MESA Core

Core Leader: Steve Rapp, PhD
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VASC-AD PI & Core Manager: Tim Hughes, PhD
What is MESA?

The **Multi-Ethnic Study of Atherosclerosis (MESA)** is a large, diverse, multi-site study of subclinical and incident vascular and metabolic disease.

**Objectives:** Study early CVD, characterize subclinical CVD and progression to clinical CVD

**Goal:** Find treatments to disrupt natural history of CVD and improve health

In 2000, 1,077 adults (aged 58 to 97 years, 46% African-American, 54% non-Hispanic Caucasian), were enrolled into the Wake Forest MESA cohort.
Why Partner with MESA?

• Hypertension and Diabetes are proposed to be modifiable risk factors for AD

• We don’t know how subclinical CVD affects AD risk, especially in African Americans

• MESA has tracked clinical and subclinical CVD in the cohort for over 15 years

• Few existing AD studies have access to such detailed cardiovascular phenotyping:
  - Metabolic
  - Vascular
    - Genetic
    - Cognitive

• Our Center’s theme is focused on metabolic and vascular contributions to AD and related disorders
MESA Core Aims

1) Characterize MCI, AD, VCI, and other related disorders, and facilitate research focused on relationships between cognition and metabolic and vascular risk factors;

2) To conduct longitudinal follow-up of MESA participants

3) To provide resources to foster systems and pathway analyses of genetic, epigenetic, and phenotypic data to identify the metabolic and vascular pathways that predict dementia risk

4) Facilitate investigations examining the impact of race on relationships between metabolic and vascular pathways, cognitive function, and AD biomarkers.
MESA AD Studies Underway

MESA VASC-AD (R01 AN3889446; PI: Hughes)

Antecedent Vascular Disease

Macrovascular Disease

Microvascular Disease

MESA Study

Neuroimaging Abnormalities

Cerebrovascular Insult

Amyloid Pathology

Hippocampal Volume

MESA VASCAD Study

Age-Related Dementia

Vascular Cognitive Impairment

Alzheimer’s Disease
MESA AD Studies Underway

Cell-Specific Genomic Features of AD Progression
(R01 AG054474; PI: Ding)

Gene Networks
(e.g., Mitochondria)

Aging

Mitochondrial Function

Memory/AD

Aim 3

Memory/AD

Aim 2

Methylation Transcription

Cognition

Aim 1

Cognition

Exam 5
2010

Exam 6
2016

2020

Alzheimer’s Disease

Wake Forest Baptist Medical Center
MESA Core Resources

\[ n=540 \ (45\% AA:55\% EA) \]

- Detailed cognitive assessments, closely aligned with the clinical core
- Neuroimaging (MRI, amyloid PET)
- Collection of CSF (40\%) and brain tissue
- Repeated MRI, cognitive testing and clinical assessments 3 years later
Please contact us for more information, we are eager to collaborate with you!

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