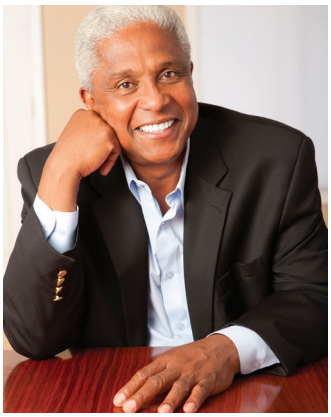
afar american federation for aging research

Aging & Alzheimer's Disease

Aging in America



America's population is aging dramatically. More than **10,000** of the **78 million** Baby Boomers are turning **65** every day.[1] Approximately **20% of the population** will be **65** years of age and older **by 2030**.[2]

Care for older adults with multiple conditions accounts for **66% of health care spending**. Experts predict that **health care costs will increase 25% by 2030**, primarily due to this population aging. Spending for **Medicare** alone will jump by more than **60%** in the **next 10 years**, **from $555 billion** in 2011 **to $903 billion** by 2020.[3]

This aging population poses **unique scientific, medical and societal challenges** that must be met if people are to live long, healthy, and productive lives.

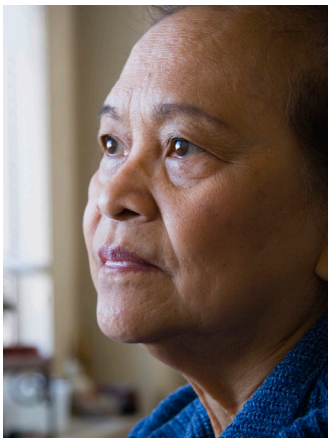
What is AFAR?

The American Federation for Aging Research (AFAR) is a national non-profit organization founded in 1981. Its mission is to support and advance healthy aging through biomedical research. **AFAR invests in medical research** to advance a **better understanding** of how **aging processes increase our vulnerabilities to diseases** as we age.

AFAR has awarded approximately **$150 million in grants** to more than **3,000** talented scientists and trainees. It funds scientists at all stages of their careers, providing **grants which range from $7,500 to $550,000**. AFAR identifies and supports cutting-edge **research** and encourages physicians to address the **needs of older adults**. AFAR provides opportunities for **scientific exchange** and **collaborations**, and updates the public on significant medical findings.

Aging and Disease

Age is a **major risk factor** for several physically, mentally, and economically devastating diseases typical of old age. **Science** provides the tools to uncover the connections between aging and illness. AFAR funds research projects which examine the impact of aging on the development and progression of diseases such as **Alzheimer's disease and dementia.**



Alzheimer's Disease

Alzheimer's disease is a type of **dementia** that over time causes debilitating problems with memory, thinking, and behavior.

Alzheimer's disease affects 1 in 9 Americans over 65. It jumps to **1 in 3** Americans over **85**[4]

Alzheimer's disease is the **5th leading cause of death** in adults **over 65**[5]

Alzheimer's disease is progressive, and, as the disease worsens, can cause **hallucinations, delusions, and reckless behavior**[6]

Causes of Alzheimer's are not well understood – most cases appear **randomly**[7]

Among the top 10 causes of death in America, Alzheimer's disease is unique in that in **cannot be prevented, cured, or slowed down**[8]

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Aging & Alzheimer's Disease

AFAR's Grants to Alzheimer's Disease Research

- Over **$21.2 million** has been awarded to 216 scientists researching Alzheimer's disease and related dementias
- **152 male** and **64 female** scientists conducted this research at **89 institutions in 32 states** as well as **Ireland** and **Israel**

AFAR Grantees conducting noteworthy Alzheimer's Disease Research

- **Randall J. Bateman, MD**: Distinguished Professor of Neurology, Washington University School of Medicine
  AFAR Beeson Scholar, 2007
  MetLife Foundation Promising Investigator Award Recipient, 2012
  Director of the Dominantly Inherited Alzheimer's Network Therapeutic Trials Unit (DIAN), which is leading efforts to begin the first clinical trials of treatments designed to prevent the progression of inherited Alzheimer's disease

- **David M. Holtzman, MD**: Professor and Chair of Neurology; Professor of Developmental Biology; Associate Director of the Alzheimer's Disease Research Center; Member, Hope Center for Neurological Disorders, Washington University School of Medicine
  AFAR Beeson Scholar, 1995
  MetLife Foundation Award Recipient, 2006; Chair, MetLife Foundation Awards for Medical Research Advisory Committee

- **Subhojit Roy, MD, PhD**: Associate Professor of Pathology, University of California, San Diego
  New Investigator Award Recipient, 2011
  Led study to determine why only some people develop Alzheimer's disease, which was published in Neuron in August 2013 and featured by the Huffington Post

- **Reisa A. Sperling, MD, MMSc**: Director, Center for Alzheimer's Disease Research and Treatment; Co-Leader, Neuroimaging Program, Massachusetts Alzheimer's Disease Research Center; Professor of Neurology, Harvard Medical School
  AFAR Beeson Scholar, 2003
  Featured frequently by major news outlets such as the New York Times for her work on developing screening tools and treatments for Alzheimer's disease

- **Terrence Town, PhD**: Professor, Physiology and Biostatistics, University of Southern California
  AFAR Julie Martin Mid-Career Award Recipient, 2011
  Created the first rat model for Alzheimer's disease, which will make it easier to identify causes and treatments for Alzheimer's disease in humans; this study was published in the Journal of Neuroscience and featured in US News and World Report

"...I wish we had a treatment that could prevent or reverse this cruel disease that now afflicts more than 5 million Americans. But...[t]he hard truth is that... nothing turns back the clock once Alzheimer's symptoms take hold."
- Richard W. Besdine, MD, AFAR Medical Officer (November 2012)

1 Pew Research Center. "Baby Boomers Retire." 2010.
2 Federal Interagency Forum on Aging-Related Statistics. 2012.
3 Centers for Disease Control and Prevention. *The State of Aging and Health in America* 2013.
4 Alzheimer's Association. "2013 Alzheimer's Disease Facts and Figures."
5 Centers for Disease Control and Prevention. "Mortality from Alzheimer's Disease in the United States: Data for 2000 and 2010."
6 National Institute on Aging. "Alzheimer's Disease Fact Sheet." 2013.
7 National Institute on Aging. "Alzheimer's Disease Genetics Fact Sheet." 2013.
8 Alzheimer's Association. "2013 Alzheimer's Disease Facts and Figures

Aging & Alzheimers's Disease | AFAR Funded Research Projects

David Adamowicz: *Characterize induced pluripotent stem cell models of age-related neurodegeneration and optimize transfection methods for future live imaging*, University of California, San Diego (2013)

Katrin Andreasson, MD: *Function of the PGE2EP receptors in the development of Alzheimer's disease*, Johns Hopkins University (2005)

Randall J. Bateman, MD: *Abeta and proteomic analysis of CSF in AD and Aging*, Washington University School of Medicine (2007)

Einor Ben Assayag, PhD: *Stress vulnerability and post-stroke cognitive decline*, Tel Aviv University (2011)

Ashley I. Bush, MD, PhD, BS, DPM: *Zinc exposure as a risk factor for Alzheimer's Disease*, Harvard Medical School (1995)

Ehud Cohen, PhD: *Roles of Peptidylprolyl cis/trans Isomerases in the regulation of aging and countering Alzheimer's disease*, Hebrew University of Jerusalem (2009)

Carlos Cruchaga, PhD: *Identification of additional risk variants and functional characterization of TREM2 and PLD3*, Washington University School of Medicine (2013)

Radoslaw Dobrowolski, PhD: *Altered Molecular Trafficking Inhibits GSK3/Wnt Signaling leading to Phospho-Tau build-up in Early and Late Onset Alzheimer's Disease*, Rutgers University, Newark (2013)

James E. Galvin, MD: *In Vitro and In Vivo Models of Synucleinopathies*, Washington University School of Medicine (2002)

Todd E. Golde, MD, PhD: *Proteolytic Generation of the Amyloid Beta Peptide in Alzheimer's Disease*, Mayo Clinic College of Medicine, Jacksonville (1997)

Lap Ho, PhD: *Characterizing the Influence of Immune Inflammatory Activites in the Clinical Progression of Alzheimer's Disease Dementia*, Mount Sinai School of Medicine (2002)

David M. Holtzman, MD: *Molecular and cellular factors that play a role in maintining neuronal form and function in the normal aging CNS and how they may be altered in AD*, Washington University School of Medicine (1995)

Willam Hu, MD, PhD: *Early CSF detection of FTLD*, Emory University (2013)

Bradley T. Hyman, MD, PhD: *Are Nitric Oxide Synthase Neurons Spared in Alzheimer's Disease?* Massachusetts General Hospital (2002)

Itamar Kahn, PhD: *Longitudinal functional characterization of neurodegeneration induced by Cdk5 aberrant activation using optogenetic fMR*I, Technion - Israel Institute of Technology (2012)

Kejal Kantarci, MD, MSc: *H MRS markers of MCI syndromes and common dementias,* Mayo Clinic, Rochester (2007)

Jason Karlawish, MD: *Caregiver and Patient Preferences for the Treatment of Alzheimer's Disease*, University of Pennsylvania (2000)

Geoffrey A. Kerchner, MD, PhD: *Hippocampal Structure and Function in Cognitive Impairment*, Stanford University (2012)

Bernadette McGuinness, MD, PhD, MRCP: *Platelet b-secretase in Mild Cognitive Impairment*, Queen's University, Belfast (2007)

David G. Morgan, PhD: *Gene Expression in Alzheimer's Disease*, University of Southern California (1987)

Subhojit Roy, PhD: *Neuronal trafficking and metabolism of key proteins in Alzheimer's disease and novel intervention strategies*, University of California, San Diego (2011)

Scott A. Small, MD: *Functional Imaging of the Hippocampal Formation in Age-Related Memory Decline*, Columbia University College of Physicians and Surgeons (2000)

Reisa A. Sperling, MD, MMSc: *Investigating the Neural Underpinnings of Memory Impairment in Aging and Early Alzheimer's Disease*, Brigham and Women's Hospital/ Harvard Medical School (2003)

Stephen A. Todd, MD: *Investigation of platelet b-secretase activity in Alzheimer's Disease*, Queen's University, Belfast (2008)

Terrence Town, PhD: *Re-balancing TGF-beta Signaling in Age Alzheimer's Rats*, Cedars-Sinai Medical Center (2011)

R. Scott Turner, MD, PhD: *The Role of X11& in Amyloid Precursor Protein*, University of Michigan (1998)

Kristine Yaffe, MD: *Determinants of Cognitive Change and its Outcomes in African-American and White Elders, University of California*, San Francisco (2001)

Guang Yang, PhD: *In vivo imaging of microglia function in a mouse model of Alzheimer's disease*, New York University School of Medicine (2008)

Steven G. Younkin, MD, PhD: *The Basal Forebrain Cholinergic System in Aging and Alzheimer's Disease*, Case Western Reserve University (1986)

Qi Zhang, PhD: *A mechanistic study of presynaptic dysfunction in Alzheimer's disease*, Vanderbilt University (2010)