

Midwest Islet Club (MIC) 2022 Virtual Annual Investigator Meeting

May 16 - 18, 2022



Monday, May 16, 2022 (*Central Daylight Time*)

10:00 – 10:10 am

Welcome

Chad Hunter, University of Alabama at Birmingham

10:10 – 11:10 am

Session 1. Insulin Secretion / Beta Cell Function

Chair: Scott Soleimanpour, University of Michigan

“Creb3 Regulates Increased β -Cell Secretory Capacity as an Adaptive Mechanism During β -Cell Compensation”

Cierra Boyer, University of Iowa

“Pancreatic β -Cell Specific Deletion of Complement 1q Like-3 Secreted Protein Increases Insulin Secretion in Lean and Obese Mice”

Md Mostafizur Rahman, University of Alabama at Birmingham

“The Microtubule Minus end-Binding Protein CAMSAP2 is Required for Insulin Vesicle Trafficking and Secretion of Pancreatic β -Cell”

Kung-Hsien Ho, Vanderbilt University

“Loss of Mitochondrial Transaminase Gpt2 Improves Incretin-induced Insulin Secretion and Protects Pancreatic β -Cell during Metabolic Stress”

Sabyasachi Sen, University of Pennsylvania

11:10 – 11:20 am

Break

11:20 – 12:05 pm

Session 2. Transcriptional Regulators

Chair: Emilyn Alejandro, University of Minnesota

“The E3 Ligase Substrate Adaptor Protein, SPOP, is Necessary for Normal β -Cell Function”

Alexis Oguh, University of Pennsylvania

“Sexual Dimorphism of FoxM1 in Regulating β -Cell Function”

Maria Golson, Johns Hopkins University

“Species-specific Roles for MAFA and MAFB Transcription Factors in Maintaining Mature β -Cell Identity”

Jeeyeon Cha, Vanderbilt University

12:05 – 12:15 pm

Break

12:15 – 1:30 pm **Session 3. Metabolism / Cell Signaling**

Chair: Michelle Kimple, University of Wisconsin at Madison

“Mitofusin 1 and 2 Regulation of mtDNA Content is a Critical Determinant of Glucose Homeostasis”

Vaibhav Sidarala, University of Michigan Medical School

“Nutrient Sensor OGT Modulates Glucose Homeostasis Through β -Cell Autophagy via mTORC1 Pathway”

Seokwon Jo, University of Minnesota

“Characterizing the Role of BAI3 GPCR in Whole-body Glucose Homeostasis”

Haifa Alsharif, University of Alabama at Birmingham

“Maternal Overnutrition Confers Increased Spare Respiratory Capacity and Glucose-Stimulated Insulin Secretion in Non-Human Primate Offspring Islets”

Darian Carroll, Vanderbilt University

“Loss of MicroRNA-483 in Pancreatic β -Cells Contributes to Stress-induced β -Cell Dedifferentiation”

Katy Matson, Michigan Technological University

1:30 – 1:40 pm **Break**

1:40 – 3:00 pm **Poster Session I**

Tuesday, May 17, 2022 (Central Daylight Time)

10:00 – 11:05 am **Session 4. Transport**

Chair: Maria Remedi, Washington University in St. Louis

“Self-sufficient Glycolytic Metabolon Locally Regulates K_{ATP} Channels in α -Cells and β -Cells”

Thuong Ho, University of Wisconsin at Madison

“Upregulation of Ryanodine Receptor 1 is Involved in Tunicamycin-induced Disruption of β -Cell Ca^{2+} Homeostasis”

Irina Zhang, University of Michigan Medical School

“Revealing the Mechanism of $G_{i/o}$ Protein-coupled Receptor Inhibition of β -Cell Ca^{2+} Entry and Insulin Secretion”

Matthew Dickerson, Vanderbilt University

“Loss of SERCA2 and Reduced ER Ca^{2+} Induces Mitochondrial Dysfunction, β -Cell Senescence, and Accelerated T1D Development”

Staci Weaver, Indiana University School of Medicine

11:05 – 11:15 am **Break**

11:15 – 12:00 pm **Session 5. Epigenetics, PTMs and Identity**

Chair: Jason Spaeth, Indiana University

“Ogt is Essential for Postnatal β -Cell Identity Maintenance”

Alicia Wong, University of Minnesota

“Elucidating the Function of the Rnf20 Histone Modifier in Pancreatic β -Cells”

Tanya Pierre, University of Alabama at Birmingham

“Selective BET Bromodomain Inhibition Reduces p65-driven Transcription of Inducible Nitric Oxide Synthase in Pancreatic β -Cells”

Joshua Nord, Medical College of Wisconsin

12:00 – 12:10 pm **Break**

12:10 – 1:25 pm **Session 6. Inflammation / Immunology**

Chair: Sasanka Ramanadham, University of Alabama at Birmingham

“Loss of NADPH Oxidase-derived Superoxide Reduces Autoreactive T Cell Infiltration into Islets to Delay Type 1 Diabetes”

Samuel Blum, University of Alabama at Birmingham

“Human β -Cell Reactive Oxygen Species Response is Heterogeneous”

Leslie Wells, Indiana University

“Depletion of 12-LOX Reduces the Integrated Stress Response in Islet β -Cells, Enhances PD-L1 Production, and Prevents Autoimmune Diabetes”

Abhishek Kulkarni, University of Chicago

“Macrophage-derived Proinflammatory Lipids Induce Type 1 Diabetes Pathogenesis”

Abdulaziz Almutairi, University of Alabama at Birmingham

“ β -Cell NRF2 is Essential for Proper Mitochondrial Morphology”

Alissa Novak, Indiana University

1:25 – 1:35 pm **Break**

1:35 – 3:30 pm **Poster Session II**

Wednesday, May 18, 2022 (Central Daylight Time)

10:00 – 11:20 am

Session 7. Alpha Cell

Chair: Danielle Dean, Vanderbilt University

“Genetic Inactivation of Glutaminase Reduces Amino Acid Induced α -Cell Proliferation”

Matthew Shou, Vanderbilt University

“Autophagy Promotes Islet α -Cell Function by Maintaining Proglucagon Production”

Rachel Reinert, University of Michigan

“Glucagon Regulates Beta Cell TXNIP Expression”

SeongHo Jo, University of Alabama at Birmingham

“Modeling α -Cell Dysfunction Using Stem Cell-Derived α -Cells”

Swikriti Shrestha, Mayo Clinic Graduate School of Biomedical Sciences

“Genetic Deletion of Mitochondrial PEP Carboxykinase (PCK2) in Pancreatic α -Cells Increases Amino Acid-stimulated Ca^{2+} Influx and Boosts the Excitability of Neighboring β -Cells”

Erli Jin, University of Wisconsin at Madison

11:20 – 11:30 am

Break

11:30 – 12:45 pm

Session 8. Cell Stress

Chair: Brian Smith, Medical College of Wisconsin

“ER Redox Homeostasis Regulates Proinsulin Trafficking and Insulin Granule Formation in the Pancreatic Islet β -Cell”

Kristen Rohli, University of Iowa

“Deletion of XBP1 in β -Cells of NOD Mice Protects Against Type 1 Diabetes”

Hugo Lee, University of Wisconsin at Madison

“Traf6 Mediates a Non-canonical Role Following β -Cell Meta-Inflammatory Stress”

Elena Levi-D’Ancona, University of Michigan

“Genome-scale CRISPR Screens Identify ER Export Cargo Protein as a Target for β -Cell Protection Against Stress Response and Autoimmunity”

Isabela Lovizutto Iessi, Indiana Biosciences Research Institute

“Inhibition of the Polyamine-hypusine Circuit Delimits Islet β -Cell Stress in the Context of Type 1 Diabetes via Suppression of IRE-1 α Signaling”

Andy Anderson, University of Chicago

12:45 – 12:55 pm

Break

12:55 – 1:00 pm **Introduction to Keynote Presentation**
Maureen Gannon, Vanderbilt University

1:00 – 1:45 pm **Keynote Presentation: “To Beta or Not to (only) Beta: a Developmental(ist) View of Pancreas Formation and Dysfunction**
Christopher Wright, Vanderbilt University
Director, Program in Developmental Biology
Associate Director, Center for Stem Cell Biology

1:45 – 1:55 pm **Break**

1:55 – 3:10 pm **Session 9. Genetics and Transplantation**

Chair: Michael Kalwat, Indiana Biosciences Research Institute

“Channeling Dysglycemia: A Novel MODY-associated Gain-of-Function Mutation in TALK-1 Causes Islet Dysfunction and Glucose Intolerance”
Arya Nakhe, Vanderbilt University

“Mechanisms Underlying Diabetes in a Mouse Model of Congenital Lipodystrophy”
Zihan Yan, Washington University in St. Louis

“The Type 1 Diabetes-associated A946T Single Nucleotide Polymorphism in IFIH1 Results in Increased Basal Type I Interferon Signaling”
Jared Taylor, University of Alabama at Birmingham

“Subcutaneous Transplantation of Pre-vascularized Human Islets with Adaptable Endothelium Restores Durable Euglycemia in Diabetic Mice”
Ge Li, Weill Cornell Medicine

“Genetic Drivers of Calcium Oscillations in Mouse β -Cells; Association with Diabetes Risk in Humans”
Lauren Clark, University of Wisconsin at Madison

3:10 – 3:25 pm **Closing & Awards**
Hubert Tse, University of Alabama at Birmingham