CIHR IRSC Institute of Nutrition, Metabolism and Diabetes
Institut de la nutrition, du métabolisme et du diabète

NIH National Institute of Diabetes and Digestive and Kidney Diseases

Heterogeneity of Diabetes:
Beta Cells, Phenotypes & Precision Medicine Symposium

June 2-3, 2021

AGENDA

WEDNESDAY, JUNE 2ND

10:00 AM – 10:30 AM (EDT)

Welcome Remarks

Dr. Francis Collins – Director, National Institutes of Health (NIH)

Dr. Michael Strong – President, Canadian Institutes of Health Research (CIHR)

Dr. Griffin Rodgers – Director, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH

Meeting Objectives

Dr. Norman Rosenblum - Scientific Director, Institute of Nutrition, Metabolism and Diabetes (INMD), CIHR

Dr. William Cefalu - Director, Division of Diabetes, Endocrinology, and Metabolic Diseases NIDDK, NIH

SESSION 1: ISLET BIOLOGY IN HEALTH AND DIABETES

PART 1: ISLET MICROENVIRONMENT

Moderators: Jennifer Estall (McGill U) & Alvin Powers (Vanderbilt U)

10:30 AM – 12:05 PM (EDT)

Islet microenvironment: islet cell interactions and heterogeneity
Speaker: Mark Huising (U of California Davis)

Beta cell heterogeneity
Speaker: Richard Benninger (U of Colorado)

Islet microenvironment: islet pericytes and macrophages
Speaker: Joana Almaca (U of Miami)

Exocrine pancreas inflammation and islet function
Speaker: Rebecca Hull-Meichle (U of Washington)

Lessons learned from human islet studies
Speaker: Patrick MacDonald (U of Alberta)

Panel Discussion

WEDNESDAY, JUNE 2ND (continued)

12:05 PM – 12:20 PM (EDT)	**Health Break**

PART 2: ISLET ENGINEERING

Moderators: **Corinne Hoesli** (McGill U) & **Jeff Millman** (U of Washington)

12:20 PM – 2:00 PM (EDT)	Engineering islet endocrine cells from stem cells **Speaker:** **Francis Lynn** (U of British Columbia) Engineering the islet niche **Speaker:** **Juan Melero-Martin** (Harvard U) Engineering islet organoids for immune evasion **Speaker:** **Eiji Yoshihara** (Lundquist Institute) Engineering encapsulation for replacement therapy **Speaker:** **Cherie Stabler** (U of Florida) Engineering islets on a chip **Speaker:** **Maike Sander** (U of California San Diego) **Panel Discussion**
2:00 PM – 2:15 PM (EDT)	**Health Break**

PART 3: BETA CELL STRESS AND DEATH IN TYPE 1 AND TYPE 2 DIABETES

Moderators: **Jim Johnson** (U of British Columbia) & **Amelia Linnemann** (Indiana U)

2:15 PM –3:35 PM (EDT)	Beta cell stress pathways in diabetes **Speaker:** **Carmella Evans-Molina** (Indiana U) Beta cell senescence in diabetes **Speaker:** **Peter Thompson** (U of Manitoba) Targeting beta cell unfolded protein response in type 1 diabetes **Speaker:** **Feyza Engin** (U of Wisconsin) Targeting beta cell stress pathways from cells to clinical trial **Speaker:** **Anath Shalev** (U of Alabama) **Panel Discussion**

WEDNESDAY, JUNE 2ND (continued)

SESSION 2: HETEROGENEITY OF DIABETIC PHENOTYPES BEFORE AND AFTER DIAGNOSIS – IMPACT ON MANAGEMENT AND TREATMENT

PART 1: DIVERSITY OF PHENOTYPES AND PATHOPHYSIOLOGICAL ENDOTYPES. IMPACT ON PROGNOSIS AND PERSONALIZED TREATMENT CURRENT RESEARCH AND KNOWLEDGE GAPS

Moderators: **Meredith Hawkins** (Albert Einstein College of Medicine) & **Christopher Pin** (Western U)

3:35 PM – 5:10 PM (EDT)	Type 1 Diabetes **Speaker:** **Maria Redondo** (Baylor College of Medicine) Pre-diabetes/Type 2 Diabetes **Speaker:** **John Dennis** (U of Exeter) T2D in youth - Phenotypes and Clinical Progression **Speaker:** **Kristen Nadeau** (U of Colorado) Type 3C Diabetes: Misdiagnosis, surveillance **Speaker:** **Melena Bellin** (U of Minnesota) Rare and atypical forms of diabetes-characterization from monogenic to polygenic diabetes **Speaker:** **Miriam Udler** (Massachusetts General Hospital) **Panel Discussion**
5:10 PM – 5:15 PM (EDT)	**Summary of Day 1** Norman Rosenblum (INMD, CIHR) & William Cefalu (NIDDK, NIH)

THURSDAY, JUNE 3RD

10:00 AM – 10:05 AM (EDT)	**Welcome Remarks Day 2** Norman Rosenblum (INMD, CIHR) & William Cefalu (NIDDK, NIH)

SESSION 2: HETEROGENEITY OF DIABETIC PHENOTYPES BEFORE AND AFTER DIAGNOSIS IMPACT ON MANAGEMENT AND TREATMENT

PART 2: DETERMINANTS OF PATHOPHYSIOLOGICAL AND CLINICAL PHENOTYPES. TOOLS AND STRATEGIES FOR THEIR CHARACTERIZATION

Moderators: **Anna Gloyn** (Stanford U) & **Minna Woo** (U of Toronto)

10:05 AM – 12:05 PM (EDT)	The interplay between environmental and genetic factors determining diabetes phenotypes **Speaker:** **Satya Dash** (U of Toronto) Multiomics/microbiomics profiling for revealing molecular and clinical phenotypes **Speaker:** **Wenyu Zhou** (Tempus Labs) Is it possible to predict phenotypes? Can novel technologies help? **Speaker:** **Michael Snyder** (Stanford U) Integration of electronic health records and big data as part of multidimensional phenotyping approach **Speaker:** **Gillian Booth** (U of Toronto) **Panel Discussion**
12:05 PM – 12:25 PM (EDT)	**Health Break**

THURSDAY, JUNE 3RD (continued)

SESSION 3: PRECISION MEDICINE IN DIABETES

Moderators: **Norman Rosenblum** (INMD, CIHR) & **William Cefalu** (NIDDK, NIH)

12:25 PM – 12:55 PM (EDT)	The power and promise of artificial intelligence: How it will revolutionize clinical care **Speaker:** **Atul Butte** (U of California San Francisco)
12:55 PM – 1:25 PM (EDT)	The future of precision medicine and how it will transform diabetes care **Speaker:** **Jose Florez** (Harvard Medical School)
1:25 PM – 2:00 PM (EDT)	Panel Discussion: **Atul Butte**, **Jose Florez**
2:00 PM – 2:40 PM (EDT)	**General Symposium Discussion:** *Considering our increased understanding of the concept of heterogeneity, what does the future look like for diabetes research?* **Panelists:** Jose Florez, (Harvard Medical School) Carmella Evans-Molina, (Indiana U) Maike Sander, (U of California San Diego) Miriam Udler, (Harvard Medical School)
2:40 PM – 2:50 PM (EDT)	**Wrap Up/Closing Remarks** Norman Rosenblum (INMD, CIHR) & William Cefalu (NIDDK, NIH)