



THE UNIVERSITY OF  
SYDNEY

## 5<sup>TH</sup> TISSUE ENGINEERING SYMPOSIUM 2014

ALLIANCE FOR DESIGN AND APPLICATION IN TISSUE ENGINEERING

### PROGRAMME DAY 1 - 18<sup>TH</sup> AUGUST

LOCATION: Room 124 SIT Building J12, The University of Sydney, NSW, 2006

#### EARLY CAREER RESEARCH MENTORING SESSION

*Inspiration, Motivation and Pursuing Your Vision*

#### ESTABLISHING YOURSELF AS AN INDEPENDENT RESEARCHER

*Personal Experience, Career Making Decisions and Things to Remember*

**CHAIRS:** Kara Spiller, Rebecca Mason, Maté Biro, Peter Newman, Khanh Huynh

2:00 - 2:05 <sup>PM</sup>	Hala Zreiqat	<i>Welcoming speech</i>
2:05 - 2:10 <sup>PM</sup>	Kara Spiller	<i>Introduction to the ECR Workshop</i>
2:10 - 2:20 <sup>PM</sup>	Gail Naughton	
2:20 - 2:30 <sup>PM</sup>	Carol Armour	
2:30 - 2:40 <sup>PM</sup>	Pamela Yelick	
2:40 - 2:50 <sup>PM</sup>	Justin Gooding	
2:50 - 3:00 <sup>PM</sup>	Hala Zreiqat	
3:00 - 3:10 <sup>PM</sup>	Teruo Okano	
3:20 - 3:30 <sup>PM</sup>	Sarah Heilshorn	

#### AFTERNOON TEA

*Refreshments Served – Free Discussion*

4:10 <sup>PM</sup>

#### FREE QUESTION AND ANSWERS

- *How do we establish a research theme early to help us become independent?  
How did you develop yours?*
- *How can we identify a supportive environment or mentor to aid in the  
development of our careers?*
- *What are some tips to develop a unique technology/research path?*
- *How do we ensure successful execution to publications/inventions?*
- *How do we develop collaborations with other researchers?*
- *What are some tips for obtaining grants?*
- *What are some tips for getting promotions?*
- *What are some tips for work/life balance?*

5:00 **SESSION ENDS**

<sup>PM</sup>



# 5<sup>TH</sup> TISSUE ENGINEERING SYMPOSIUM 2014

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## PROGRAMME DAY 2 - 19<sup>TH</sup> AUGUST

LOCATION: Darlington Centre, 174 City Rd, Darlington NSW 2006

- 8:00 <sup>AM</sup> Arrival Desk Open – Coffee and Light Breakfast  
9:00 <sup>AM</sup> Welcome and Opening Remarks: Hala Zreiqat – ADATE co-convenor  
9:05 <sup>AM</sup> Official Opening by the Hon. Jillian Skinner MP, Minister for Health and Minister for Medical Research

### SESSION 1

*Stem Cells in Regenerative Medicine*

**CHAIR: JASON BURDICK**

- 9:10 <sup>AM</sup> Gail Naughton Achievements and Challenges in Regenerative Medicine Using Stem Cells  
9:40 <sup>AM</sup> Teruo Okano Reconstruction of 3D Tissue and Organ by Cell Sheets  
10:00 <sup>AM</sup> James Chong Novel Cell Therapy to Repair and Regenerate Injured Heart

### 10:20 <sup>AM</sup> MORNING TEA

**CHAIR: CHRIS LITTLE**

- 10:50 <sup>AM</sup> Noriyuki Tsumaki Cartilage Regeneration with iPS Cell Technologies  
11:20 <sup>PM</sup> Aaron Schindeler Cell Lineage Tracking in Tissue Engineered Bone

### EARLY CAREER RESEARCHER PRESENTATIONS SECTION

- 11:40 <sup>PM</sup> Yasuhito Yahara Lineage-Tracing of Articular Chondrocytes During Osteoarthritis Development  
11:50 <sup>PM</sup> Zufu Lu Synergy of Nanomaterials and BMP-2 Signaling in Osteogenic Differentiation  
12:00 <sup>PM</sup> Steven Eamegdool Superparamagnetic Iron Oxide Nanoparticle Prelabelling of Neural Precursor Cells  
12:10 <sup>PM</sup> Kritika Katiyar Tissue Engineered Living Scaffolds for Targeted Axonal Outgrowth  
12:20 <sup>PM</sup> Gayle Petersen Generation of Induced Neuronal and Glial Cells from Adipose-Derived Stem Cells

### 12:30 <sup>PM</sup> LUNCH AND INDUSTRY SESSIONS

### SESSION 2

*Biomaterials and Tissue Engineering*

**CHAIR: HEIKE WALLES**

- 1:30 <sup>PM</sup> Sarah Heilshorn Injectable Protein-Ceramic Hybrid Gels for Bone Tissue Engineering  
2:00 <sup>PM</sup> Jason A. Burdick Engineering Fibrous Hydrogels for Cartilage Repair  
2:20 <sup>PM</sup> Nico Voelcker High Throughput Screening Technologies To Optimise Cell-Biomaterial Interactions

**CHAIR: TERUO OKANO**

- 2:40 <sup>PM</sup> Justin Gooding Using Nano-Biomaterials to Influence Biological Processes  
3:00 <sup>PM</sup> Jerome Werkmesiter New Customized Bioengineered Collagens for Tissue Engineering Applications

### 3:20 <sup>PM</sup> AFTERNOON TEA

### EARLY CAREER RESEARCHER PRESENTATIONS SECTION

**JUDGES: PAMELA YELICK, CHRIS JACKSON, MATÉ BIRO, QING LI**

- 3:50 <sup>PM</sup> Takeshi Kimura Immunogenicity of Chondrocytes Derived From Human Induced Pluripotent Cells  
4:00 <sup>PM</sup> Yu Suk Choi Tissue Stiffness Mimicked Biomaterial Design and Stem Cell Mechanotransduction  
4:10 <sup>PM</sup> Gabriella Lindberg Strategy for Fabricating Cell-Laden ECM Hydrogels in Cartilage Tissue Engineering  
4:20 <sup>PM</sup> Peta Bradbury A Sting in the Tail: Focal Adhesion Targeting and Mechanotransduction  
4:30 <sup>PM</sup> Richard Wang *in vivo* Validation of a Novel Skin Substitute for Chronic Wounds  
4:40 <sup>PM</sup> Giselle Yeo ECM-Functionalized Ti Alloy Substrates for Improved Osseointegration  
4:50 <sup>PM</sup> Ali Negahi Shirazi Fabrication of Micropatterned Hydrogels with Favorable Physical Stability

### 7:00 <sup>PM</sup> GALA DINNER

Wolfies Waterfront, 27 Circular Quay West, The Rocks, NSW 2000  
<http://docksidegroup.com.au/restaurants/waterfront/location>



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### PROGRAMME DAY 3 - 20<sup>TH</sup> AUGUST

LOCATION: Darlington Centre, 174 City Rd, Darlington NSW 2006

8:00 <sup>AM</sup> Arrival Desk Open – Coffee and Light Breakfast

#### SESSION 3

*Reconstruction of Tissue Architectures*

**CHAIR:** **GAIL NAUGHTON**

9:00 <sup>AM</sup> Teruo Okano

Strategies for Improving Vascularization of Engineered Tissues

9:30 <sup>AM</sup> Gail Naughton

Embryonic-like ECM Stimulates Endogenous Stem Cells and Stem Cell Niche

9:50 <sup>AM</sup> Geraldine O'Neil

Biophysical Cues Regulating Cancer Cell Migration in 3D

10:10 <sup>AM</sup>

**MORNING TEA**

**CHAIR:** **SARAH HEILSHORN**

10:30 <sup>AM</sup> Jason A. Burdick

Engineering Injectable Hydrogels to Influence Cardiac Repair

11:00 <sup>AM</sup> Luiz Bertassoni

Bioprinting Three-dimensional Vascularized Tissues

11:20 <sup>AM</sup> Toby Coates

Cell Therapy for Islet Transplantation

#### EARLY CAREER RESEARCHER PRESENTATIONS SECTION

**JUDGES:** **JASON BURDICK, NICO VOELCKER, MARGARET SMITH**

11:40 <sup>AM</sup> Aghaei-Ghareh-Bolagh

Design of Three-Dimensional Tissue Constructs Using Graphene

11:50 <sup>AM</sup> Justine Roberts

Cytocompatible Biosynthetic Heparin-Poly(Vinyl Alcohol) Hydrogels

12:00 <sup>PM</sup> Tegan Cheng

A Sugar-Based Injectable Carrier for Bone Formation and Healing

12:10 <sup>PM</sup> Jiao Jiao Li

Novel Biphasic Scaffold for Repair and Regeneration of Osteochondral Defects

12:20 <sup>PM</sup> Pamela Graney

Ceramic Scaffolds Induce M1-to-M2 Transition *in vitro*

12:30 <sup>PM</sup> Jelena Rnjak-Kovacina

Strategy Towards Biomaterial Vascularization

12:40 <sup>PM</sup> Alex Baume

Infected wound Model for Analyzing Scaffolds

12:50 <sup>PM</sup> Lim Khoon

Cell Survival in Biosynthetic PVA-Tyramine Hydrogels: Incorporation of Antioxidants

1:00 <sup>PM</sup> William Lu

Biofunctionalization of PEEK Using Plasma Immersion Ion Implantation Treatment

1:10 <sup>PM</sup>

**LUNCH AND INDUSTRY SESSIONS**

#### SESSION 4

*Enhancing Biomaterials and Cell Signalling for Regenerative Medicine*

**CHAIR:** **NORIYUKI TSUMAKI**

2:10 <sup>PM</sup> Pamela Yelick

Progress and Challenges in Tooth Tissue Engineering

2:40 <sup>PM</sup> Kara Spiller

Harnessing the Inflammatory Response for Tissue Regeneration

3:00 <sup>PM</sup> Fariba Dehghani

Biomaterials and Bone Tissue Engineering

3:20 <sup>PM</sup>

**AFTERNOON TEA**

**CHAIR:** **CHRIS JACKSON**

3:50 <sup>PM</sup> Justin Cooper-White

Deterministic Biomaterials for Enhanced Differentiation and Tissue Genesis

4:10 <sup>PM</sup> John McAvoy

Understanding Lens Development to Regenerate After Cataract Surgery

4:30 <sup>PM</sup>

**PRIZE PRESENTATIONS AND CLOSING REMARKS**