

GEOFFREY BEENE

2013 Global NeuroDiscovery Challenge

21 CBT INNOVATION AWARD (\$50,000)

ONLINE VOTING

NOVEMBER 1-5

Three Finalists Submissions

HYPOTHESIS #3: 076 SCARB1

SCARB1 AS A MEDIATOR OF MALE/FEMALE DIFFERENCES IN ALZHEIMER'S DISEASE

Herve Rhinn, PhD, and Asa Abeliovich, MD, PhD
Department of Pathology, Columbia University



Herve Rhinn, PhD



Asa Abeliovich, MD, PhD

The Science: *The idea was that aging could reveal brain differences relevant to Alzheimer's Disease. These investigators used a specific strategy (Differential Co-expression Analysis) to filter what is known about gene expression. The process ranked the importance of finding different amounts of a molecule in a cell against other factors like how much that molecule interacts with other differentially expressed genes. Starting with an unbiased approach, the investigator analyzed gene expression data from brain regions in unaffected elderly (>80) individuals in women and men as well as in Alzheimer's patients.*

Hypothesis: The preliminary work showed that there were similarities between the gene expression observed in elderly women and that displayed from Alzheimer's patients. This finding suggested that some physiologic processes that are modified in the brains of elderly unaffected women could prime them for Alzheimer's. The investigators preliminary work identified the gene, Scavenger Receptor Class B, type 1 (SCARB1). The protein encoded by the SCARB1 gene is a plasma membrane receptor for cholesterol and is known to have biologic-sex specific functions. The gene SCARB1 serves as a connection between risk for cardiovascular diseases and Alzheimer's Disease.

Innovation: *The computational tools allow researchers to cut through a fog of data to find genes whose changes happen early in the course of the disease.*

Proposed Research: Drs Rhinn and Abeliovich propose to extend their research to other datasets on Alzheimer's and cardiovascular disease. They investigators previously used this strategy to identify ApoE 4 as a risk factor in Alzheimer's.

21CBT PARTNERS:
Geoffrey Beene Foundation
Alzheimer's Initiative
BrightFocus Foundation™
USAgainstAlzheimer's
Scientific: Cleveland Clinic/
Lou Ruvo Brain Institute

FNIH
Innocentive
Galileo Analytics™

21CBT

21ST CENTURY BRAINTRUST™
BRAINSPAN-LIFESPAN



GEOFFREY BEENE



GIVES BACK®
Alzheimer's Initiative