Stem Cells and Cell Therapies in Lung Biology and Lung Diseases

Supported by the National Heart, Lung, and Blood Institute, Alpha-1 Foundation,
American Thoracic Society, LAM Treatment Alliance
Pulmonary Fibrosis Foundation, University of Vermont College of Medicine, Vermont Lung Center

Burlington, Vermont
July 25-28, 2011

AGENDA

MONDAY, JULY 25

5:00-7:00 PM Welcoming Reception and Registration, Sheraton Hotel

TUESDAY, JULY 26

6:30-7:15 AM Shuttle bus looping between Sheraton and UVM Campus

6:45-7:15 Continental Breakfast and Continued Registration
Grand Maple Ballroom, Davis Center, UVM Campus

7:15-7:30 Welcome and Introduction

Session 1: Endogenous Lung Progenitor Cells/Lung Cancer Stem Cells

Moderator: **Jay Rajagopal, PhD**

7:30-8:15	Introductory Overview: **Leonard Zon, MD**	Critical Overview of Endogenous Progenitor Cells in the Lung
8:15-9:00	**Emma Rawlins, PhD**	Endogenous Progenitor Cells: Lessons from Lung Development

(All subsequent talks: 20 min followed by a 10 min Q/A period)

9:00-9:30	**Ivan Bertoncello, PhD**	Characterization and Organization of Endogenous Stem Cells in the Adult Lung
9:30-10:00	**Carla Kim, PhD**	Stem Cell Approaches to Understand Lung Injury Repair and Lung Cancers
10:00-10:30	BREAK	

10:00-10:30	**Susan Reynolds, PhD**	Beta-Catenin Regulates Basal Cell – Cell Fate
10:30-11:00	**Barry Stripp, PhD**	Is the Airway Epithelium Maintained by Multipotent or Region-Specific Progenitor Cells?
11:00-11:30	**Mark Magnuson, MD**	The Beta Cell Biology Consortium: Ten Years of Team Science
11:30-12:30 PM	Panel Moderated Discussion	Panelists Wellington Cardoso MD PhD, David Warburton PhD
12:30-2:00	Lunch and Poster Session	

Session 2: <u>Embryonic Stem Cells, iPS, and Lung Regeneration</u>

Moderator: **Carolyn Lutzko, PhD**

2:00-2:30	Featured Speaker: **Jeffrey Whitsett, MD**	Phenotypic and Functional Identification of Lung Epithelial Cells: Is That Really a Type 2 Cell?
2:30-3:00	Featured Speaker: **Gustavo Mostoslavsky, PhD**	iPS Cells, The Good, Bad, and Ugly
3:00-3:15	BREAK	
3:15-3:45	**Ali Samadikuchaksaraei PhD**	Embryonic Stem Cells Differentiation into Pulmonary epithelial Cells
3:45-4:15	**Darrell Kotton, MD**	Derivation of Ttf1+Endodermal Progenitors from ES and iPS Cells
4:15-4:45	**Amy Wong, PhD**	Establishment of CFTR-Expressing Epithelial Cells from Pluripotent Stem Cells
4:45-5:15	**Hans-Willem Snoeck, MD, PhD**	Generation of Anterior Foregut Endoderm from Human Pluripotent Cells
5:15-5:45	**Brian Davis, PhD**	Gene Corrected iPS-Derived Lung Cells for Therapy of Inherited Lung Diseases
5:45-6:30	Panel Moderated Discussion	Panelists: Barbara Driscoll PhD, Jeff Spees PhD
7:30	Dinner/Reception ECHO Science Center, Burlington	

WEDNESDAY, JULY 27

7:00 – 7:30 AM	Continental Breakfast	
Session 3:	**Bioengineering Approaches to Lung Regeneration: Structure and Matrix** Moderator: **Jason HT Bates, PhD**	
7:30-8:00	Featured Speaker **Dame Julia Polak, DBE, MD, DSc**	Lung Tissue Engineering: Past, Present and Future Opportunities
8:00-8:30	Featured Speaker: **Paolo Macchiarini, MD**	Cell Therapy and Bioengineered Replacement of the Airways
8:30-9:00	**Joaquin Cortiella, MD**	The Role of Natural Matrix in the Development of Lung Tissue Using Embryonic, Mesenchymal, or Fetal Lung Cells
9:00-9:30	**Christine Finck, MD**	Bioengineering of the Lung
9:30-10:00	**BREAK**	
10:00-10:30	**Andrew Hoffman, DVM, DVSc**	Biological Scaffolds to Enhance Progenitor Cell Transplantation
10:30-11:00	**Peter Lelkes, PhD**	De-Cellularization and Beyond
11:00-11:30	**Angela Panoskaltsis-Mortari, PhD**	Using Decellularized Matrices for Bioengineering the Lung
11:30-Noon	**Laura Wangensteen MD PhD**	Optimizing Lung De-Cellularization and Re-Cellularization with Stem Cells
Noon-1:00	Lunch and Poster Session: University of Vermont	
Session 4:	**Bioengineering Approaches to Lung Regeneration: Function** Moderator: **Thomas Gilbert, PhD**	
1:00-1:30	Featured Speaker **Doris Taylor, PhD**	Developing Biologically Active Scaffolds for Regeneration or Repair
1:30-2:00	**David Hoganson, PhD**	Lung Tissue Engineering Based on Engineered Vascular Scaffold

2:00-2:30	**D. Daniel Huh, PhD**	A Human Breathing Lung-on-a-Chip
2:30-3:00	**Laura Niklason, PhD**	Engineering Functional Lung Tissues
3:00-3:30	BREAK	
3:30-4:00	**Harald Ott, MD**	Engineering and Transplantation of a Bioartificial Lung
4:00-4:30	**Daniel Tschumperlin, PhD**	The Mechanical Microenvironment's Influence on Cell Signaling and Differentiation
4:30-5:00	**Jason Woods, PhD**	Imaging in Lung Regenerative Medicine
5:00-6:00	Panel Moderated Discussion	Panelists: Mingyao Liu PhD, Joan Nichols PhD
6:00	Free evening in Burlington	

THURSDAY, JULY 28

7:00-7:30 AM Continental Breakfast

Session 5: EPCs, MSCs and Cell Therapy Approaches for Lung Diseases

Moderator: **Armand Keating, MD**

7:30-8:00	Featured Speaker: **Darwin Prockop, MD, PhD**	Potential Therapies with the Anti-inflammatory Protein TSG-6 and the Anti-ROS Protein STC-1 Produced by Adult Stem/Progenitor Cells (MSCs)
8:00-8:30	Featured Speaker: **Jacques Galipeau, MD**	The Immune Plasticity of MSC: Impact on Design of Cell Therapy Studies.
8:30-9:00	**Sam Janes, PhD**	Stem Cell Therapy for Lung Metastases
9:00-9:30	**Michael Matthay, MD**	Mesenchymal Stem Cells for Acute Lung Injury
9:30-10:00	BREAK	
10:00-10:30	**Duncan Stewart, MD**	An Update on Cellular Therapies for Pulmonary Vascular Diseases: Moving Towards an Efficacy Trial
10:30-11:00	**Daniel J. Weiss, MD, PhD**	MSC Immunomodulation of Airways Diseases
11:00-11:30	**Mervin Yoder, MD**	Define Human Endothelial Progenitor Cells

11:30-12:00	**Donald Phinney PhD**	Functional Heterogeneity of MSCs and Implications for Clinical Therapies
12:00-12:30PM	Panel Discussion with Box Buffet Lunch	Panelist: Polly Parsons MD

Session 6: Summation and Directions

Moderator: **Darwin Prockop, MD, PhD Texas A & M**

12:30-1:45 PM Perspectives from the NIH, NASA, FDA, Respiratory Disease Foundations

James Kiley PhD , Chief, Davison of Lung Diseases, NHLBI
Christine Kelley PhD, NIBIB
Neal Pellis PhD, NASA
Donald Fink, Jr., PhD, FDA
Adam Wanner, MD, Alpha-1 Foundation
Michael Matthay, MD on behalf of the ATS
Amy Farber MD, Director LAM Foundation
Daniel Rose, PhD, CEO Pulmonary Fibrosis Foundation

1:45-2:30 Open Discussion: Setting Priorities and Recommendations to the NIH Regarding Future Research Opportunities

2:30 Conclusion