

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



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 2<sup>ND</sup>

10:00 AM – 10:30 AM (EDT)	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. Francis Collins – Director, National Institutes of Health (NIH)

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

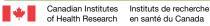
Dr. William Cefalu - Director, Division of Diabetes, Endocrinology, and Metabolic Diseases NIDDK, NIH

# **SESSION 1:** ISLET BIOLOGY IN HEALTH AND DIABETES

### **PART 1: ISLET MICROENVIRONMENT**

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

	Islet microenvironment: islet cell interactions and heterogeneity Speaker: Mark Huising (U of California Davis)
	Beta cell heterogeneity <b>Speaker: Richard Benninger</b> (U of Colorado)
10:30 AM - 12:05 PM	Islet microenvironment: islet pericytes and macrophages <b>Speaker: Joana Almaca</b> (U of Miami)
(EDT)	Exocrine pancreas inflammation and islet function Speaker: Rebecca Hull-Meichle (U of Washington)
	Lessons learned from human islet studies <b>Speaker: Patrick MacDonald</b> (U of Alberta)
	Panel Discussion





# WEDNESDAY, JUNE 2<sup>ND</sup> (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 <mark>Speaker: Francis Lynn</mark> (U of British Columbia)	
	Engineering the islet niche <mark>Speaker: Juan Melero-Martin</mark> (Harvard U)	
	Engineering islet organoids for immune evasion <b>Speaker: Eiji Yoshihara</b> (Lundquist Institute)	
	Engineering encapsulation for replacement therapy <b>Speaker: Cherie Stabler</b> (U of Florida)	
	Engineering islets on a chip <b>Speaker: Maike Sander</b> (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 <mark>Speaker: Carmella Evans-Molina</mark> (Indiana U)	
	Beta cell senescence in diabetes <b>Speaker: Peter Thompson</b> (U of Manitoba)	
	Targeting beta cell unfolded protein response in type 1 diabetes <b>Speaker: Feyza Engin</b> (U of Wisconsin)	
	Targeting beta cell stress pathways from cells to clinical trial <b>Speaker: Anath Shalev</b> (U of Alabama)	
	Panel Discussion	

### **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 <b>Speaker: Maria Redondo</b> (Baylor College of Medicine)
	Pre-diabetes/Type 2 Diabetes <b>Speaker: John Dennis</b> (U of Exeter)
	T2D in youth - Phenotypes and Clinical Progression <b>Speaker: Kristen Nadeau</b> (U of Colorado)
	Type 3C Diabetes: Misdiagnosis, surveillance <b>Speaker: Melena Bellin</b> (U of Minnesota)
	Rare and atypical forms of diabetes-characterization from monogenic to polygenic diabetes <b>Speaker: Miriam Udler</b> (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 3<sup>RD</sup>

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)

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

# **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 <b>Speaker: Atul Butte</b> (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)	<b>General Symposium Discussion:</b> 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)