



ISHLT ACADEMY: CORE COMPETENCIES IN BASIC SCIENCE AND TRANSLATIONAL RESEARCH

Chairs: Esmé Dijke, PhD and Tereza Martinu, MD

**Wednesday, April 9, 2014
Manchester Grand Hyatt Hotel, San Diego, CA, USA**

CONTINUING MEDICAL EDUCATION INFORMATION

Accreditation Statement

The International Society for Heart and Lung Transplantation (ISHLT) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation Statement

ISHLT designates this live activity for a maximum of 8.0 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Disclosure

Current guidelines state that participants in CME activities must be made aware of any affiliation or financial interest that may affect the program content or a speaker's presentation. Planners, Faculty and Chairs participating in this meeting are required to disclose to the program audience any real or apparent conflict(s) of interest related to the content of their presentations or service as Chair/Planner. These disclosures will be distributed at the meeting. Additionally, all speakers have been asked to verbally disclose at the start of their presentation if a product they are discussing is not labeled for the use under discussion or is still investigational.

Learning Objectives

At the conclusion of this meeting, participants will have improved competence and professional performance in their abilities to:

- 1) Understand basic concepts in transplant-related immunology and molecular biology;
- 2) Recognize key analytical techniques and models used in transplantation research;
- 3) Understand basic mechanisms of immunosuppression;
- 4) Recognize key contributions from basic research in transplantation that improved clinical outcomes in heart and lung transplantation;
- 5) Recognize how clinical questions may inspire basic research;
- 6) Enable effective communication between research scientists and clinicians and health care professionals.

Educational Goals

The educational goals of this activity are to provide a concise review of basic concepts in transplant-related immunology and molecular biology, to define and promote the clinical relevance of BSTR related to heart and lung tx, and to encourage interaction between basic scientists, translational researchers and clinicians

Target Audience

This course is designed to focus on core competencies in Basic Science and Translational Research and will fill gaps in practice by assisting clinicians in improving their understanding of the scientific background behind clinical practice, updating basic and translational researchers on recent discoveries, encouraging interaction between basic/translational researchers and clinicians and stimulating discussion of common basic topics in the fields of heart versus lung failure and transplantation. This first ISHLT BSTR Academy will focus on basic concepts in immunology and molecular biology related to heart and lung transplantation.

SCIENTIFIC PROGRAM COMMITTEE

Esmé Dijke, PhD, University of Alberta, Edmonton, AB, Canada (Co-Chair)

Tereza Martinu, MD, Duke University Medical Center, Durham, NC, USA (Co-Chair)
Christopher H. Wigfield, MD, FRCS, University of Chicago, Chicago, IL, USA (Co-Chair)
Sonja Schrepfer, MD, PhD, Stanford University, Stanford, CA (Co-Chair)
Carla C. Baan, PhD, Erasmus MC, Rotterdam, The Netherlands
Marilia Cascalho, MD, PhD, University of Michigan Hospital, Ann Arbor, MI, USA
Daniel C. Chambers, MBBS, MRCP, FRACP, MD, The Prince Charles Hospital, Brisbane, Australia
Kimberly L. Gandy, MD, PhD, University of Missouri, Kansas City, MO, USA
Richard Kirk, FRCP, FRCPC, Freeman Hospital, Newcastle Upon Tyne, United Kingdom

SCIENTIFIC PROGRAM SCHEDULE

7:00 AM - 7:45 AM

REGISTRATION AND MORNING COFFEE

7:45 AM – 8:00 AM

WELCOME AND INTRODUCTIONS

Esmé Dijke, PhD, University of Alberta, Edmonton, AB, Canada, and Tereza Martinu, MD, Duke University Medical Center, Durham, NC, USA

8:00 AM - 9:00 AM

SESSION 1: THE BASICS

8:00 AM *Clinical Transplant Medicine for Basic Scientists*, Tobias Deuse, MD, PhD, University Heart Center, Hamburg, Germany. This talk will help the basic/translational scientist understand subsequent case presentations and clinical relevance of the basic science.

8:25 AM Q&A

8:30 AM *Basic Transplant Immunology for Clinicians*, James F. George, PhD, University of Alabama at Birmingham, Birmingham, AL, USA. This talk will discuss major players of the immune system, the properties of the innate and adaptive immune system, recognition of antigens, self versus non-self discrimination, cell regulation and what this all means in the context of transplantation.

8:55 AM Q&A

9:00 AM - 10:00 AM

SESSION 2: ISCHEMIA REPERFUSION INJURY

9:00 AM *Case Presentation on Cardiac Ischemia Reperfusion Injury*, William E. Stansfield, MD, University of North Carolina, Chapel Hill, NC, USA

9:05 AM *How Would YOU Like to Sit in an Ice Bucket? The Basics of Ischemia Reperfusion Injury*, Daniel Kreisel, MD, PhD, Washington University School of Medicine. St. Louis, MO, USA. This talk will provide an overview of the basic mechanisms of IRI, including specific assays such as intravital imaging/immunofluorescence.

9:20 AM *Cardiac Ischemia Reperfusion Injury – Engine Failure in a Single-Engine Plane*, Oliver Manintveld, MD, Erasmus Medical Center, Rotterdam, The Netherlands. This talk will discuss specific considerations for heart transplantation, basic (including pre-clinical models) and translational research on IRI in this field and how this research relates to the clinic.

9:35 AM *Lung Ischemia Reperfusion Injury – It Will Take Your Breath Away*, Geert M. Verleden, MD, PhD, University Hospital Gasthuisberg, Leuven, Belgium. This talk will discuss specific considerations for lung transplantation, basic (including pre-clinical models) and translational research on IRI in this field and how this research relates to the clinic.

9:50 AM Q&A

10:00 AM - 10:30 AM

COFFEE BREAK

10:30 AM - 11:30 AM

SESSION 3: ACUTE REJECTION

10:30 AM Case Presentation on Pulmonary Acute Rejection, Harry Gallagher, MBChB, FRACP, The Prince Charles Hospital, Chermside, Australia

10:35 AM The Nuts and Bolts of Acute Cellular Rejection, Marilia Cascalho, MD, PhD, University of Michigan Hospital, Ann Arbor, MI, USA. This talk will provide an overview of the immunology behind acute rejection, including specific assays to determine cell activation/function, such as flow cytometry, MLR, and ELISPOT

10:50 AM Pump Down - Acute Cardiac Rejection, Howard J. Eisen, MD, Drexel University College of Medicine, Philadelphia, PA, USA. This talk will discuss specific considerations for heart transplantation, basic (including pre-clinical models) and translational research on AR in this field and how this research relates to the clinic.

11:05 AM Acute Lung Rejection – Why it Sucks to be Lungs, Rebecca A. Shilling, MD, University of Illinois, Chicago, IL, USA. This talk will discuss specific considerations for lung transplantation, basic (including pre-clinical models) and translational research on acute rejection in this field and how this research relates to the clinic.

11:20 AM Q&A

11:30 AM - NOON

SESSION 4: PHARMACOLOGY I

11:30 AM Antidotes for Alloimmunity - Principles of T-cell Directed Therapies, Michael Shullo, PharmD, University of Pittsburgh Medical Center, Pittsburgh, PA, USA. This talk will provide an overview of T-cell directed therapies and their mode of action.

11:55 AM Q&A

NOON – 1:00 PM

BOX LUNCH AND NETWORKING

1:00 PM - 2:00 PM

SESSION 5: ANTIBODY-MEDIATED REJECTION

1:00 PM Case Presentation on Cardiac Antibody-mediated Rejection, Manreet Kanwar, MD, Allegheny General Hospital, Pittsburgh, PA, USA

1:05 PM The Alphabet of AMR – Antibodies, B cells, Complement, etc., Ronald H. Kerman, PhD, Baylor College of Medicine, Houston, TX, USA. This talk will provide an overview of the immunology behind antibody-mediated rejection, including specific assays for antibody detection.

1:20 PM AMR in Heart Transplantation – Don't We Know What We Know? Agnes Azimzadeh, PhD, University of Maryland School of Medicine, Baltimore, MD, USA. This talk will discuss specific considerations for heart transplantation, basic (including pre-clinical models) and translational research on AMR in this field and how this research relates to the clinic.

1:35 PM AMR in Lung Transplantation – Do We Know What We Don't Know? Glen P. Westall, FRACP, PhD, Alfred Hospital, Melbourne, VC, Australia, USA. This talk will discuss specific considerations for lung transplantation, basic (including pre-clinical models) and translational research on AMR in this field and how this research relates to the clinic.

1:50 PM Q&A

2:00 PM - 2:30 PM

SESSION 6: PHARMACOLOGY II:

2:00 PM AMR-directed Therapies: Poisoning, Blockade, or Removal – Take your Pick!! Richard Kirk, FRCP, FRCPCH, Freeman Hospital, Newcastle Upon Tyne, United Kingdom. This talk will provide an overview of B-cell directed therapies and their mode of action. The presentation will also include new B-cell directed therapies.

2:25 PM Q&A

2:30 PM - 2:50 PM

SESSION 7: MOLECULAR BIOLOGY

2:30 PM *From Genes to Proteins: Stacking the Building Blocks of Science*, Karin Boer, Erasmus University Medical Center, Rotterdam, The Netherlands. This presentation will discuss the basics of select key concepts in molecular biology that are hot in transplantation research. The speaker will focus on laboratory methods used in the analysis of the genome, transcriptome, and proteome, and will touch upon the concepts of epigenetics, microRNA, siRNA, and methylation.

2:45 PM Q&A

2:50 PM - 3:15 PM COFFEE BREAK

3:15 PM - 4:15 PM

SESSION 8: CHRONIC REJECTION

3:15 PM *Case Presentation on Lung Allograft Chronic Rejection*, Alice L. Gray, MD, Duke University Medical Center, Durham, NC

3:20 PM *Chronic Rejection – Is it even ‘Rejection’ at all?* Stephan M. Ensminger, MD, DPhil, Heart & Diabetes Center, Bad Oeynhausen, Germany. This talk will provide an overview of the immunology behind chronic rejection, including specific assays used to study chronic rejection, including cytokine detection and proteomics.

3:35 PM *Mechanisms of Chronic Allograft Vasculopathy – Do we have the Answers?* Joren C. Madsen, MD, DPhil, Massachusetts General Hospital, Boston, MA, USA. This talk will discuss specific considerations for heart transplantation, basic (including pre-clinical models) and translational research on CR in this field and how this research relates to the clinic.

3:50 PM *Mechanisms of Bronchiolitis Obliterans – Answers on the Horizon?* Bart M. Vanaudenaerde, PhD, KU Leuven, Leuven, Belgium. This talk will discuss specific considerations for lung transplantation, basic (including pre-clinical models) and translational research on CR in this field and how this research relates to the clinic.

4:05 PM Q&A

4:15 PM - 4:45 PM

SESSION 9: TOLERANCE

4:15 PM *Will We Ever Tolerate the Intolerable?* Lori J. West, MD, DPhil, University of Alberta, Edmonton, AB, Canada. This presentation will be a ‘fireside chat’ between two pioneers who will discuss the concept of tolerance, how tolerance may be induced/broken, cells that may play a role in the induction of tolerance (regulatory T/B cells, stem cells), translation of animal to human, and how tolerance can be measured.

4:40 PM Q&A

4:45 PM - 6:00 PM

SESSION 10: BACK TO THE FUTURE

4:45 PM *It’s all About Priorities – The Basic Scientist’s Point of View*, Esmé Dijke, PhD, University of Alberta, Edmonton, AB, Canada. This talk will discuss the current and future research priorities of basic researchers in the field of heart and lung transplantation based on recent literature.

5:00 PM *It’s all About Priorities – The Clinician’s Point of View*, Tereza Martinu, MD, Duke University Medical Center, Durham, NC, USA. This talk will discuss the current and future research priorities of clinicians in the field of heart and lung transplantation based on recent literature.

5:15 PM *Panel Discussion: How to Translate Better and Faster?* Daniel C. Chambers, MBBS, MRCP, FRACP, MD, The Prince Charles Hospital, Brisbane, Australia; Carla Baan, PhD, Erasmus MC, Rotterdam, The Netherlands; Kimberly L. Gandy, MD, PhD, University of Missouri, Kansas City, MO, USA; Sonja Schrepfer, MD, PhD, Stanford University, Stanford, CA, USA

5:30 PM *Wrap up*, Tereza Martinu, MD, Duke University Medical Center, Durham, NC, USA

6:00 PM ADJOURN