

Stem Cells, Cell Therapies, and Bioengineering in Lung Biology and Diseases

July 15-18, 2019

Hosted by: University of Vermont, Burlington, Vermont

AGENDA

MONDAY, JULY 15

5:00-6:00 PM Welcoming Reception and Registration, Hotel Vermont

TRANSITION TO *COURTYARD BURLINGTON HARBOR HOTEL, HARBOR ROOM*

6:00-6:10 PM Opening Remarks
Suresh V. Garimella, PhD, President, University of Vermont

Session I: Understanding Lung Stem Cells in the Digital Age

Moderators:

Mattias Magnusson, PhD ~ Lund University

Allison Greaney, BS ~ Yale University

6:10-6:40 *Featured Presentation: Single-Cell Evaluation of the Alveolus*
Laura Niklason, MD, PhD ~ Yale University School of Medicine

6:40-7:10 *Featured Presentation: Getting Hands-On with Single-Cell Data in Virtual Reality*
Shamit Soneji, PhD ~ Lund University

7:10-7:40 *Featured Presentation: Transcriptomic Landscape of Regenerating Adult Axolotl Salamander Limbs at Single-Cell Resolution*
Nicholas Leigh, PhD ~ Harvard University

7:40-8:00 Discussion

Free night in Burlington, Dinner on Your Own

TUESDAY, JULY 16 ~ Dame Julia Polak Memorial Bioengineering Session

(Location: Grand Maple Ballroom, Davis Center, UVM Campus)

- 7:40-8:30 AM Shuttle bus looping between Hotel Vermont and UVM Campus
- 8:00-8:45 Continental Breakfast and Continued Registration
- 8:45-9:00 Welcome and Introduction
**Gordon L. Jensen, MD, PhD, Senior Associate Dean for Research ~
The Larner College of Medicine at the University of Vermont**

Session II: Building Up the Complexity of the Lung: Assessing Lung Stem and Progenitor Cells Using 3D Models

Moderators:

**Sarah Gilpin, PhD ~ Wyss Institute for Biologically Inspired Engineering at Harvard
Ya-Wen Chen, PhD ~ University of Southern California, Keck School of Medicine**

- 9:00-9:30 *Featured Presentation: 3D Bioprinting of Trachea*
Adam Feinberg, PhD ~ Carnegie Mellon University
- 9:30-10:00 *Featured Presentation: Applications of hiPSCs to Airway and Alveolar Disease Modeling*
Shimpei Gotoh, MD, PhD ~ Kyoto University
- 10:00-10:20 Travel Award Presentation: *New Generation of Alveoli In Vitro Model: Lung-On-Chip with a Biological Stretchable Membrane*
Pauline Zamprogno, MSc ~ University of Bern
- 10:20-10:50 COFFEE AND NETWORKING BREAK

Session III: Stem Cell Niche Interactions

Moderators:

**Sarah Gilpin, PhD ~ Wyss Institute for Biologically Inspired Engineering at Harvard
Ya-Wen Chen, PhD ~ University of Southern California, Keck School of Medicine**

- 10:50-11:20 *Featured Presentation: Stem Cells and Their Niche*
Susan Reynolds, PhD ~ Nationwide Children's Hospital
- 11:20-11:50 *Featured Junior Presentation: The Aged Epithelium in IPF*
Mareike Lehmann, MD, PhD ~ Comprehensive Pneumology Center, Munich
- 11:50-12:10 PM Travel Award Presentation: *Pulmonary Microvascular Engineering Using Purified Lymphatic Low Pulmonary Microvascular Endothelial Cells*
Yifan Yuan, PhD ~ Yale University

12:10-12:40 PM **Elevator Pitch Competition – Commercialize Your Research for Industry Sponsorship or SBIR/STTR Collaboration**
Panel:
Erik Monsen, PhD ~ University of Vermont and selected members from small business
Chelsea Magin, PhD ~ University of Colorado Denver

One Minute Elevator Pitch Competition for Junior Trainees. 1 slide allowed; 1 minute buzzer. Panel of Senior Investigators and VT Tech Commercialization Group to judge. Two prizes awarded.

12:40-2:00 MENTORING LUNCH

2:00-3:00 *Thematic Poster Session #1 – Bioengineering, Endogenous Progenitor Cells, and ESC/iPS*
Poster Discussion Facilitators:
Johnatas Dutra Silva, MSc, PhD ~ Wellcome – Wolfson Institute for Experimental Medicine, Queen’s University of Belfast
Jinho Kim, PhD ~ Stevens Institute of Technology
Mareike Lehmann, PhD ~ University of Munich

Session IV: Towards the Development of New Therapies using Lung Stem Cells for Cystic Fibrosis

Co-sponsorship by the Cystic Fibrosis Foundation

Moderators:

Amy (Firth) Ryan, PhD ~ University of Southern California
Brian Davis, PhD ~ University of Texas Health Science Center

3:00-3:30 *Featured Presentation: iPS Cells: Relevant Models on the Road to Cell-Based Therapies*
John (Jed) Mahoney, PhD ~ Cystic Fibrosis Foundation

3:30-4:00 *Featured Junior Presentation: Defining Human Basal Cell Heterogeneity in Normal and Diseased Lung*
Gianni Carraro, PhD ~ Cedars-Sinai Medical Center

4:00-4:20 *Travel Award Presentation: Regenerative Variation of Conditionally Reprogrammed Basal Cells across Four In Vitro Differentiation Platforms as Evaluated by scRNAseq*
Allison Greaney, BS ~ Yale University

4:20-4:40 *Travel Award Presentation: Orthotopic Ferret Lung Transplant: A Model for CLAD That Develops Both Obliterative Bronchiolitis and Restrictive Allograft Syndrome*
Thomas Lynch, PhD ~ University of Iowa

4:40-5:00 Panel Discussion

Session V: Careers in Stem Cells, Cell Therapies, and Lung Bioengineering – Part I

Moderators:

Sara Rolandsson Enes, PhD ~ University of Vermont

Kim Vanuytsel, PhD ~ Boston University

5:00-5:45 PM *Featured Presentation: Gender Equity in Science: Why Is This So Hard?*
Joan Herbers, PhD ~ The Ohio State University

6:00-8:00 WOMEN AND DIVERSITY PANEL DISCUSSION AND RECEPTION
Sara Rolandsson Enes, PhD ~ University of Vermont
Kim Vanuytsel, PhD ~ Boston University
Joan Herbers, PhD ~ The Ohio State University
Yvonne Janssen-Heininger, PhD ~ University of Vermont
Bernard Thébaud, MD, PhD ~ Ottawa Hospital Research Institute
Katherine Tuggle, PhD ~ Cystic Fibrosis Foundation

7:15-8:15 PM Bus return to hotel

8:00 Free night in Burlington, Dinner on your own

WEDNESDAY, JULY 17

7:50-9:15 AM Shuttle bus continuous looping between Hotel and UVM Davis Center

8:15-8:45 Continental Breakfast (Grab and Go breakfast)

Session V: Careers in Stem Cells, Cell Therapies, and Lung Bioengineering – Part II

Breakfast Sessions - Concurrent

8:30-9:00 *Finding a Position and Starting Your Own Lab – Panel Discussion*

8:30-9:00 *Funding and Financial Management of Your Lab – Panel Discussion*

General Sessions

9:15-9:45 *Publishing and Reviewing for a Medical Journal*
Diana Stanley, MD ~ Deputy Editor, Lancet Respiratory Medicine

9:45-10:15 *Bioengineering Journals as Accelerators of Research for Improving Human Health*
Pep Pàmies, PhD ~ Chief Editor, Nature Biomedical Engineering

10:15-10:30 COFFEE AND NETWORKING BREAK

10:30-11:00 *Preprint Servers: Communicating at the Speed of Science*
**Richard Sever, PhD ~ Assistant Director, Cold Spring Harbor Laboratory Press
and Co-Founder, bioRxiv**

Session VI: Bringing Cell and Tissue-Derived Products to Market: Regulation and Commercialization of Regenerative Medicine Products

Co-sponsored by the International Society for
Cell & Gene Therapy (ISCT)



Moderators:

Laertis Ikononou, PhD ~ Boston University, ISCT Presidential Task Force Member
Chelsea Magin, PhD ~ University of Colorado - Denver

- 11:00-11:30 *Featured Presentation: Cell Therapy Manufacturing – PACT Update – 16 Years of Experience*
Robert Lindblad, MD ~ NHLBI Production Assistance for Cellular Therapies (PACT)
- 11:30-12:00 PM *Featured Presentation: Engineered T Cells in the Clinic*
Bruce Levine, PhD ~ University of Pennsylvania
ISCT President-Elect
- 12:00-12:20 *John W. Walsh Memorial Travel Scholarship Awardee*
Travel Award Presentation: Development of a Hybrid Alginate-ECM Hydrogel as a Potential Bioink for 3D Bioprinting Pulmonary Tissue
Martina De Santis, BSc, MRes ~ Lund University
- 12:20-1:30 GROUP PHOTO AND LUNCH
- 1:30-2:30 *Thematic Poster Session #2 – Cell Therapies, Clinical Trials, Commercialization and Regulation*
Poster Discussion Facilitators:
Johnatas Dutra Silva, MSc, PhD ~ Wellcome – Wolfson Institute for Experimental Medicine, Queen’s University of Belfast
Jinho Kim, PhD ~ Stevens Institute of Technology
Mareike Lehmann, PhD ~ University of Munich

Session VII: Immunomodulation via Cell Therapy and Cell-Derived Extracellular Vesicles (MSCs, EPCs, and ASC)

Moderator:

Anna Krasnodembskaya, PhD ~ Queen’s University Belfast

- 2:30-3:00 PM *Featured Presentation: Mesenchymal Stromal Cells for Chronic Lung Disease of Prematurity: Are We There Yet?*
Bernard Thébaud, MD, PhD ~ Ottawa Hospital Research Institute
- 3:00-3:30 *Featured Presentation: MSC Exosomes: Agents of Lung Homeostasis*
Stella Kourembanas, MD ~ Boston Children’s Hospital

- 3:30-3:50 Travel Award Presentation: *Effects of Mitochondrial Transfer from Mesenchymal Stromal Cell Extracellular Vesicles on Alveolar Endothelial-Epithelial Barrier in Acute Respiratory Distress Syndrome*
Johnatas Dutra Silva, MSc, PhD ~ Wellcome – Wolfson Institute for Experimental Medicine, Queen’s University of Belfast
- 3:50-4:10 Travel Award Presentation: *Elucidating the Impact of Combined Hyperoxia and Antibiotics Exposure on Lung Mesenchymal Stromal Cell Populations and Lung Development in Neonatal Mice*
Jennifer Collins, PhD ~ Erasmus University Medical Center
- 4:10-4:40 Panel Discussion

Session VIII: Publishing and Communicating with Stem Cells, Cell Therapies and Bioengineering

- 4:40-5:10 Journal Editor Presentations
Donald Phinney, PhD ~ Senior Editor, Cytotherapy, Official Journal of the ISCT, International Society for Cell & Gene Therapy
Richard Sever, PhD ~ Assistant Director, Cold Spring Harbor Laboratory Press
Diana Stanley, MD ~ Deputy Editor, Lancet Respiratory Medicine
- 5:10-5:30 Panel Discussion with Editors
- 5:15-6:05 Buses leaving at intervals to transport to dinner cruise (and to hotels if not attending the cruise)
- 6:00-9:00 Dinner Cruise on Lake Champlain ~ Award Ceremony
(Cruise boards from 6:00-6:30 and departs promptly at 6:30pm)
- 9:00 Cruise Disembarks
(Please advise UVM in advance if you will need transportation back to the hotel following the cruise. The distance to walk is about two blocks uphill.)

THURSDAY, July 18

8:15-9:05 AM Shuttle bus continuous looping between Hotel and UVM Davis Center

8:30-9:00 AM Continental Breakfast

Session IX: New Strategies for Cellular Delivery and Regenerative Medicine

Moderators:

Mareike Lehmann, MD, PhD ~ Comprehensive Pneumology Center Munich
Gunilla Westergren-Thorsson, PhD ~ Lund University

9:00-9:30 *Featured Presentation: Modulation of the Pulmonary Vascular Stability in Hemorrhagic Shock and Trauma by Blood Products and MSCs*

Shibani Pati, MD, PhD ~ University of California, San Francisco

9:30-10:00 *Featured Presentation: Epithelial Stem Cells in Lung Transplantation*

Kalpaj Parekh, MBBS ~ University of Iowa

10:00-10:20 Travel Award Presentation: *3D Bioprinting for Tracheal Reconstruction*

Zachary Galliger, BSE ~ University of Minnesota

10:20-10:50 COFFEE AND NETWORKING BREAK

Session X: Visualizing Lung Regeneration

Moderator:

John Stegmayr, PhD ~ Lund University

10:50-11:20 *Featured Presentation: Live Imaging of Alveologenesis in Precision-Cut Lung Slices Reveals Dynamic Epithelial Cell Behaviour*

Charlotte Dean, PhD ~ Imperial College London

11:20-11:50 *Featured Junior Presentation: Live-Imaging Alveolar Defense Mechanisms*

Galina Gusarova, PhD ~ Columbia College of Physicians

11:50-12:10 PM Travel Award Presentation: *Smooth Muscle-Like Lymphangiomyomatosis Cells Mediate Endothelial Cell Network Disruption and Apoptosis by Release of Cytotoxic Mitochondria and Exosomes*

Mirabelle Ho, PhD ~ Ottawa Hospital Research Institute

12:10-12:20 Pick up BOX LUNCH

12:20-2:00 *Open Discussion - Setting Priorities and Recommendations to the NIH and Other Organizations Regarding Future Research Opportunities*

Daniel J. Weiss, MD, PhD ~ University of Vermont
ISCT Chief Scientific Officer

12:15-2:30 PM Shuttle bus continuous looping from Davis Center to Airport and/or Hotel