

# BIOCHEMICAL PHARMACOLOGY DISCUSSION GROUP

## THE NEW YORK ACADEMY OF SCIENCES

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## Is Alzheimer's Disease Type 3 Diabetes???

October 27, 2009

Organizers: Barbara Petrack, Drew University, Madison NJ and  
Jean Lachowicz, Schering-Plough Research Institute, Kenilworth, NJ

The two hallmarks of Alzheimer's Disease (AD) are amyloid plaque deposition and hyperphosphorylated tau-mediated tangle formation. While inhibitors of these processes are now being studied in the clinic, currently available therapies such as cholinesterase inhibitors and the NMDA antagonist memantine only treat symptoms of AD. A less-studied aspect of AD etiology involves insulin dysregulation in the brain. Recent studies of postmortem brains from AD patients suggest that sporadic AD may result from a cascade involving dysregulated neuronal insulin signaling systems. This cascade is associated with generation of reactive oxygen and nitrogen species, mitochondrial dysfunction and cholinergic neuronal degeneration, in addition to plaque and tangle formation. Whether AD is Type 3 diabetes, unique to the brain, or whether diabetes is a risk factor for AD remains to be elucidated. Understanding the connection between insulin function and AD might enable discovery of a drug-combination that prevents, delays, or halts progression of sporadic AD.

1:00-1:10	<b>Introduction</b> Barbara Petrack, Drew University, Madison, NJ
1:10-1:45	<b>Adiposity, Hyperinsulinemia, Diabetes, and Alzheimer's Disease: an Epidemiological Perspective</b> José A. Luchsinger, Columbia University, College of Physicians and Surgeons, New York, NY
1:50- 2:25	<b>Mechanisms by Which a Couch Potato Lifestyle Predisposes to Alzheimer's Disease</b> Mark Mattson, Laboratory of Neurosciences, National Institute on Aging, NIH
2:30-3:00	Refreshments
3:00-3:35	<b>A Synaptic Struggle for Survival: Insulin Signaling versus Alzheimer's Toxic A<math>\beta</math> Oligomers</b> William L. Klein, Northwestern University, Evanston, Illinois
3:40-4:15	<b>Insulin Resistance and Neurodegeneration: Type 2 versus Type 3 Diabetes Mellitus</b> Suzanne M. de la Monte, Brown Medical School, Providence, Rhode Island
4:20-5:00	Panel Discussion (All speakers, organizers and audience)

These mini-symposia are jointly sponsored by the Biochemical Group of the American Chemical Society (the New York Section) and The New York Academy of Sciences' Biochemical Pharmacology Discussion Group.

### LOCATION:

The New York Academy of Sciences  
7 World Trade Center – 40<sup>th</sup> floor  
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