

20th Anniversary

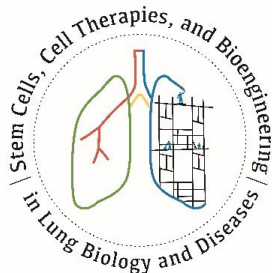
Stem Cells, Cell Therapies and Bioengineering in Lung Biology and Diseases Conference



July 7-10, 2025
University of Vermont
Burlington, Vermont

20th Anniversary

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



2025 Executive Committee:

Conference Chairs:

Amy L. Ryan, PhD
University of Iowa, Iowa City, IA
Robert E. Hynds, PhD
University College London, United Kingdom

Vice Chair:

Claudia Loebel, PhD
University of Michigan, Ann Arbor, MI

Founder and Emeritus Chair: Daniel J. Weiss, MD, PhD
(2005-2015) University of Vermont, Burlington, VT

Emeritus Chair: Darcy Wagner, PhD
(2017-2019) Lund University, Sweden

Senior Organizing Committee:

Janette Burgess, PhD, University Medical Center Groningen, Groningen, NL
Laertis Ikonomou, PhD, University at Buffalo, Buffalo, NJ
Jaime Hook, MD, Mount Sinai, New York, NY
Jaymin Kathiriya, PhD, Mount Sinai, New York, NY
Harry Karmouty-Quintana, PhD, University of Texas Health Science Center at Houston, Houston, TX
Anna Krasnodembskaya, PhD, Queen's University, Belfast, United Kingdom
Ruth Olmer, PhD, Hannover Medical School, Hannover, Germany
Laure-Emmanuelle Zaragosi, PhD, Université Côte d'Azur, Sophia-Antipolis, France

Junior Organizing Committee:

Junior Committee Chair: Sinem Koç-Günel, MD
University of Frankfurt, Frankfurt, Germany

20th Anniversary

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

July 7-10, 2025

Hosted by: The University of Vermont

PRECONFERENCE WORKSHOP AGENDA

MONDAY, JULY 7

8:30-4:00 PM **Pre-Conference Workshop** (*Optional*)

8:25 AM Shuttle bus from Hotel Vermont/Courtyard Marriott to UVM Given Building

8:30-9:00 Continental Breakfast ~ Stafford Hall, UVM campus

Practical Course on State-of-the-Art Methods in Stem Cells, Cell Therapies, and Bioengineering

**Led by: Amy Ryan, PhD, University of Iowa, Daniel J. Weiss, MD, PhD, University of Vermont
and Robert Hynds, University College London**

8:55-9:00 Welcome and Introductions ~ **Stafford 101**

9:00-10:30 **Wet-Lab: Laboratory Techniques Rotation 1, Dry-Lab: Bioinformatics**
(See Wet or Dry-Lab Track descriptions and locations listed below)

10:30-11:00 Coffee and Networking Break

11:00-12:30 PM **Wet-Lab: Laboratory Techniques Rotation 2, Dry-Lab: Bioinformatics**

12:30-2:00 Lunch and Networking Break

2:00-4:00 **Wet-Lab: Laboratory Techniques Rotation 3, Dry-Lab: Bioinformatics**

4:00-4:30 Coffee and Networking

4:20-4:40 Shuttle bus from Stafford Hall to hotels (Hotel Vermont/Courtyard Marriott)

4:20-4:40 *Transition to regular conference agenda*

Thank you to our Workshop Sponsors!



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Technologies**



PRECONFERENCE WORKSHOP AGENDA

MONDAY, JULY 7

Wet-Lab Workshop Track A:

9:00-10:30 AM Laboratory Techniques Rotation 1:

Option A: **Using Precision Cut Lung Slices (PCLS) to Study Lung Biology & Disease** ~ **Stafford**

Led by Darcy Wagner, PhD (McGill University, Canada)

Option B: **Application of Organoids and Hydrogels to Study Lung Biology & Disease** ~ **Stafford**

Led by Dawei Sun, PhD (Broad Institute, MA)

Option C: **Application of Flexivent to Study Biomechanical Regulation of Lung Function** ~ **Given C-352**

Led by Bradford Smith (University of Colorado Denver | Anschutz Medical Campus, CO)

11:00-12:30 PM Laboratory Techniques Rotation 2:

Option A: **Using Precision Cut Lung Slices (PCLS) to Study Lung Biology & Disease** ~ **Stafford**

Led by Darcy Wagner, PhD (McGill University, Canada)

Option B: **Application of Organoids and Hydrogels to Study Lung Biology & Disease** ~ **Stafford**

Led by Dawei Sun, PhD (Broad Institute, MA)

Option C: **Application of Flexivent to Study Biomechanical Regulation of Lung Function** ~ **Given C-352**

Led by Bradford Smith (University of Colorado Denver | Anschutz Medical Campus, CO)

2:00-3:30 PM Laboratory Techniques Rotation 3:

Option A: **Using Precision Cut Lung Slices (PCLS) to Study Lung Biology & Disease** ~ **Stafford**

Led by Darcy Wagner, PhD (McGill University, Canada)

Option B: **Application of Organoids and Hydrogels to Study Lung Biology & Disease** ~ **Stafford**

Led by Dawei Sun, PhD (Broad Institute, MA)

Dry-Lab Workshop Track B:

Led by Martijn Nawijn, PhD (University Medical Center Groningen, NL)

Onsite Assistance: TBC

9:00-10:30 AM **BioInformatics:** Bulk RNA seq visualization task~ **Stafford**

11:00-12:30 PM **BioInformatics:** Bulk RNA seq visualization task~ **Stafford**

2:00-4:00 PM **BioInformatics:** Single Cell RNA Sequencing ~ **Stafford**

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CONFERENCE AGENDA

MONDAY, JULY 7

4:30-5:30 PM **Welcome Reception** and Registration Check-In, Hotel Vermont

Transition to: *COURTYARD BURLINGTON HARBOR HOTEL*, HARBOR ROOM

Session I: Celebrating 20 Years of Progress in Lung Stem Cell Biology and Bioengineering

Moderators:

Daniel J. Weiss, MD, PhD ~ University of Vermont

Robert Hynds, PhD ~ University College London, UK, 2025 Conference Co-Chair

5:30-5:40 PM **Opening Remarks**
Marlene Tromp, PhD ~ President, University of Vermont, VT

5:30-5:40 PM **Conference Recap**
Daniel J. Weiss, MD, PhD ~ University of Vermont, VT

5:50-6:20 PM *Featured Presentation: Title TBC*
Bernard Thébaud, MD, PhD ~ Ottawa Hospital Research Institute, Canada

6:20-6:50 PM *Featured Presentation: Improving Mucociliary Clearance in the Face of Climate Change*
Brigitte Gomperts, MD ~ University of California, Los Angeles, CA

6:50-7:00 PM *Break*

7:00-7:30 PM *Featured Presentation: Title TBC*
Laura Niklason, MD, PhD ~ Yale School of Medicine, New Haven, CT

7:30-8:00 PM *Featured Presentation: Pluripotent Stem Cells to Model and Treat Lung Disease*
Darrell Kotton, MD ~ Boston University, Boston, MA

8:00-8:30 PM *Featured Presentation: Breaking down barriers to lung repair and regeneration: alveolar epithelial cell plasticity in health and disease*
Zea Borok, MD ~ University of California San Diego, San Diego, CA

TUESDAY, JULY 8

All sessions at the *Dudley H. Davis Center, UVM Campus, Grand Maple Ballroom.*

- 7:45-8:45 AM **Breakfast and Breakfast Session I**
What Editors Are Looking For (or How to Avoid Desk Rejection) ~ Panel Discussion
Moderators:
Janette Burgess, PhD ~ University Medical Centre, Groningen, Netherlands

Panelists:
Rory Morty ~ Chief Editor, European Respiratory Review
Juile Stacey ~ Editor-in-chief, eBioMedicine
Andrew Halayko ~ Editor-in-chief, American Journal of Respiratory Cell and Molecular Biology
- 8:45-9:00 AM **Welcoming Remarks**
Amy Ryan, PhD and Robert Hynds, PhD – 2025 Conference Co-Chairs
- Session II: Endogenous Lung Stem Cells**
Moderators:
Laure-Emmanuelle Zaragosi, PhD ~ Université Côte d'Azur, Sophia-Antipolis, France
Jaymin Kathiriya, PhD ~ Mount Sinai, New York, NY
- 9:00-9:25 AM *Featured Presentation: Scrap and Reconstruction of Lung Fibrosis using Alveolar Organoid*
Mitsuru Morimoto, PhD ~ RIKEN Biosystems Dynamics Research, Kobe, Japan
- 9:25-9:50 AM *Featured Presentation: Title TBC*
Xin Sun, PhD ~ UC San Diego, CA
- 9:50-10:15 AM *Featured Presentation: Multi-lineage circuits in regeneration*
Purushothama Rao Tata, PhD ~ Duke University, Durham, NC
- 10:15-10:30 AM *Outstanding Abstract Achievement Award Presentation: Pharmacologically enhancing progenitor cell induction after lung injury to drive alveolar repair*
Sally Yunsun Kim ~ Kings College, London, UK
- 10:30-10:50 AM *Panel Discussion*
- 10:50-11:15 AM *Coffee and Networking Break*
- 11:15-11:20 AM **Introductory Remarks ~ Kirk Dombrowski, PhD ~ Vice President for Research, UVM**
- 11:20-12:00 AM ***"Minute To Win it" Competition***
One minute elevator pitches for junior trainees. 1 slide. 1 minute buzzer. Two prizes.

Moderator:
Daniel Weiss, MD, PhD ~ University of Vermont, Burlington, VT

Judges:

Kirk Dombrowski, VP for Research, University of Vermont, VT

12:00-1:00 PM **MENTORING / MEET THE FACULTY LUNCH**

1:00-2:30 PM **Poster Session #1**

**Session III: The Dame Julia Polak Memorial Session on Bioengineering:
Lessons from Transplantation**

Moderators:

Harry Karmouty-Quintana, PhD ~ University of Texas Health Science Center, Houston, TX

Lei Wang, PhD ~ University Medical Center Groningen, Groningen, NL

2:30-2:55 PM *Featured Presentation: Early Warning signs of Chronic Lung Diseases: New Imaging Modalities to the Rescue*

Anna Podolanczuk, MD, MS ~ Weill Cornell, New York, NY

2:55-3:20 PM *Featured Presentation: Animal Models for Lung Transplantation*

Kalpaj Parekh, MBBS ~ University of Iowa, Iowa City, IA

3:20-3:45 PM *Featured Presentation: Title TBC*

Marcelo Cypel, MD ~ University of Toronto, Canada

3:45-4:00 PM *Outstanding Abstract Achievement Award Presentation: Embedded Bioprinting of Airway and Alveolar Stem Cells to Engineer Complex 3D Lung Tissue Architectures*

Barbie Varghese ~ Carnegie Mellon University, Pittsburg, PA

4:00-4:15 *Panel Discussion*

4:15-4:30 *Coffee and Networking Break*

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

Moderator:

Amy Ryan, PhD ~ University of Iowa, Iowa City, IA

4:30-5:15 *Featured Presentation: Recruiting, developing and training the next generation of scientists needed for lung regenerative medicine*

Darcy Wagner, PhD ~ McGill University, Montréal, Canada

5:15-6:30 **Panel Discussion - From Labs to Lungs: Empowering the Next Generation of Scientists**

Panelists:

Anne Dixon, MD ~ University of Vermont, Burlington, VT

Enid Neptune, MD ~ Johns Hopkins University, Baltimore, MD

Martine Rothblatt ~ United Therapeutics, Silver Spring, MD

Noma Anderson, PhD ~ University of Vermont, VT

WEDNESDAY, JULY 9

7:30-8:30 AM

Breakfast and Breakfast Session II

What Funders are Looking For (or How to Get Your Grant)

Moderator:

Claudia Loebel, PhD ~ University of Michigan, MI

Panelist:

Katherine Tuggle, PhD ~ The Cystic Fibrosis Foundation

Session V:

Lung Extracellular Matrix and Matrix-Based Therapies

Sponsored by the Pulmonary Fibrosis Foundation

Moderators:

Janette Burgess, PhD ~ University Medical Center Groningen

René Girard, MSc ~ University of Texas Health Science Center, Houston, TX



8:30-8:55 AM

Featured Presentation: Quantifying Extracellular Matrix Stiffness within Intact Living Tissues

Ramaswamy Krishnan, PhD ~ Mechanobiologix, Watertown, MA

8:55-9:20 AM

Featured Presentation: ECM Remodeling in the Vascular System and the Role of Soluble ECM Fragments

Grazyna Kwapiszewska, PhD ~ Medical University of Graz/Institute for Lung Health, Giessen

9:20-9:45 AM

Featured Presentation: Tissue Engineered Avatars for Regenerative Medicine and Cancer Research

Mary (Cindy) Farach-Carson, PhD ~ University of Texas Health Science Center, Houston, TX

9:45-10:00 AM

Outstanding Abstract Achievement Award Presentation: Laminin-332 defects in airway epidermolysis bullosa and their correction with lentiviral therapy.

Nimah McCarthy ~ University College London, London, UK

10:00-10:20

Panel Discussion

10:20-10:50

Coffee and Networking Break

Session VI:

Patient Access to Stem Cell-Based Therapies

Sponsored by the International Society for
Cell & Gene Therapy (ISCT)

Moderator:

Laertis Ikonomou, PhD ~ University at Buffalo, Buffalo, NY,

Emeritus Chair of the ISCT Committee on the Ethics of Cell and Gene Therapy



- 10:50-11:00 *Introduction to International Society for Cell & Gene Therapy*
Laertis Ikononou, PhD ~ University at Buffalo, Buffalo, NY
- 11:00-11:20 *Featured Presentation: The Regulatory Foundation to Protect Patients from Stem Cell Fraud*
Bambi Grilley, B.S. ~ Baylor College of Medicine, Houston, TX
- 11:20-11:40 *Prosecuting a Stem Cell Clinic: Lessons Learned*
Mark Alonzo, JD ~ Vinson Law, Tampa, FL
- 11:40-12:00 *Panel Discussion*
- 12:00-1:00 PM **LUNCH and Round Table Discussions**
- Discussion on the “Current State of the Cell Therapy in Lung Disease”**
Open to all attendees
Moderators:
Thomas Lynch, PhD ~ Nationwide Children’s Hospital, OH
Finn Hawkins, MD, PhD ~ Boston University, Boston, MA
- Committee Meetings**
Committee on ATS Red Journal Manuscript A (Invite Only)
Moderator:
Amy Ryan, PhD ~ University of Iowa, Iowa City, IA
- Committee on ATS Red Journal Manuscript B (Invite Only)**
Moderator:
Robert Hynds, PhD ~ University College London, London, UK
- Committee on APS Conference Review (Invite Only)**
Moderator:
Sinem Koc-Gunel, MD ~ University of Frankfurt, Frankfurt, Germany
- 1:00-2:30 PM **Poster Session #2**
- 2:30-2:40 PM *Coffee and Networking Break*
- Session VII: Immune Regulation of Lung Regeneration**
Moderators:
Amy Ryan, PhD ~ University of Iowa, Iowa City, IA
Sarah Moore, MD ~ Mount Sinai, New York, NY
- 2:45-3:10 PM *Featured Presentation: Imaging Lung Lymphatics in Action*
Simon Cleary, PhD ~ King’s College London, London, United Kingdom

- 3:10-3:35 PM *Featured Presentation: Intercellular Communication Between Immune Cells and the Epithelium in Alveolar Repair*
Ana Pardo-Saganta, PhD ~ Justus Liebig University, Giessen, Germany
- 3:35-4:00 PM *Featured Presentation: Immune Cell Regulation of Terminal Bronchiole Remodeling*
Tillie-Louise Hackett, PhD ~ University of British Columbia, Vancouver, Canada
- 4:00-4:15 PM *Outstanding Abstract Achievement Award Presentation: The use of immune-modified FailSafe cells as a cell replacement therapy for cystic fibrosis*
Muyang Zhou, University of Toronto, Toronto, Canada
- 4:15-4:35 PM *Panel Discussion*
- 4:40-5:20 PM *Buses*
- 6:00 PM **Dinner Cruise on Lake Champlain ~ Award Ceremony**
Cruise boards from 6:00-6:15 and departs promptly at 6:30pm.
- 9:00 PM *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 10

- 7:30-8:30 AM **Breakfast and Breakfast Session III**
Transitioning to Independence (or How to Start Your Lab)
Moderators:
Amy Ryan, PhD ~ University of Iowa, Iowa City, IA
Lei Wang, PhD ~ University Medical Center Groningen, Groningen, Netherlands
Panelists:
Ruobing Wang, MD ~ Boston Children's Hospital, MA
Thomas Lynch, PhD ~ Nationwide Children's Hospital, OH
Sinem Koç-Günel ~ University of Frankfurt, Frankfurt, Germany

Session VIII: Physics and Engineering Principles in Lung Biology

- Moderators:*
Jaime Hook, MD ~ Mount Sinai, New York, NY
Indra Putra Wendi, MSc ~ Lund University, Lund, Sweden
- 8:30-8:55 *Featured Presentation: The physics of cell fate decisions: from Waddington's landscape to scRNAseq data analysis*
Pankaj Mehta, PhD ~ Boston University, Boston, MA
- 8:55-9:20 *Featured Presentation: Lung Branching Morphogenesis: A Physics-Based Perspective*
Uduak George, PhD ~ San Diego State University, San Diego, CA

- 9:20-9:45 *Featured Presentation: Agent-Based Modeling of Lung Diseases and Regeneration*
Bela Suki, PhD ~ Boston University, Boston, MA
- 9:45-10:00 *Outstanding Abstract Achievement Award Presentation: Pathologic Wall Shear Stress Attenuates Epithelial Differentiation and Increases*
Sauali Dharmadhikari ~ The Ohio State University and Nationwide Children's Hospital, OH
- 10:00-10:15 *Panel Discussion*
- 10:15-10:35 *Coffee and Networking Break and Group Photo*

Session IX: The Darwin Prokop Memorial Session on Mesenchymal Stromal Cells

Moderators:

Anna Krasnodembskaya, PhD ~ Queen's University, Belfast, United Kingdom
Ruth-Love Damoah, PhD ~ Boston Children's Hospital, Boston, MA

- 10:35-11:00 AM *Featured Presentation:*
TBC
- 11:00-11:25 AM *Featured Presentation: Title TBC*
Duncan Stewart, MD ~ Ottawa Hospital Research Institute, Ottawa, Canada
- 11:25-11:50 AM *Featured Presentation: MSC Mitochondrial Transplantation as a Novel Therapeutic Approach for Vascular Cell Therapy*
Juan Melero-Martin, PhD ~ Boston Children's Hospital, Boston, MA
- 11:50-12:05 AM *Outstanding Abstract Achievement Award Presentation: Glutaredoxin-Mediated Redox Processes Control Aberrant Plasticity of Airway Basal Stem Cells and Crosstalk with Mesenchymal Cells*
Megan Tarte ~ University of Vermont, Burlington, VT
- 12:05-12:20 PM *Panel Discussion*
- 12:20-12:40 PM **LUNCH (Boxed Lunch)**

Session X: iPSC Models of Lung Health and Disease

Moderators:

Ruth Olmer, PhD ~ Hannover Medical School
Daniel Wallman, MD ~ Boston University, Boston, MA

- 12:40-1:05 *Featured Presentation: Patient-Derived Induced Pluripotent Stem Cells: Tools to Model Interstitial Lung Disease*
Killian Hurley, MB BCh BAO, PhD ~ Royal College of Surgeons in Ireland, Ireland

1:25-1:50	<i>Featured Presentation: Title TBC</i> Ruobing Wang, MD, PhD ~ Boston Children's Hospital, Boston, MA
1:50-2:15	<i>Featured Presentation: iPSC Models of Airway Disease for Discovery and Therapy</i> Finn Hawkins, MBBCh ~ Boston University, Boston, MA
2:15-2:30 PM	<i>Outstanding Abstract Achievement Award Presentation: Sex Matters: Sotatercept as a novel therapy for pulmonary arterial hypertension: Attenuation of fibrosis and contractility in iPSC-derived smooth muscle cells</i> Aileen Schmidt ~ Leibniz Research Laboratories for Biotechnology and Artificial Organs (LEBAO), MHH Germany
2:30-2:45 PM	<i>Panel Discussion</i>
Session XI:	Concluding Discussion <i>Moderator:</i> Daniel J. Weiss, MD, PhD ~ University of Vermont, Burlington, VT
2:45-3:45 PM	<i>Open Discussion – Feedback, Priority Setting and Recommendations</i>