

Stem Cells, Cell Therapies, and Bioengineering in Lung Biology and Diseases July 24-27, 2017

Hosted by: University of Vermont, Burlington, Vermont

AGENDA

MONDAY, JULY 24

9:00-4:00 PM Practical/Theoretical Course: Coordinated by Weiss Laboratory at UVM
Hands-on workshop, Rowell Building, UVM Campus

- General lung harvest and processing
- Decellularization and recellularization
- Flexivent / Lung mechanics
- Industry-sponsored technologies (TBD)

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

Session I: Extracellular Vesicles in Lung Regenerative Medicine

(Location: Sheraton)

Moderators:

**Robert Freishtat, MD, MPH ~ George Washington University School of
Medicine and Health Sciences, Washington, DC**

**Deniz Bölükbaş, PhD Candidate ~ Columbia University,
New York, NY**

6:00-6:10 PM Opening Remarks
E. Thomas Sullivan, JD, President, University of Vermont, Burlington, Vermont
**Darcy Wagner, PhD, Conference Chair ~ Comprehensive Pneumology Center, Munich,
Germany**

6:10-6:40 *Featured Presentation: Mesenchymal stem cell-derived extracellular vesicles: a potential new tool in
regenerative medicine*
Bernd Giebel, PhD ~ University Clinic 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, Jupiter, 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)

- 7:30-8:15 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 Lerner, M.D. College of Medicine

Session II: Ex Vivo Bioengineering Lung and Airway Tissue

Moderators:

Sarah Gilpin, PhD ~ Massachusetts General Hospital, Boston, Massachusetts
Juan José Uriarte, PhD ~ University of Vermont, Burlington, 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, Munich, Germany
- 9:40-10:10 *Featured Presentation: Recent advances in lung bioengineering using acellular scaffolds*
Harald Ott, MD ~ Massachusetts General Hospital, Boston, Massachusetts
- 10:10-10:30 *Junior Investigator Presentation: Platforms and technologies for hollow organ tissue engineering*
Claire Crowley, PhD ~ University College London, London, England
- 10:30-10:50 Travel Award Recipient: #1
- 10:50-11:10 Travel Award Recipient: #2
- 11:10-11:40 COFFEE and NETWORKING BREAK

Session III: Bioengineering Next Generation Devices for Lung Diseases

Moderator:

Jason Bates, PhD ~ University of Vermont, Burlington, Vermont

- 11:40-12:00 *Featured Presentation: Lung on a chip*
Ramon Farré, PhD ~ University of Barcelona, Barcelona, Spain
- 12:00-12:20 PM *Junior Investigator Presentation: Towards the development of a bioartificial lung*
Michael Pflaum, PhD ~ Hannover Medical School, Hanover, Germany
- 12:20-12:40 *Featured Presentation: Imaging the Lung during Development - LungMAP*
David Warburton, MD ~ Children's Hospital Los Angeles, California
- 12:40-1:00 Travel Award Recipient: #3
- 1:00-2:30 MENTORING LUNCH

Session IV: Endogenous Progenitor Cells

Moderators:

Christina Barkauskas, MD ~ Duke University, Durham, North Carolina

2:30-3:15 *Featured Presentation: Towards Somatic Epithelial Stem Cell Therapy for Cystic Fibrosis*
Scott Randell, PhD ~ University of North Carolina Chapel Hill, North Carolina

3:15-3:45 *Featured Presentation: Tissue tension, RANKL, mammary stem cells and breast cancer risk*
Jason Northey, PhD ~ University of California San Francisco, California

3:45-4:05 *Junior Investigator Presentation: Lung stem cell niches in health and disease*
Joo Hyeon-Lee, PhD ~ Cambridge Stem Cell Institute, Cambridge, UK

4:05-4:25 COFFEE and NETWORKING BREAK

4:25-4:50 *Travel Award Recipient (John W. Walsh Memorial Travel Scholarship Awardee)*
Introduction and Presentation by the Alpha-1 Foundation
TBD

4:50-5:10 Travel Award Recipient: #4

5:10-5:30 Travel Award Recipient: #5

5:30-6:00 Panel Discussion and Wrap Up
Melanie Königshoff ~ University of Colorado Denver, Colorado
Angela Panoskaltzis-Mortari, PhD ~ University of Minnesota, Minneapolis, MN
TBD

6:00-8:00 WOMEN AND DIVERSITY RECEPTION
Jennifer Collins, PhD ~ Erasmus MC, Rotterdam, Netherlands

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 and Downtown Burlington.

Free night in Burlington, Dinner on Your Own

WEDNESDAY, JULY 26

8:30-9:00 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, Los Angeles, California

Finn Hawkins, MBBCh ~ Boston University, Boston, Massachusetts

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, Boston, Massachusetts

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, Hanover, Germany

10:10-10:30 *Junior Investigator Presentation: CRISPR-modified iPSC cells to validate new targets for cystic fibrosis*

Hongmei Lisa Li, PhD ~ Boston Children's Hospital, Boston, Massachusetts

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

10:50-11:10 Travel Award Recipient: #6

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, Burlington, 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, Endogenous Progenitor Cells, and ESC/iPS*
Poster Discussion Facilitators:

Collin Stabler, PhD ~ University of Pennsylvania, Philadelphia, Pennsylvania

Michael Pflaum, PhD ~ Hannover Medical School, Hanover, Germany

Franziska Uhl, PhD ~ University of Vermont, Burlington, Vermont

Session VII: Regulation of Stem Cell and Regenerative Medicine Treatments

~ co-sponsored by the International Society for Cellular Therapies

Moderators:

Laertis Ikonou, PhD ~ Boston University, Boston, Massachusetts

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, Minneapolis, Minnesota
- 2:15-2:45 *Featured Presentation: Unproven Cell Therapies*
Massimo Dominici, MD ~ International Society for Cellular Therapy, Modena, Italy
- 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, Rochester, New York
- 3:10-3:40 *Asian Presentation: Regulatory developments and trends in cell based medicine*
Doug Sipp, BA ~ RIKEN Center for Developmental Biology, Tokyo, Japan
- 3:40-4:00 COFFEE and NETWORKING BREAK
- 4:00-4:30 *Panel Discussion*
Martin Birchall, MD ~ University College London, London, England
Marilyn Glassberg, MD ~ University of Miami School of Medicine, Florida
Michael Matthay, MD ~ University of California San Francisco, California
ISCT Members
- 4:30-5:30 *Thematic Poster Session #2 – Cell Therapies, Clinical Trials, Commercialization and Regulation*
Poster Discussion Facilitators:
Jennifer Collins, PhD ~ Erasmus MC, Rotterdam, Netherlands
Fernanda Cruz, MD PhD ~ Federal University of Rio de Janeiro, Brazil
- 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 / UVM lodging

THURSDAY, July 27

8:30-9:00 Continental Breakfast

Session VIII: Careers in Stem Cells, Cell Therapies, and Lung Bioengineering

Moderators:

Jennifer Collins, PhD ~ Erasmus MC, Rotterdam, Netherlands

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

9:25-9:50 *NIH Grant Mechanisms*
Neil Aggarwal, MD ~ National Heart, Lung, and Blood Institute, Bethesda, Maryland

9:50-10:15 *Small Business Funding Mechanisms*
Matthew McMahon, PhD ~ Office of Translational Alliances and Coordination (OTAC) Director; National Heart, Lung, and Blood Institute, Bethesda, Maryland

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

10:45-11:10 COFFEE and NETWORKING BREAK

Session IX: Cell Therapies (MSCs, EPCs, and ASC) in Lung Disease

Moderators:

Marilyn Glassberg, MD ~ University of Miami Miller School of Medicine, Florida

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, California

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, Ottawa, Ontario, Canada

12:10-12:30 *Junior Investigator Presentation*
TBD

12:30-12:50 Travel Award Recipient: #7

12:50-1:20 LUNCH

1:20-1:40 Travel Award Recipient: #8

1:40-2:00 Travel Award Recipient: #9

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, Burlington, Vermont