Stem Cells, Cell Therapies, and Bioengineering in Lung Biology and Diseases
July 24-27, 2017
Hosted by the University of Vermont

AGENDA

MONDAY, JULY 24

9:00-4:00 PM Hands-on workshop, Stafford Hall, UVM Campus

5:00-6:00 Welcoming Reception and Registration, Sheraton Hotel

Session I: Extracellular Vesicles in Lung Regenerative Medicine
(Location: Sheraton Hotel)
Moderators:
Robert Freishtat, MD, MPH ~ George Washington University School of Medicine and Health Sciences
Deniz Bölükbaş, PhD Candidate ~ Comprehensive Pneumology Center, Germany

6:00-6:10 PM Opening Remarks
E. Thomas Sullivan, JD, President, University of Vermont
Darcy Wagner, PhD, Conference Chair ~ Lund University, Sweden

6:10-6:40 Featured Presentation: Mesenchymal Stem Cell-derived Extracellular Vesicles: A Potential New Tool In Regenerative Medicine
Bernd Giebel, PhD ~ University Hospital Essen, Germany

6:40-7:10 Featured Presentation: MSC Therapy: Transiting from Cell to Exosome
Sai Kiang Lim, PhD ~ A*STAR Institute of Medical Biology, Singapore

7:10-7:40 Featured Presentation: A Clinical Indications Prediction (CLIP) Scale for Human MSCs
Donald Phinney, PhD ~ The Scripps Research Institute, Florida

7:40-8:00 Discussion
Free night in Burlington, Dinner on Your Own
TUESDAY, JULY 25 ~ Dame Julia Polak Memorial Bioengineering Session
(Location: Grand Maple Ballroom, Davis Center, UVM Campus)

7:45-8:30 AM  Shuttle bus looping between Sheraton Hotel and UVM Campus

8:00-8:45  Continental Breakfast and Continued Registration

8:45-9:00  Welcome and Introduction
David V. Rosowsky, PhD, PE, FASCE, FSEI, Provost, University of Vermont
Frederick C. Morin III, MD, Dean, Robert Larner, M.D. College of Medicine

Session II:  Ex Vivo Bioengineering of Lung and Airway Tissue
Moderators:
Sarah E. Gilpin, PhD ~ Massachusetts General Hospital
Juan José Uriarte, PhD ~ University of Vermont

9:00-9:40  Featured Presentation: Molecular and Cellular Composition of Murine and Human Lungs in Health and Disease
Herbert Schiller, PhD ~ Comprehensive Pneumology Center, Germany

9:40-10:10  Featured Presentation: Recent Advances in Lung Bioengineering Using Acellular Scaffolds
Harald Ott, MD ~ Massachusetts General Hospital

10:10-10:30  Junior Investigator Presentation: Platforms and Technologies for Hollow Organ Tissue Engineering
Claire Crowley, PhD ~ University College London, United Kingdom

10:30-10:50  Travel Award Recipient: Pulmonary Vascular Engineering Using Induced Endothelial Progenitor-like Cells
Takaya Suzuki, MD, PhD ~ University of Toronto, Canada

10:50-11:10  Travel Award Recipient: Creating Tissue-Specific Materials to Guide Cell Behaviour in Airways
Nazia Mehrban, PhD ~ University College London, United Kingdom

11:10-11:40  COFFEE and NETWORKING BREAK

Session III:  Bioengineering Next Generation Devices for Lung Diseases
Moderator:
Jason Bates, PhD ~ University of Vermont

11:40-12:00  Featured Presentation: Lung-on-a-Chip
Ramon Farré, PhD ~ University of Barcelona, Spain

12:00-12:20 PM  Junior Investigator Presentation: Towards the Development of a Bioartificial Lung
Michael Pflaum, PhD ~ Hannover Medical School, Germany

12:20-12:40  Featured Presentation: On Growth and Form of the Distal Air Exchange Surfaces within the Lung
David Warburton, MD ~ Children’s Hospital Los Angeles
12:40-1:00  Travel Award Recipient: *Mesenchymal Stem Cells Drive Cell Repopulation in an In Vivo Model of Lung Regeneration*

*John Sembrat, MS ~ University of Pittsburgh*

1:00-2:30  MENTORING LUNCH

**Session IV: Endogenous Progenitor Cells**

*Moderator: Christina E. Barkauskas, MD ~ Duke University*

2:30-3:15  Featured Presentation: *Towards Somatic Epithelial Stem Cell Therapy for Cystic Fibrosis*

*Scott Randell, PhD ~ University of North Carolina Chapel Hill*

3:15-3:45  Featured Presentation: *Tissue Tension, RANKL, Mammary Stem Cells and Breast Cancer Risk*

*Jason Northey, PhD ~ University of California San Francisco*

3:45-4:05  Junior Investigator Presentation: *Lung Stem Cell Niches in Health and Disease*

*Joo Hyeon-Lee, PhD ~ Cambridge Stem Cell Institute, United Kingdom*

4:05-4:25  COFFEE and NETWORKING BREAK

4:25-4:30  Introduction and Presentation by the Alpha-1 Foundation

4:30-4:50  John W. Walsh Memorial Travel Scholarship Awardee

Travel Award Recipient: *Identification of Distinct Resident Mesenchymal Cell Populations in Adult Lungs*

*Russell Braeuer, PhD ~ University of Michigan*

4:50-5:10  Travel Award Recipient: *Towards Human Lung Regeneration in End-stage Respiratory Failure: Genetically-modifiable 3D Organoid Culture of Human Embryonic Lung Stem Cells Enables for the First Time the Study of Human Lung Development In Vitro*

*Marko Nikolić, MB BChir, PhD ~ University of Cambridge, United Kingdom*

5:10-5:30  Travel Award Recipient: *In Vitro Biological Characteristics of Extremely Preterm versus Term Umbilical Cord-Derived Mesenchymal Stem Cells for Neonatal Lung Injury*

*Merline Kocheekkaran V. Benny, MD ~ Women & Infants Hospital*

5:30-6:00  Panel Discussion and Wrap Up

*Melanie Königshoff, MD, PhD ~ University of Colorado Denver*

*Angela Panoskaltsis-Mortari, PhD ~ University of Minnesota*

6:00-8:00  WOMEN AND DIVERSITY RECEPTION

*Jennifer Collins, PhD ~ Erasmus MC, Netherlands*

*Katherine McCauley, PhD ~ Boston University*

6:00-10:00  Hop on the free Trolley Tours bus for a trip downtown. Bus will make continuous loops from the Davis Center, the Sheraton Hotel and Downtown Burlington.

Free night in Burlington, Dinner on your own
**WEDNESDAY, JULY 26**

8:15-9:00 AM  Shuttle bus looping between Sheraton Hotel and UVM Campus
8:30-9:00  Continental Breakfast

**Session V:  iPSC and ESC Biology and Application in Lung Regenerative Medicine**

**Moderators:**
Amy Firth, PhD ~ University of Southern California
Finn Hawkins, MBBCh ~ Boston University

9:00-9:40  *Featured Presentation: Generation of Human Pluripotent Stem Cell-derived Airway Organoids to Model Cystic Fibrosis In Vitro*
Katherine McCauley, PhD ~ Boston University

9:40-10:10  *Featured Presentation: Cystic Fibrosis Disease Specific iPSC Reporter Lines for Disease Modelling, HT Screening and Cellular Therapies*
Ruth Olmer, PhD ~ Hannover Medical School, Germany

10:10-10:30  *Junior Investigator Presentation: CRISPR-modified iPS Cells to Validate New Targets for Cystic Fibrosis*
Hongmei Lisa Li, PhD ~ Boston Children’s Hospital

10:30-10:50  **COFFEE and NETWORKING BREAK**

10:50-11:10  Travel Award Recipient: *The Instructive Role of Endothelial Cells in Shaping Lung Progenitor Cell Fate*
Miriel Ho, DPhil ~ Ottawa Hospital Research Institute, Canada

**Session VI:  New Conference Feature: Elevator Pitch Competition – Commercialize Your Research for Industry Sponsorship or SBIR/STTR Collaboration**

**Panel:**
Yvonne Janssen-Heininger, PhD, University of Vermont
Kerry Swift, MS, Office of Technology Commercialization, University of Vermont
Erik Monsen, PhD, University of Vermont and selected members from small business

11:10-11:50  *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. Prize award: Registration Fee refunded (two awards)*

11:50-12:00  GROUP PHOTO AND BREAK

12:00-12:40 PM  LUNCH

12:40-1:40  *Thematic Poster Session #1 – Bioengineering and ESCs/iPSCs*  
Poster Discussion Facilitators:
Deniz Bölükbaş, PhD Candidate ~ Comprehensive Pneumology Center, Germany
Michael Pflaum, PhD ~ Hannover Medical School, Germany
Franziska Uhl, PhD ~ University of Vermont
Session VII: **Regulation of Stem Cell and Regenerative Medicine Treatments**  
Co-sponsored by the International Society for Cellular Therapy  
Moderators:  
Laertis Ikonomou, PhD ~ Boston University  
Kathleen Atkins, MD student ~ University of Toronto, Canada

1:40-2:15  
**Featured Presentation: U.S. Clinics Marketing Unproven “Stem Cell” Interventions: Ethical, Scientific, and Regulatory Concerns**  
Leigh Turner, PhD ~ University of Minnesota  
Member, ISCT Presidential Task Force on the Use of Unproven Cellular Therapies

2:15-2:45  
**Featured Presentation: Unproven Cellular Therapies: State of the Art and Perspectives**  
Massimo Dominici, MD ~ International Society for Cellular Therapy, Italy  
Chair, ISCT Presidential Task Force on the Use of Unproven Cellular Therapies

2:45-3:10  
**Featured Presentation: Complications after Intravitreal “Stem Cell” Injection at a “Stem Cell” Clinic**  
Ajay Kuriyan, MD, MS ~ University of Rochester Medical Center

3:10-3:40  
**Asian Presentation: Regulatory Developments and Trends in Cell Based Medicine**  
Doug Sipp, BA ~ RIKEN Center for Developmental Biology, Japan  
Member, ISCT Presidential Task Force on the Use of Unproven Cellular Therapies

3:40-4:00  
COFFEE and NETWORKING BREAK

4:00-4:30  
**Panel Discussion**  
Martin Birchall, MD ~ University College London, United Kingdom  
Marilyn Glassberg, MD ~ University of Miami School of Medicine  
Michael Matthay, MD ~ University of California San Francisco  
ISCT Members

4:30-5:30  
**Thematic Poster Session #2 – Endogenous Progenitor Cells, Cell Therapies, Clinical Trials, Commercialization and Regulation**  
Poster Discussion Facilitators:  
Jennifer Collins, PhD ~ Erasmus MC, Netherlands  
Fernanda Cruz, MD, PhD ~ Federal University of Rio de Janeiro, Brazil  
Renata Kelly da Palma, PhD ~ São Paulo University, Brazil

5:15  
Shuttle Bus from Sheraton to Davis Center, for family members / guests at the hotel to join with participants who will be attending the cruise. (*Only one pickup from Sheraton.*)

5:30-6:00  
Shuttle Bus from Davis Center to 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  
Shuttle bus returning from Cruise to the Sheraton Hotel / Best Western / UVM lodging
**THURSDAY, July 27**

8:15-9:00  Shuttle bus looping between Sheraton Hotel and UVM Campus
8:30-9:00  Continental Breakfast

**Session VIII: **Careers in Stem Cells, Cell Therapies, and Lung Bioengineering  
Moderators:  
Jennifer Collins, PhD ~ Erasmus MC, Netherlands  
Sadaf Atarod, PhD ~ Boston University

9:00-9:25  An Overview of Peer Review Process at NIH Center for Scientific Review  
Ghenima Dirami, PhD ~ National Institutes of Health

9:25-9:50  NHLBI Funding Mechanisms at All Career Stages  
Neil Aggarwal, MD ~ Lung Biology and Disease Branch; Division of Lung Diseases, National Heart, Lung, and Blood Institute

9:50-10:15  Transitioning from Discovery to Product Development – NHLBI Innovator Support  
Matthew McMahon, PhD ~ Office of Translational Alliances and Coordination; National Heart, Lung, and Blood Institute

10:15-10:45  Featured Presentation: SBIR/STTR Case Example  
Yvonne Janssen-Heininger, PhD ~ University of Vermont

10:45-11:10  COFFEE and NETWORKING BREAK

**Session IX: **Cell Therapies (MSCs, EPCs, and ASCs) in Lung Disease  
Moderators:  
Marilyn Glassberg, MD ~ University of Miami School of Medicine  
Fernanda Cruz, MD, PhD ~ Federal University of Rio de Janeiro, Brazil

11:10-11:40  Featured Presentation: Mesenchymal Stromal Cells: Biology and Potential Therapeutic Value for ARDS  
Michael Matthay, MD ~ University of California San Francisco

11:40-12:10 PM  Featured Presentation: Cell Based Gene Therapies for Pulmonary Disorders: Manufacturing Perspectives for Canadian Clinical Trials  
Dave Courtman, PhD ~ Ottawa Hospital Research Institute, Canada

12:10-12:30  Travel Award Recipient: Mesenchymal Stromal Cells Modulate Human Macrophages in the Acute Respiratory Distress Syndrome by Enhancing Macrophage Oxidative Phosphorylation via Extracellular Vesicle-Mediated Mitochondrial Transfer  
Thomas J. Morrison, PhD ~ Queen’s University Belfast, United Kingdom
12:30-1:20 LUNCH

1:20-1:40 Travel Award Recipient: Magnetic Targeting Increases Lung Retention of Mesenchymal Stromal Cells in a Murine Model of Silicosis
Luisa H. A. Silva, MSc ~ Federal University of Rio de Janeiro, Brazil

1:40-2:00 Travel Award Recipient: Soft Matrix Facilitates Programming of Mesenchymal Stem Cells into Anti-Fibrotic Phenotypes
Jae-Won Shin, PhD ~ University of Illinois at Chicago College of Medicine

2:00-3:00 Open Discussion - Setting Priorities and Recommendations to the NIH and Other Organizations Regarding Future Research Opportunities
Daniel Weiss, MD, PhD ~ University of Vermont

2:00-3:30 Continuous Shuttle from Davis to Airport and/or hotel*.

* Please note: Sheraton / Best Western will also provide free shuttle service from the hotel to the airport; inquire at the front desk.