

Alzheimer's Disease Genetics Global Symposium Supported by the Alzheimer's Association and the National Institute on Aging

Organizing Committee: *Margaret A. Pericak-Vance, Ph.D., Alison Goate, DPhil, Elizabeth Blue, Ph.D. and Badri Vardarajan, Ph.D.*

Introduction

Recent progress understanding AD genetics in the context of the National Plan to Address AD
Eliezer Masliah, M.D.

AD Genetics: From Gene Discovery to Function

Chair: Gerard Schellenberg, Ph.D.

Alzheimer disease genetics: Where we've been and where we're going
Gary Beecham, Ph.D.

Alzheimer's disease genetics: Gene and locus discovery and evaluation
Gerard Schellenberg, Ph.D.

Biological pathways implicated by recent GWAS and sequencing studies
Brian Kunkle, Ph.D., M.P.H.

Use of genomic annotation to identify AD-related biological function
William S. Bush, Ph.D.

AD Genetics Around the World

Chairs: Richard Mayeux, M.D., M.P.H. and Cornelia van Duijn, DPhil

Introduction
Richard Mayeux, M.D., M.P.H.

Genetic variability and Alzheimer's disease across Europe
Jean Charles Lambert, Ph.D.

AD genetics around the world: Alzheimer's genetic research across Asia: Capturing diversity from India to Korea, China and Japan
Sudha Seshadri, M.D.

Alzheimer's genetic research in African populations from Ibadan to America
Hugh Hendrie, M.D.

Recent advances in genetic studies in Alzheimer disease in African Americans
Margaret A. Pericak-Vance, Ph.D.

Alzheimer's genetic research across the Americas — Admixture — transethnic studies
Giuseppe Tosto, M.D., Ph.D.

Genetic epidemiology of Alzheimer disease in high risk Puerto Ricans: A study on the *PSEN1-G206A* mutation carrier families
Joseph H. Lee, Ph.D.

From genetics to clinical care and prevention: Lessons from Colombian families with autosomal dominant Alzheimer's disease
Yakeel Quiroz, M.D.

Summary
Cornelia van Duijn, DPhil

Pathways I — APP and Presenilin

Chairs: Shea Andrews, Ph.D. and Alan Renton, Ph.D.

Introduction
Shea Andrews, Ph.D.

Gamma-secretase function, APP metabolism and the impact of APP, PSEN1 and PSEN2 variants
Lucia Chávez-Gutiérrez, Ph.D.

The amyloid pathway implicated by genetics of Alzheimer's disease and the value of epigenetic studies
Ekaterina Rogaeva, Ph.D.

What we have learned about the amyloid cascade hypothesis and future directions: Deposited proteins mark clearance failures
John Hardy, Ph.D.

Autosomal dominant Alzheimer's disease: Primary and secondary prevention of dominantly inherited AD
Randy Bateman, M.D.

Summary
Alan Renton, Ph.D.

Pathways II — Neuroinflammation and Neuroimmunity

Chair: Phil De Jager, M.D., Ph.D.

Introduction
Badri N. Vardarajan, Ph.D.

Deciphering the complex genetics of Alzheimer's disease: From variants to mechanisms
Edoardo Marcora, Ph.D.

AD susceptibility: Are peripheral or CNS myeloid cells involved?
Phil De Jager, M.D., Ph.D.

Genetic guides directionality of immune modulation needed for benefit in Alzheimer's disease
Todd Golde, M.D., Ph.D.

2 Å atomic structure and function of *CD33* splice forms in relationship to AD risk
Peter St. George-Hyslop, M.D.

Therapeutic targeting of microglia function for AD: Novel *TREM2* antibody approaches
Kate Monroe, Ph.D.

Summary
Alison Goate, DPhil

Pathways III — Endocytosis

Chairs: Bruno Benitez, M.D., Carlos Cruchaga, Ph.D. and Brian Kunkle, Ph.D., M.P.H.

Introduction
Bruno Benitez, M.D.

Pathobiology of endosomes in the etiology of Alzheimer's disease and related disorders
Ralph Nixon, M.D., Ph.D.

The autophagy/lysosomal pathway and AD: Insights from genetics
Steve Finkbeiner, M.D., Ph.D.

The *CD2AP* susceptibility network regulates endocytosis and synaptic proteostasis in Alzheimer's disease
Josh Shulman, M.D., Ph.D.

Summary
Carlos Cruchaga, Ph.D.

Pathways IV — Cholesterol and APOE

Chair: Jeffery M. Vance, Ph.D., M.D.

Introduction
Jonathan L. Haines, Ph.D.

History, overview of *APOE* and Alzheimer's disease
Michael Greicius, M.D., M.P.H.

The neurobiology of *APOE* in relation to how it influences the pathogenesis of Alzheimer's disease

David M. Holtzman, M.D.

ABCA7: Diversity in AD risk and pathogenic mechanisms

Holly Cukier, Ph.D.

Ancestry of origin and *APOE*: New insights into AD risk in diverse populations

Timothy Thornton, Ph.D.

APOE2 and protective variants

Gyungah Jun, Ph.D.

Imaging and biomarker studies with *APOE*

Clifford Jack, M.D.

Summary, clinical applications and future directions

Jeffery M. Vance, Ph.D., M.D.

Pathways V — Neuronal Signaling and Tau

Chair: Lindsay Farrer, Ph.D.

Introduction

The importance of tau and neuronal signaling genes to deciphering Alzheimer's disease

Lindsay Farrer, Ph.D.

Genetic support for the role of *MAPT* and related genes in ADRD

Jennifer Yokoyama, Ph.D.

Tau PET and CSF endophenotypes: From genetic associations to precision medicine

Andrew Saykin, PsyD

Biological support for *MAPT* (Tau) and other genes in the neuronal signaling pathway: Insights into novel pathways for disease therapy

Benjamin Wolozin, M.D., Ph.D.

Summary

Elizabeth Blue, Ph.D.