

Imaging the Pancreatic Beta Cell, 4th Workshop

April 6 - 7, 2009
Marriott at Metro Center
Washington, DC

Monday, April 6, 2009

7:30 a.m. - 8:30 a.m. **Registration and Coffee**

8:30 a.m.

Welcome

Maren Laughlin

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH)

Astrid Koch

Delegation of the European Commission to the USA

Robert Goldstein

Juvenile Diabetes Research Foundation (JDRF)

All sessions are to be chaired by Anna Moore, Martin Gotthardt, and Paul Harris.

8:45 a.m. - 11:30 a.m.

Session I

Imaging Beta Cell Mass

8:45 a.m. - 9:15 a.m.

Keynote Address

Jacob Hald

Hagedorn Research Institute

Target Discovery and Antibody Production

9:15 a.m. - 9:33 a.m.

Maarten Brom

Radboud University Nijmegen Medical Center

Determination of the Beta-cell Mass by SPECT Imaging with ¹¹¹In-DTPA-Exendin-3 in Rats

9:33 a.m. - 9:51 a.m.

Anne Grapin-Botton

Ecole Polytechnique Fédérale de Lausanne

Optical Coherence Microscopy of Endocrine Islets

9:51 a.m. - 10:09 a.m.

Stephan Schneider

Ruhr-University Bochum

Generation of Novel Single-chain Antibodies by Phage Display Technology to Direct Imaging Agents Highly Selective to Pancreatic Beta Cells *In Vivo*

10:09 a.m. - 10:30 a.m.

Break

10:30 a.m. - 10:48 a.m.

Daisy Flamez

Université Libre de Bruxelles
A Genomic-based Approach Identifies FXYD2γa as a Pancreatic
Beta Cell Specific Biomarker

10:48 a.m. - 11:06 a.m. *Anna Moore*
Harvard University
Noninvasive Imaging of Beta-cell Mass Using an Insulin-Specific
Soluble T-cell Receptor

11:06 a.m. - 11:16 a.m. **Hot Topic: Is VMAT2 a Good Target?**
Hank Kung
University of Pennsylvania
F-18 AV-133 as a Biomarker for Pancreas Beta Islet Cells

11:16 a.m. - 11:26 a.m. *Veronica Fagerholm*
Turku PET Centre
[¹¹C]DTBZ Exhibits High Non-Specific Binding in the Exocrine
Pancreas

11:26 a.m. - 11:50 a.m. **Discussion:**
Is VMAT2 a Good Target?
Can Ab Be Used for Imaging Beta Cells?

11:50 a.m. - 1:50 p.m. **Lunch and Poster Viewing**

1:50 p.m. - 3:30 p.m.
Session II **Pancreatic Vasculature, Architecture, and Neuroregulation**

1:50 p.m. -2:20 p.m. **Keynote Address**
Leif Jansson
Uppsala University
Regulation of Pancreatic Islet Vasculature

2:20 p.m. - 2:50 p.m. **Keynote Address**
Jesper Gromada
Novartis
Functional Consequences of Islet Innervation

2:50 p.m. - 3:08 p.m. *Alejandro Caicedo*
University of Miami
The Anterior Chamber of the Eye Is a Viable Platform for the
Study of Human Islet Cell Biology *In Vivo*

3:08 p.m. - 3:26 p.m. *Manami Hara*
University of Chicago

Imaging and Quantification of Beta-cell Mass *In Situ* in Mice

3:26 p.m. - 5:30 p.m.
Session III

Imaging of Islet Function

3:26 p.m. - 3:44 p.m.

M. Reza Mirbolooki
University of California at Irvine
18F-Fallypride PET to Monitor Pancreatic Islet Function

3:44 p.m. - 4:02 p.m.

Richard K.P. Benninger
Vanderbilt University
Quantitative Imaging and Modeling of Multi-cellular Interactions and Dynamics in the Islet

4:02 p.m. - 4:20 p.m.

Willy J. Malaisse
Université Libre de Bruxelles
Pancreatic Islet Structure and Function in L/N-Cp Rats

4:20 p.m. - 4:35 p.m.

Break

4:35 p.m. - 4:53 p.m.

Brad Marsh
University of Queensland, Brisbane
Multi-resolution Spatio-temporal Analysis of the Insulin-secreting Beta Cell Reconstructed *In Toto* in Three Dimensions by Electron Tomography (ET)

4:53 p.m. - 5:11 p.m.

Muhammad E. Haque
University of Chicago
High Resolution and Multislice Functional MRI of Pancreatic Beta Cell Activation

5:11 p.m. - 5:29 p.m.

Patrick Antkowiak
University of Virginia
Toward Quantitation of Beta Cell Mass Using a Two Site Exchange Analysis of Manganese-Enhanced Magnetic Resonance Images

Poster Session

5:30 p.m. - 7:00 p.m.

Poster Viewing and Reception

7:00 p.m.

Adjourn

Tuesday, April 7, 2009

- 7:30 a.m. - 8:30 a.m. **Registration and Coffee**
- 8:30 a.m. – 8:35 a.m. Call to order and announcements
- 8:35 a.m. - 11:00 a.m.**
Session IV **Imaging of Islet Transplantation and Its Outcome**
- 8:35 a.m. - 9:05 a.m. **Keynote Address**
Bernhard J. Hering
University of Minnesota
Current State of Clinical Islet Transplantation
- 9:05 a.m. - 9:23 a.m. *Midhat Abdulreda*
University of Miami
Live Noninvasive Imaging of Islet Allograft Rejection in the Anterior Chamber of the Eye
- 9:23 a.m. - 9:41 a.m. *Dian R. Arifin*
Johns Hopkins University
Novel Trimodal Gadolinium-Gold Microcapsules for Simultaneous Immunoprotection and Positive Contrast MRI, X-ray, and Ultrasound Imaging of Human Pancreatic Islet Cells
- 9:41 a.m. - 9:59 a.m. *Taeho Kim*
Seoul National University
Johns Hopkins University
Microfabrication of Multifunctional Alginate Capsule-in-Capsules (CICs) for Immunoprotected Cell Transplantation with MR, CT, and US Visibility
- 9:59 a.m. - 10:20 a.m. **Break**
- 10:20 a.m. - 10:38 a.m. *Kannie W.Y. Chan*
Johns Hopkins University
The University of Hong Kong
CEST Imaging of Microencapsulated Human Islets Allows Non-Invasive Assessment of Cell Viability
- 10:38 a.m. - 10:56 a.m. *Adriana Garcia*
University of California at Irvine
18F-Fallypride MicroPET to Monitor Transplanted Islets in Diabetes Mellitus
- 11:00 a.m. - 3:30 p.m.**

3:45 p.m. - 4:00 p.m.

Bruce Schneider

Center for Biologics Evaluation and Research (CBER), Food and Drug Administration (FDA)
Regulatory Issues

4:00 p.m. - 5:00 p.m.

Panel Discussion

Panelists:

Bruce Schneider, CBER, FDA

Didier Laurent, Novartis

Ann Jerkins, CADO, Center for Scientific Review (CSR), NIH

Eileen Bradley, MEDI-A, CSR, NIH

Maren Laughlin, NIDDK, NIH

Adrienne Wong, JDRF

Nathalie Vercruysse, European Commission

5:00 p.m.

Adjourn