

**Appendix. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) The Intersection of Metabolic and Neurocognitive Dysfunction Workshop**

National Institutes of Health (NIH) Campus, Building  
31 Bethesda, MD  
July 16 – 17, 2015

**Agenda**

**Day One, July 16, 2015**

12:30 – 1:00 p.m.

**Welcome and Logistics**

*Dr. Griffin P. Rodgers, Director, NIDDK*  
*Dr. Luke Stoeckel*

**Plenary**

Moderator: Dr. Dana Small

1:00 – 1:30 p.m.

**Insulin and IGF-1 Signaling in the Brain and the Relationship to Diabetes and Neurodegenerative Disease**

*Dr. C. Ronald Kahn*

1:30 – 1:40 p.m.

**Q and A**

**Neurocognition and Metabolism in Obesity and Metabolic Disease**

Moderator: Dr. Small

1:40 – 1:55 p.m.

**Function and Metabolism**

**Effect of Decrements in Circulating Glucose and Diabetes on Brain**

*Dr. Robert Sherwin*

1:55 – 2:00 p.m.

**Q and A**

2:00 – 2:15 p.m.

**Neural and Metabolic Regulation of Food Intake and Obesity: The Gut---Brain Axis as a Common Link between Metabolic and Cognitive Dysfunction**

*Dr. Hans-Rudi Berthoud*

2:15 – 2:20 p.m.

**Q and A**

**The Clinical Epidemiology of Diabetes and Neurocognition**

Moderator: Dr. Samuel Gandy

2:20 – 2:35 p.m.

**The Relationship between Diabetes, Aging, and Dementia**

*Dr. Rachel Whitmer*

2:35 – 2:40 p.m.	<b>Q and A</b>
2:40 – 2:55 p.m.	<b>Neuroimaging Correlates of Cognitive Dysfunction and Dementia in Diabetes</b>
	<i>Dr. Geert Jan Biessels</i>
2:55 – 3:00 p.m.	<b>Q and A</b>
3:00 – 3:15 p.m.	<b>Diabetes, Brain Function, and Neuropathology</b>
	<i>Dr. Zoe Arvanitakis (Workshop Organizer)</i>
3:15 – 3:20 p.m.	<b>Q and A</b>
3:20 – 3:25 p.m.	<b>General Q and A</b>
3:25 – 3:45 p.m.	<b>Break</b>

### **Basic Mechanisms of Metabolic and Neurocognitive Dysfunction**

Moderator: Dr. Arvanitakis

3:45 – 4:00 p.m.	<b>SORCS1: Genetic Defect in Protein Sorting Underlies Some Risk for Both Diabetes and Alzheimer’s Disease</b>
	<i>Dr. Gandy (Workshop Organizer)</i>
4:00 – 4:05 p.m.	<b>Q and A</b>
4:05 – 4:20 p.m.	<b>Insulin/IGF1 Signaling Mechanisms in Metabolism, Aging, and Neurodegenerative Disease</b>
	<i>Dr. Morris White</i>
4:20 – 4:25 p.m.	<b>Q and A</b>
4:25 – 4:40 p.m.	<b>Blood-Brain Barrier Breakdown and Cognitive Decline</b>
	<i>Dr. Berislav Zlokovic</i>
4:40 – 4:45 p.m.	<b>Q and A</b>

### **Neurocognitive Mechanisms of Food Intake Behavior, Obesity, and Metabolic Dysfunction: I**

Moderator: Dr. Alvaro Pascual-Leone

4:45 – 5:00 p.m.	<b>The Mechanistic Links between “Western” Diet and Cognitive Dysfunction</b>
	<i>Dr. Scott Kanoski</i>
5:00 – 5:05 p.m.	<b>Q and A</b>
5:05 – 5:20 p.m.	<b>Neurocognitive Adaptations Due to “Western” Diet and Obesity</b>
	<i>Dr. Dana Small (Workshop Organizer)</i>
5:50 – 6:00 p.m.	<b>Day 1 Summary and Take Home Points</b>
	<i>Dr. Kahn</i>

6:00 p.m. **Adjournment**  
**Day Two, July 17, 2015**

8:30 – 8:40 a.m. **Logistics (Conference Room 6)**  
*Dr. Stoeckel*

**Neurocognitive Mechanisms of Food Intake Behavior, Obesity, and Metabolic Dysfunction: II**  
 Moderator: Dr. Small

8:40 – 8:55 a.m. **The Neural Basis of Self-Control: Rewards, Decisions, and Executive Functions in Obesity**  
*Dr. Lesley Fellows*

8:55 – 9:00 a.m. **Q and A**

9:00 – 9:15 a.m. **Enhancing Neuroplasticity to Improve Brain Function in Diabetes**  
*Dr. Pascual-Leone (Workshop Organizer)*

9:15 – 9:20 a.m. **Q and A**

**Common Therapeutic Targets for Metabolic and Neurocognitive Dysfunction**  
 Moderator: Dr. Zoe Arvanitakis

9:20 – 9:35 a.m. **Mechanisms of Neuronal Insulin Resistance in Alzheimer's Disease: New Targets for Repurposed Drugs**  
*Dr. Steve Arnold*

9:35 – 9:40 a.m. **Q and A**

9:40 – 9:55 a.m. **Pharmacological and Nonpharmacological Interventions for Diabetes and Dementia: Effects on Cognition and CNS Biomarkers**  
*Dr. Suzanne Craft*

9:55 – 10:00 a.m. **Q and A**

10:00 – 10:15 a.m. **Nonpharmacological Interventions for Obesity and Diabetes: Effects on Neurocognition**  
*Dr. John Gunstad*

**Novel Frontiers in the Study of the Brain and Metabolism**  
 Moderator: Dr. Pascual-Leone

10:35 – 10:50 a.m. **Drosophila as a Model for Human Neurodegenerative Disease: Integrating the Microbiome**  
*Dr. Nancy Bonini*

10:50 – 10:55 a.m. **Q and A**

10:55 – 11:10 a.m.	<b>Harnessing the Neuroimaging Arsenal for the Study of Neurocognition in the Context of Metabolic Disease</b> <i>Dr. Peter Fox</i>
11:10 – 11:15 a.m.	<b>Q and A</b>
11:15 – 11:30 a.m.	<b>Assessment of Metabolic and Cognitive Interaction by Advanced Imaging Techniques over the Whole Life Span</b> <i>Dr. Hubert Preissl</i>
11:30 – 11:35 a.m.	<b>Q and A</b>
11:35 – 11:50 a.m.	<b>Crowdsourcing to Study Cognition: New Insights into Human Cognitive Variation and How to Collect Large Samples for Understanding the Brain and Metabolic Disease</b> <i>Dr. Laura Germine</i>
11:50 – 11:55 a.m.	<b>Q and A</b>
11:55 a.m. – 12:00 p.m.	<b>General Q and A</b>
12:00 – 12:30 p.m.	<b>Working Lunch</b>
12:30 – 2:00 p.m.	<b>Breakout Sessions</b> <ul style="list-style-type: none"><li>• <b>Topic 1 (Room 7)</b></li><li>• <b>Topic 2 (Room 8)</b></li><li>• <b>Topic 3 (Room 9)</b></li><li>• <b>Topic 4 (Room 6)</b></li><li>• <b>Topic 5 (Room 6)</b></li></ul>

2:00 – 2:30 p.m.	<b>General Discussion Following Breakout Sessions</b> (Room 6)
2:30 – 2:40 p.m.	<b>Day Two Summary and Take Home Points</b> <i>Dr. Sherwin</i>
2:40 – 3:40 p.m.	<b>Overall Summary, Including Final Recommendations</b> <i>Moderators: Breakout Session Leaders (Drs. Gandy, Small, Kahn, Fox, Biessels, Arnold, and Arvanitakis)</i>
3:40 – 3:50 p.m.	<b>Concluding Remarks</b> <i>Dr. Sherwin</i>

**Day Three, July 18, 2015**

8:30 a.m. – 1:00 p.m.	Closed meeting: <b>Debrief and Plans for Future Efforts</b> (Workshop Planning Committee Only)
-----------------------	---