

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)  
**Clinical Proteomics in Diabetes and Its Complications**

Lister Hill Auditorium, Building 38A, National Institutes of Health (NIH)  
July 20, 2007

**Agenda**

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**7:30 – 8:00 a.m.**            **Continental Breakfast and Registration**

**8:00 – 8:05 a.m.**            **Introduction and Logistics**  
*Salvatore Sechi, NIDDK*

**8:05 – 8:15 a.m.**            **Welcome and Opening Remarks**  
*Griffin Rodgers, Director, NIDDK*

***Session I: Novel Methods to Detect Pre-Diabetes and/or Diabetes (Part I)***

(All presentations should leave 5 minutes for questions and answers.)

Chair: *Salvatore Sechi*

**8:15 – 8:35 a.m.**            **Screening for Prediabetes**  
*Lawrence Phillips, Emory University*

**8:35 – 9:05 a.m.**            **O-GlcNAc: A Potential Diagnostic for Pre-Diabetes**  
*Gerald Hart, The Johns Hopkins School of Medicine*

**9:05 – 9:35 a.m.**            **Application of Capillary Liquid Chromatography-Mass Spectrometry Approaches for the Study of Pre-Diabetes and Type 2 Diabetes Mellitus**  
*Richard Smith, Pacific Northwest National Laboratory*

**9:35 – 10:05 a.m.**            **Application of N-glycopeptide Analysis Toward a Candidate-Based Approach for the Identification of New Markers for Type 2 Diabetes**  
*Julian Watts, Institute for Systems Biology*

**10:05 – 10:25 a.m.**            **Coffee Break**

***Session I: Novel Methods to Detect Pre-Diabetes and/or Diabetes (Part II)***

(All presentations should leave 5 minutes for questions and answers.)

Chair: *Gerald Hart*

**10:25 – 10:55 a.m.**            **Analysis of Protein Modifications in Plasma Proteins in Type 2 Diabetes and Prediabetes**  
*Daniel Liebler, Vanderbilt University School of Medicine*

**10:55 – 11:25 a.m.**      **Mass Spectrometric Immunoassay in the Discovery of Biomarkers for Type 2 Diabetes**  
*Urban Kiernan, Intrinsic Bioprobes, Inc.*

**11:25 – 11:55 a.m.**      **Markers for T2DM, Risk of T2DM and Aptamer Array Diagnostics**  
*Ed Dratz, Montana State University*

**11:55 a.m. – 12:25 p.m.**      **Special Discussion Session**  
*Mark Chance, Case Western Reserve University (Chair)*  
*Cathy Costello, Boston University School of Medicine*  
*Catherine Fenselau, University of Maryland*  
*Marian Rewers, University of Colorado at Denver and Health Sciences Center*

**Discussion Questions**

- Have the approaches used by the speakers been successful?
- Based on the data presented, do you believe it may be possible to discriminate among people with diabetes, pre-diabetics, and normal individuals?
- If the data indicate that it is possible to discriminate the diabetic condition, but not the pre-diabetic condition, is there a value in proceeding further by only analyzing samples from diabetics and normal individuals, and/or should we continue to analyze pre-diabetic samples?
- Have the data presented provided sufficient preliminary data for moving forward by analyzing more samples?
- Can the data presented from the various approaches be integrated and is there any advantage in doing so?
- If the difference(s) between prediabetics and normal individuals and between prediabetics and people with diabetes are quantitative, is there already enough data from which to develop diagnostic cutoff values?

**12:25 – 1:25 p.m.**      *Lunch (on your own)*

***Session II: Predictive and Mechanistic Molecular Markers in Diabetes and Its Complications***  
(All presentations should leave 5 minutes for questions and answers.)  
Chair: *Gerald Hart*

**1:25 – 1:55 p.m.**      **Innovative Mass Spectrometry Technology for Diabetes Research**  
*Don Hunt, University of Virginia*

**1:55 – 2:25 p.m.**      **Urinary Proteome Analysis Using Capillary Electrophoresis Coupled Mass Spectrometry for the Detection of Diabetes-Associated Pathologies**  
*Harald Mischak, Mosaiques Diagnostics & Therapeutics AG*

**2:25 – 2:55 p.m.**      **Mass Spectrometry-Based Approaches for Investigating Protein Disorders**  
*Cathy Costello, Boston University School of Medicine*

**2:55 – 3:15 p.m.**      *Coffee Break*

**Session III: Examples of Clinical Studies Where Proteomics Might Be Applied**

(All presentations should leave 5 minutes for questions and answers.)

Chair: *Saul Genuth*

**3:15 – 3:45 p.m.**

**The DCCT/EDIC Study**

*Saul Genuth*, Case Western Reserve University

**3:45 – 4:15 p.m.**

**Proteomic Opportunities in the Diabetes Prevention Program**

*David Nathan*, Harvard Medical School

**4:15 – 4:45 p.m.**

**United Kingdom Prospective Diabetes Study**

*Rury Holman*, University of Oxford

**4:45 – 5:15 p.m.**

**Action to Control Cardiovascular Risk in Diabetes (ACCORD) Trial:  
Design and Methods**

*Hertzel Gerstein*, McMaster University

**5:15 – 5:45 p.m.**

**The Environmental Determinants of Diabetes in The Young (TEDDY)  
Study**

*Marian Rewers*, University of Colorado

**5:45 – 6:05 p.m.**

**Special Discussion Session**

*Santica Marcovina*, University of Washington (Chair)

*Nana Gletsu*, Emory University

*Ravi Thadhani*, Massachusetts General Hospital

**Discussion Questions**

- What are the sample requirements for proteomic studies?
- Are the samples collected from the above studies suitable for molecular marker discovery and mechanistic studies using proteomic technologies?
- Are there other clinical investigations that could be seen as more appropriate for proteomic analysis intended to identify/characterize markers of diabetes and its complications?
- Do you envision that some of the technologies presented here could be successfully used to analyze samples collected within the clinical studies presented?
- Can any particular technologies presented here be especially well matched with any of the clinical investigations presented here?
- For example, do you think that these technologies are sufficiently mature to address issues such as population stratification in response to treatment in pilot studies?
- If yes, how many samples should be tested in a population stratification pilot study?

**6:05 – 6:15 p.m.**

**Concluding Remarks**

*Judith Fradkin*, Director

Division of Diabetes, Endocrinology, and Metabolic Diseases, NIDDK

**6:15 p.m.**

**Workshop Adjournment**