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

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 Ikonomou, 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

Galina Gusarova, PhD ~ Columbia College of Physicians

11:50-12:10 PM  Travel Award Presentation: Smooth Muscle-Like Lymphangioleiomyomatosis 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