

Mitochondria and Bioenergetics in AD: *Why We Should Care*

ADRC Clinical Core Meeting – May 2022

Steering Committee

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Mitochondria and Bioenergetics in AD: Why We Should Care

- Goal: Accelerate efforts, especially clinical; seed the field
- Why?
 - Relatively unexplored
 - Not well understood
 - Need for more clinical data, tools

Mitochondria and Bioenergetics in AD: Why We Should Care

Rationale

- Fundamental cellular processes
 - “Power plant”
 - Signaling: energy homeostasis, survival pathways, neuroprotection
- Links with aging, longevity, neurodegeneration (AD, PD, ALS)
- Mito dysfunction early in AD
 - Need for better tools, biomarkers
- Therapeutic potential: “Mitochondrial Medicine”
 - Promote mito health
 - Counteract mito dysfunction
 - Leverage mito signaling

Mitochondria and Bioenergetics in AD: Why We Should Care

- Overview of Today's Talks
 - Overview / Primer
 - Clues from Big Data Approaches
 - Clinical, Imaging, and Biomarker Outcomes

Mitochondria and Bioenergetics in Alzheimer's Disease: Why We Should Care

12:00 Introduction

- Jeffrey Burns – University of Kansas ADRC

12:10 Overview

- **Setting the Stage: Mitochondria, Bioenergetics, and The Road to AD**
 - Russ Swerdlow, MD - University of Kansas ADRC

12:30 Big Data: Unbiased approaches implicating mitochondria and bioenergetics

- **TREAT-AD Informatics Pipeline Converges Upon Mitochondrial Function as an Early Key Element of AD Pathology.**
 - Jesse Wiley, PhD, MS - Sage Bionetworks
- **Integrated Proteomics Reveals CSF Biomarkers linked to Metabolism in AD**
 - Nicholas Seyfried, PhD – Emory University School of Medicine
- **Mitochondrial polygenic risk scores for Alzheimer's Disease**
 - Shea Andrews, PhD; Icahn School of Medicine at Mount Sinai

1:20 BREAK

1:30 Clinical and Biomarker Outcomes

- **Mitochondrial DNA Quantity and Quality in Aging and AD**
 - Hans Klein, PhD; Columbia University Medical Center
- **ApoE and Mitochondria**
 - Robert Mahley, MD, PhD, Gladstone Institutes; UCSF
- **Bioenergetic dysfunction in neurodegenerative dementias: How mitochondrial PET imaging can help elucidate pathogenic pathways in AD and DLB**
 - Sarah Berman, MD, PhD; University of Pittsburgh
- **Amyloid Precursor Protein and Mitochondria**
 - Heather Wilkins, PhD; University of Kansas ADRC
- **Mitochondria Targeted Therapeutics for Alzheimer's Disease: The Good. The Bad. The Potential.**
 - Roberta Diaz Brinton, PhD; University of Arizona

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ALZHEIMER'S DISEASE
RESEARCH CENTER

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