

Imaging the Pancreatic Beta Cell in Health and Disease, 3rd Workshop

L'Enfant Plaza Hotel
480 L'Enfant Plaza, S.W.
Washington, DC 20024

April 24-25, 2006

AGENDA

Sponsored by:

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

The National Institute of Biomedical Imaging and Bioengineering (NIBIB)

The National Cancer Institute (NCI)

The National Institute of Allergy and Infectious Diseases (NIAID)
of the

National Institutes of Health (NIH), U.S. Department of Health and Human Services (DHHS)
and

Juvenile Diabetes Research Foundation International (JDRFI)

Monday, April 24, 2006

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| 7:00 a.m. - 8:00 a.m. | Breakfast, Registration, and Poster Mounting |
| 8:00 a.m. - 8:05 a.m. | Welcome Dr. Maren Laughlin, NIDDK Dr. Roderic Pettigrew, NIBIB Dr. Robert Goldstein, JDRFI |
| 8:05 a.m. - 8:15 a.m. | Welcome and Overview From the Workshop Chairs Dr. Anna Moore, Massachusetts General Hospital Dr. Alvin Powers, Vanderbilt University Medical Center Dr. David Harlan, NIDDK |
| 8:15 a.m. - 8:35 a.m. | Islet Biology 101: Diabetes and the Pancreas Dr. Susan Bonner-Weir, Joslin Diabetes Center |
| 8:35 a.m. - 8:55 a.m. | The History and Future of Islet and Beta Cell Imaging Dr. Willy Malaisse, Brussels Free University |

Session I: Imaging Transplantation

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| 8:55 a.m. - 9:00 a.m. | Brief Introduction Dr. David Harlan, NIDDK |
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- 9:00 a.m. - 9:20 a.m. Molecular Imaging of Transplantation
Dr. Anna Moore, Massachusetts General Hospital
- 9:20 a.m. - 9:40 a.m. Break and Posters
- 9:40 a.m. - 9:55 a.m. Imaging Islet Transplantation
Dr. František Saudek, Institute for Clinical and
Experimental Medicine, Prague
- 9:55 a.m. - 10:10 a.m. Imaging Porcine Allo Islet Transplantation Using Positron
Emission Tomography
Dr. Torbjorn Lundgren, Karolinska University Hospital
- 10:10 a.m. - 10:25 a.m. *In Vivo* Bioluminescence Imaging of Transplanted Islets
and Early Detection of Graft Rejection
Dr. Xiaojuan Chen, Northwestern University
- 10:25 p.m. - 10:40 p.m. *In Vivo* MR Imaging of Transplanted Pancreatic Islets
Ellen K. Kohlmeir, Northwestern University
- 10:40 a.m. - 11:30 a.m. Panel Discussion
Moderator: Dr. David Harlan, NIDDK
- 11:30 a.m. - 1:00 p.m. Lunch (Posters are available for viewing)

Session II: Imaging Islet Mass

- 1:00 p.m. - 1:20 p.m. General Considerations for PET and Molecular Imaging
Dr. Ian Sweet, University of Washington
- 1:20 p.m. - 1:40 p.m. Longitudinal Non-Invasive PET-Based Beta Cell Mass
Estimates in a Spontaneous Diabetes Rat Model
Dr. Paul Harris, Columbia University Medical College
- 1:40 p.m. - 2:00 p.m. Imaging Islet Mass With Bioluminescence
Dr. Alvin Powers, Vanderbilt University Medical Center
- 2:00 p.m. - 2:15 p.m. Dihydropyridazine as an Imaging Agent for Endogenous
Human and Non-Human Primate Pancreatic Islets
Dr. Eric H. Liu, NIDDK
- 2:15 p.m. - 2:30 p.m. Mapping and Quantification of the Entire Distribution of
Beta Cells in the Intact Pancreas
Dr. Manami Hara, The University of Chicago

2:30 p.m. - 3:15 p.m. Panel Discussion
Moderator: Dr. Susan Bonner-Weir, Joslin Diabetes
Center, Harvard Medical School

3:15 p.m. - 3:45 p.m. Break and Posters

Session III: Imaging Metabolism and Physiology

3:45 p.m. - 4:05 p.m. PET in Diagnosis of Focal Hyperinsulinism and Pancreatic
Metabolism
Dr. Pirjo Nuutila, University of Turku, Finland

4:05 p.m. - 4:20 p.m. Imaging of Congenital Hyperinsulinism With 18F-L-
Fluoro-DOPA PET and Correlation With Histopathology
Dr. Abass Alavi, Hospital of the University of
Pennsylvania

4:20 p.m. - 4:40 p.m. Cell Imaging of the Islet
Dr. Louis Philipson, The University of Chicago

4:40 p.m. - 4:55 p.m. Imaging Insulin Biology With Ins-C-Fluorescent Proteins
in
Live Human and Mouse Islets: Insulin Traffic, Secretion
and Diabetes Through the Microscope
Dr. Peter Drain, University of Pittsburgh School of
Medicine

4:55 p.m. - 5:10 p.m. 3D Structure Studies of the Insulin-Secreting Pancreatic
Beta Cell by Cellular EM Tomography
Dr. Brad Marsh, University of Queensland, Brisbane

5:10 p.m. - 5:45 p.m. Panel Discussion
Moderator: Dr. Alvin Powers, Vanderbilt University
Medical Center

(Poster viewing open until 6:30 p.m.)

Tuesday, April 25, 2006

Session IV: Imaging Inflammation

8:00 a.m. - 8:20 a.m. Imaging Inflammation
Dr. Chris Contag, Stanford University

8:20 a.m. - 8:35 a.m. Non-Invasive Imaging of Pancreatic Inflammation in
Type 1 Diabetes

Dr. Jason L. Gaglia, Joslin Diabetes Center, Harvard Medical School

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| of | 8:35 a.m. - 8:50 a.m. | Real-Time Imaging of the Pancreas During Development Diabetes Marianne M. Martinic, La Jolla Institute for Allergy and Immunology |
| | 8:50 a.m. - 9:05 a.m. | Magnetic Resonance Imaging of Autoimmune Attack in Type 1 Diabetes Progression Dr. Zdravka Medarova, Massachusetts General Hospital |
| | 9:05 a.m. - 9:40 a.m. | Panel Discussion Moderator: Dr. Anna Moore, Massachusetts General Hospital |
| | 9:40 a.m. - 11:40 a.m. | Posters |
| | 11:40 a.m. - 1:00 p.m. | Lunch |

Session V: Emerging Technologies and Opportunities

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| | 1:00 p.m. - 1:20 p.m. | Emerging Technologies: Optical Imaging Dr. Warren Zipfel, Cornell University |
| | 1:20 p.m. - 1:40 p.m. | Emerging Technologies: Functional Imaging Dr. Douglas Rothman, Yale University |
| | 1:40 p.m. - 2:15 p.m. | Emerging Technologies: New Probes and Contrast Agents Dr. Dean Sherry, University of Texas, Dallas Dr. Paul Grayburn, Baylor University Medical Center Dr. Jeff Bulte, The Johns Hopkins University School of Medicine |
| | 2:15 p.m. - 2:30 p.m. | Development and Application of New Fluorescent Probes To Localize Proteins in Live Cells and at the |
| Ultrastructural | | Level Dr. Ben N. G. Giepmans, University of California, San Diego |
| | 2:30 p.m. - 2:45 p.m. | MR Microscopy of Mammalian Islets Dr. Ioannis Constantinidis, University of Florida, Gainesville |

2:45 p.m. - 3:15 p.m.

Panel Discussion

Moderator: Dr. Louis Philipson, The University of
Chicago

3:15 p.m. - 3:30 p.m.

Wrap-Up and Adjournment

Dr. David Harlan