introduction by Prof Robert Graham Sponsored by: Cytocentrics, USA</p>	<p>Garvan Auditorium 384 Victoria Street, Darlinghurst NSW 2010 (Burton Street, Entrance)</p>
	<p>Title: <i>Thyroid hormone pathways and cardiac growth</i></p>	<p>Prof Ahsan Husain Division of Cardiology Emory University School of Medicine Atlanta, GA, USA</p>

Late Afternoon / Evening - Monday 7 November

<p>Poster Session & Drinks / Canapés</p>	<p>Galleria – Garvan Institute 384 Victoria Street Darlinghurst NSW 2010 (Victoria St Entrance)</p>	<p>Judges: Sally Dunwoodie, Kazu Kikuchi, Kelly Smith, Mat Francois, Vaibhao Janbandhu, Enzo Porrello, James Hudson</p>
16:30 – 19:00	Poster Session 2 & Drinks / Canapés	

19:00 – 21:00	<p>Victor Chang Cardiac Research Institute Symposium Speakers Dinner</p>	<p>Victor Chang Institute Lowy Packer Building Level 4, 405 Liverpool St Darlinghurst, 2010</p>
	<p>Dinner by Invitation</p>	<p>Dinner Speaker – Prof Vanessa Hayes Garvan Institute of Medical Research, Sydney, Australia</p>

Symposium Day Three

Morning – Tuesday 8 November

08:00 – 08:30	Registration (Coffee & Tea)	Garvan Auditorium 384 Victoria Street, Darlinghurst NSW 2010 (Burton Street, Entrance)
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Morning – Tuesday 8 November

Session I	Heart Regeneration in Diverse Systems Garvan Auditorium Sponsored by: Novartis Pharmaceuticals Australia	Chairs: Nadia Rosenthal, Enzo Porrello
08:30 – 08:50	<i>The relevance of connective tissues to regeneration</i>	Elly Tanaka Centre for Regenerative Therapies, Dresden University of Technology, Dresden, Germany
08:50 – 09:10	<i>Organ-specific regenerative programs mediated by T cells</i>	Kazu Kikuchi Victor Chang Cardiac Research Institute, Sydney, Australia
09:10 – 09:30	<i>Transcriptional control of mammalian heart regeneration</i>	Enzo Porrello School of Biomedical Sciences, University of Queensland, Australia
9:30 – 09:50	<i>Cardiac regenerative strategies</i>	Eldad Tzahor Weizmann Institute, Rehovot, Israel
09:50 – 10:10	<i>Immune control of cardiac regeneration</i>	Nadia Rosenthal The Jackson Laboratory, Bar Harbor, Maine, USA
10:10 – 10:50	Morning Tea	

Morning – Tuesday 8 November

Session II	Towards Cardiac Regeneration Therapies in Man Garvan Auditorium Sponsored by: HeartKids	Chair: Richard Harvey
10:50 – 11:10	<i>Mechanisms of cardiomyocyte proliferation and differentiation</i>	Bernard Kuhn Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine, Pennsylvania, USA
11:10 – 11:30	<i>Stem cell strategies for cardiac regeneration</i>	James Chong Millennium Institute and University of Sydney Medical School, Australia
11:30 – 11:50	<i>The postnatal vascular wall as a stem cell niche – Discovery of adventitial macrophage progenitors in health and disease</i>	Peter Psaltis South Australian Health and Medical Research Institute, Adelaide, Australia

11:50 – 12:10	<i>New solutions for old problems in children with congenital heart disease</i>	David Winlaw Sponsored by: HeartKids	Heart Centre for Children, The Children's Hospital at Westmead and University of Sydney, Australia
12:10 – 12:30	<i>Cardiac maturation in zebrafish</i>	Didier Stainier	Max Planck Institute for Heart and Lung Research, Bad Nauheim, Germany
12:30 – 12:50	Closing Comments and Poster Awards		
12:50 – 14:00	Lunch		

Public Lecture: Stem Cells – Hype and Hope

Sponsored by ClearView
14:00 – 18:00 Tuesday, 8 November 2016

Afternoon – Tuesday 8 November

14:00 – 15:00	Registration Open (Coffee & Tea)		Garvan Auditorium 384 Victoria Street, Darlinghurst NSW 2010 (Burton Street, Entrance)
15:00 – 15:05	Welcome	Robert Graham	Victor Chang Cardiac Research Institute, Sydney, Australia
15:05 – 15:20	Broad overview of adult tissue regeneration	Elly Tanaka	Centre for Regenerative Therapies, Dresden University of Technology, Dresden, Germany
15:20 – 15:35	Stem cells and heart repair	James Chong	Millennium Institute and University of Sydney Medical School, Australia
15:35 – 15:50	Stem cells and congenital heart disease	David Winlaw Sponsored by: HeartKids	Heart Centre for Children, The Children's Hospital at Westmead and University of Sydney, Australia
15:50 – 16:05	Stem cells – a personal journey	Melanie Thomson	Deakin Medical School, Deakin University, Victoria, Australia
16:05 – 16:20	Stem cell clinical trials	John Moore	St Vincent's Clinic, St Vincent's Hospital, Sydney, Australia
16:20 – 16:35	Public perceptions of stem cell therapies and stem cell tourism	Megan Munsie	Education, Ethics, Law and Community Awareness Unit, Stem Cells Australia, University of Melbourne, Australia
16:35 – 17:00	Q & A Session	Panel: Robert Graham	
17:00 – 18:00	Drinks		Galleria – Garvan Institute 384 Victoria Street Darlinghurst NSW 2010 (Victoria St Entrance)