

**2013 Alzheimer's Association® Grant Awards Portfolio**  
—Organized by research categories

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**Molecular Pathogenesis and Pathophysiology of Alzheimer's Disease**

Paul Axelsen, M.D.  
University of Pennsylvania  
Philadelphia, Pennsylvania

***Maternally determined predisposition to oxidative stress***

2013 Investigator-Initiated Research Grant— \$240,000 over 3 years

What is the role of oxidative stress and maternal diet in the susceptibility to Alzheimer's disease?

Francesca Bartolini, Ph.D.  
Columbia University Medical Center  
New York, New York

***Regulation of Microtubule dynamics by amyloid-beta peptide***

2013 New Investigator Research Grant—\$100,000 over 2 years

What are the effects of beta-amyloid on microtubule structure and remodeling?

Natàlia Carulla, Ph.D.  
Institute for Research in Biomedicine  
Barcelona, Spain

***Well-defined synthetic mimics for brain-derived A $\beta$  dimers***

2013 New Investigator Research Grant—\$99,682 over 2 years

How do toxic forms of beta-amyloid, called dimers, form larger clumps and how do they cause nerve cell toxicity?

Angel Cedazo-Minguez, Ph.D.  
Karolinska Institute  
Stockholm, Sweden

***Unraveling the role of thioredoxin-80 in Alzheimer's disease pathology***

2013 New Investigator Research Grant—\$88,880 over 2 years

Do abnormal levels of Trx80 in the cerebrospinal fluid represent an early warning sign of dementia?

Paramita Chakrabarty, Ph.D.  
University of Florida  
Gainesville, Florida

***Investigating the role of neuroinflammation in tau pathology***

2013 New Investigator Research Grant—\$99,332 over 2 years

Does inflammation play a role in toxic tau accumulation?

Karen Chang, Ph.D.  
University of Southern California  
Los Angeles, California

***Functional protein interactions in Alzheimer's disease and Down syndrome***

2013 Down Syndrome/Alzheimer's Disease Investigator-Initiated Grant—\$295,128 over 3 years

Does increased Nebula production help protect the functions of axons, and what are the mechanisms underlying Nebula's protective effects?

Itzik Cooper, Ph.D., B.Sc., M.Sc.  
Sheba Medical Center  
Ramat Gan, Israel

***BBB disruption as mechanisms for cognitive impairment in diabetes***

2013 New Investigator Research Grant—\$99,990 over 2 years

How do differences in blood-brain barrier damage and insulin activity affect memory and levels of dementia-related brain proteins?

Eva De Lago, Ph.D.  
Institute of Neurochemical Research  
Madrid, Spain

***Role of the endocannabinoid system in TDP43-related dementia***

2013 New Investigator Research Grant—\$89,100 over 2 years

Do drugs activating the endocannabinoid system protect against nerve cell damage in animals with abnormal levels of the protein TDP43?

Paula Desplats, Ph.D.  
University of California—San Diego  
La Jolla, California

***DNA methylation alterations in the course of Alzheimer's disease***

2013 New Investigator Research Grant to Promote Diversity—\$99,998 over 2 years

How are various inflammatory genes affected by DNA methylation at different stages of Alzheimer's disease?

John Fryer, Ph.D.  
Mayo Clinic  
Jacksonville, Florida

***The Role of CLU and LCN2 in Alzheimer's disease and normal cognitive function***

2013 New Investigator Research Grant—\$100,000 over 2 years

How does loss of clusterin or lipocalin-2 affect the development of Alzheimer's disease characteristics, including the development of amyloid plaques, as well as effects on learning and memory?

Tae Ho Lee, Ph.D.  
Beth Israel Deaconess Medical Center  
Boston, Massachusetts

***Functional studies of phosphorylation regulation in Alzheimer's disease***

2013 New Investigator Research Grant—\$100,000 over 2 years

What is the role of the proteins PIN1 and DAPK1 in the development and progression of Alzheimer's disease?

Charles Hoeffler, Ph.D.  
New York University School of Medicine  
New York, New York

***The toxic effects of pathological tau on synaptic plasticity***

2013 Mentored New Investigator Research Grant to Promote Diversity—\$150,000 over 3 years  
How do neurofibrillary tangles formed by tau affect synaptic plasticity?

Kari Hoffman, Ph.D.  
York University  
Toronto, Ontario, Canada

***Effects of direct focal stimulation on memory and neural function***

2013 New Investigator Research Grant—\$100,000 over 2 years  
How does fornix stimulation affect the activity of the nervous system, especially the hippocampus, and memory?

Khalid Iqbal, Ph.D.  
Foundation for Mental Hygiene, Inc.  
at NYS Institute for Brain Research  
Menands, New York

***Shifting balance from neurodegeneration to regeneration***

2013 Zenith Fellows Award—\$450,000 over three years  
Does peptide treatment improve cognitive function in mice, and does peptide treatment slow or prevent biochemical or structural changes in the brain?

Helmut Kessels, Ph.D.  
Netherlands Institute for Neuroscience  
Amsterdam, Netherlands

***Amyloid beta targets synapses based on AMPA receptor subunit composition***

2013 New Investigator Research Grant—\$100,000 over 2 years  
How does modifying specific docking sites, AMPA receptors, on brain cells reduce amyloid beta toxicity to special structures needed for memory and learning?

Woo-Yang Kim, Ph.D.  
University of Nebraska Medical Center  
Omaha, Nebraska

***Adult neurogenesis and Alzheimer's disease***

2013 New Investigator Research Grant—\$100,000 over 2 years  
What is the role of the protein GSK-3 in the process of new nerve cell formation in the brain, and does inhibiting GSK-3 restore the ability of the brain to form new nerve cells?

Eric Klann, Ph.D.  
New York University  
New York, New York

***Targeting AMP-activated protein kinase in Alzheimer's disease***

2013 Investigator-Initiated Research Grant—\$239,844 over 3 years  
Is the AMPK signaling pathway a potential target for drugs to slow or prevent the progression of brain changes associated with Alzheimer's disease?

Shira Knafo, M.D., Ph.D.  
Basque Country University  
Leioa, Spain

***The Role of PTEN in A $\beta$ -Induced Synaptic Depression***

2013 New Investigator Research Grant—\$100,000 over 2 years

Does toxic beta-amyloid hinder synaptic function in dementia by inducing PTEN-PDZ interactions, and does blocking OTEN-PDZ interactions restore synaptic function and cognitive health?

Paula Moreira, Ph.D.  
Center for Neuroscience and Cell Biology  
Coimbra, Portugal

***Mitochondrial trafficking In Alzheimer disease: Revealing the role of HUMMR***

2013 New Investigator Research Grant—\$99,100 over 2 years

Can a novel protein, HUMMR, regulate cognitive decline in Alzheimer's disease?

Stefania Nicoli, Ph.D.  
Yale University  
New Haven, Connecticut

***miR-107 regulation of neurovascular permeability***

2013 New Investigator Research Grant—\$100,000 over 2 years

How does loss of miR-170, a microRNA, affect the integrity of the blood-brain barrier and lead to nerve cell damage?

Judy Pa, Ph.D.  
University of California, San Francisco  
San Francisco, California

***Neurobiological changes in network function and amyloid deposition in Alzheimer's disease***

2013 New Investigator Research Grant—\$99,978 over 2 years

How do genetic risk factors and amyloid deposits in specific brain regions affect function observed on brain imaging?

Jorge Palop, Ph.D.  
David J. Gladstone Institutes  
San Francisco, California

***Cell-based therapy to restore brain functions in mouse models***

2013 Investigator-Initiated Research Grant—\$240,000 over 3 years

Can transplanting young nerve cells from the medial ganglionic eminence into the brains of mice affected by an Alzheimer's-like condition restore normal brain rhythms and brain function?

Sachin Patil, Ph.D.  
Widener University  
Chester, Pennsylvania

***Role of glucose metabolism in apolipoprotein E lipidation and secretion***

2013 New Investigator Research Grant—\$93,550 over 2 years

Can drugs that improve glucose metabolism also improve ApoE lipidation and clearance of beta-amyloid from the brain?

Pedro Rosa-Neto, M.D., Ph.D.  
Gouglas Hospital Research Centre  
Montreal, Quebec, Canada

***In vivo quantification of biomarker progression on the APP-RAT model***

2013 New Investigator Research Grant—\$99,914 over 2 years

How do biomarkers of Alzheimer's disease (amyloid plaque and brain function measured by PET) change over time in a new animal model?

Robert Siman, Ph.D.  
University of Pennsylvania  
Philadelphia, Pennsylvania

***Functional assessment and treatment of progressive tauopathy***

2013 Zenith Fellows Award—\$450,000 over three years

Does drug treatment that stabilizes tau in its normal condition reduce tauopathy and its detrimental effects?

Daniel Southworth, Ph.D.  
University of Michigan  
Ann Arbor, Michigan

***Molecular chaperone quality control mechanisms of tau regulation in Alzheimer's disease***

2013 New Investigator Research Grant—\$100,000 over 2 years

What are the precise molecular interactions between tau and its molecular chaperones, and how do these chaperones recognize abnormal tau and direct the cell to dispose of it?

Robert Vassar, Ph.D.  
Northwestern University—Chicago Campus  
Chicago, Illinois

***Identifying novel BACE1 substrates and interacting proteins in the brain***

2013 Zenith Fellows Award—\$450,000 over three years

How does normal BACE1 process or interact with proteins, and what are the various roles of BACE1?

David Weinshenker, Ph.D.  
Emory University  
Atlanta, Georgia

***Does Alzheimer's disease pathogenesis begin in the locus coeruleus?***

2013 Investigator-Initiated Research Grant—\$240,000 over 3 years

Is abnormal tau produced in the locus coeruleus able to spread to other parts of the brain and cause detrimental changes?

Mark Wu, M.D., Ph.D.  
Johns Hopkins University  
Baltimore, Maryland

***Mechanisms underlying sleep-dependent modulation of A $\beta$***

2013 New Investigator Research Grant—\$100,000 over 2 years

What are the biological mechanisms underlying the relationship between beta-amyloid and poor sleep, and does increasing or decreasing sleep have an effect on the controlled elimination of unwanted substances in the brain (autophagy)?

Huaxi Xu, Ph.D.

Sanford-Burnham Medical Research Institute

La Jolla, California

***Roles of miR-155/C/EBP $\beta$ /SNX27 pathway in Alzheimer's disease/Down syndrome***

2013 Down Syndrome/Alzheimer's Disease Investigator-Initiated Grant—\$300,000 over 3 years

How do molecules and proteins associated with Down syndrome also promote Alzheimer's-like changes in the brain?

Hailan Yao, Ph.D.

Roskamp Foundation IRRV Trust

Sarasota, Florida

***Novel mechanisms of BACE1 in Alzheimer's disease vascular pathogenesis***

2013 New Investigator Research Grant—\$100,000 over 2 years

Do elevated activity levels of caspase and BACE1 initiate the blood vessel wall damage that leads to cerebral amyloid angiography (CAA) and cognitive decline?

## **Epidemiology (Dementia Risk Factors and Prevention)**

Minerva Carrasquillo, Ph.D.

Mayo Clinic

Jacksonville, Florida

***Alzheimer's risk prediction, cognitive decline and gene regulation at the TREM2 locus***

2013 Mentored New Investigator Research Grant to Promote Diversity—\$150,000 over 3 years

How do harmful TREM genes promote Alzheimer's-like abnormalities in the brain, and are TREM genes associated with the development of mild cognitive impairment?

Sara Gregory, Ph.D.

Hartford Hospital

Hartford, Connecticut

***Exercise training and the hippocampus in subjects with dementia risk***

2013 New Investigator Research Grant—\$99,697 over 2 years

What are the effects of an exercise training program on the hippocampus and brain function in people who have at least one parent diagnosed with Alzheimer's disease?

Ines Moreno-Gonzalez, Ph.D.

University of Texas

Houston, TX

***Induction of Alzheimer's disease pathology by animal consumption***

2013 New Investigator Research Grant—\$100,000 over two years

Does consumption of amyloid plaques by mouth or injection into the brain induce Alzheimer's-like characteristics?

Lon White, M.P.H., M.D.

Pacific Health Research and Education Institute

Honolulu, Hawaii

***Honolulu-Asia aging study clinical-neuropathologic analyses***

2013 Zenith Fellows Award—\$449,999 over three years

Which risk factors during life were associated with various types of brain abnormalities?

## **Diagnosis, Assessment and Disease Monitoring**

Beau Ances, M.D., Ph.D., M.Sc.

Washington University

St. Louis, Missouri

### ***Resting state network signature of Alzheimer's disease***

2013 New Investigator Research Grant—\$95,991 over 2 years

Using magnetic resonance imaging (MRI), how do functional brain networks change in people at high risk for Alzheimer's disease?

Brianne Magouirk Bettcher, Ph.D.

University of California, San Francisco

San Francisco, California

### ***Pro-inflammatory genetic polymorphisms and cognition in amnesic MCI***

2013 New Investigator Research Grant—\$100,000 over 2 years

In people with a high risk for Alzheimer's disease, how does a person's genetic profile affect brain function and is this change reflected in blood-base biomarkers of inflammation?

Ramon Casanova, Ph.D.

Wake Forest University

Winston-Salem, North Carolina

### ***New methods for early detection of Alzheimer's disease***

2013 New Investigator Research Grant—\$99,309 over 2 years

Does the development of a software tool that can integrate a large amount of data from multiple diagnostic tests provide a more powerful predictor of who is at risk for Alzheimer's and those early in the disease process?

Hayk Davtyan, Ph.D.

Institute for Molecular Medicine

Huntington Beach, California

### ***Detection of B cells producing antibodies: a novel blood-test for Alzheimer's disease***

2013 New Investigator Research Grant—\$99,998 over 2 years

Can blood cells be used to determine the development of an Alzheimer's disease marker, beta-amyloid?

Michelle Fodero-Tavoletti, Ph.D.

Mental Health Research Institute

Melbourne, Australia

### ***Characterization of tau imaging ligands for Alzheimer's disease and other dementias***

2013 New Investigator Research Grant—\$99,309 over 2 years

Can tau imaging identify precise differences in how and where tau accumulates among various forms of dementia including Alzheimer's disease, chronic traumatic encephalopathy (CTE) and Parkinson's disease?

Katherine Gifford, Psy.D.

Vanderbilt University

Nashville, Tennessee

### ***Cognitive complaints in community dwelling adults***

2013 New Investigator Research Grant—\$100,000 over 2 years

Through the examination of cognitive complaints, can a cost-effective and broad based questionnaire be developed to identify early stages of dementia?

Christa Hestekin, Ph.D.  
University of Arkansas  
Fayetteville, AR

***Microchip electrophoresis for amyloid oligomer detection***

2013 New Investigator Research Grant—\$97,823 over 2 years

Can microchip electrophoresis help to identify as-yet unknown oligomers, some of which may account for much of the toxicity of beta-amyloid?

Jin Hyung Lee, Ph.D.  
Stanford University  
Menlo Park, CA

***Direct network visualization of Alzheimer's drug efficacy using optogenetic functional MRI (ofMRI)***

2013 New Investigator Research Grant—\$100,000 over 2 years

Can a newly developed imaging technique, optogenetic functional MRI, rapidly determine how drugs in an Alzheimer's mouse model change brain circuits affected by this disease?

Carrie McDonald, Ph.D.  
University of California—San Diego  
La Jolla, California

***Statistically determined MCI subtypes: Genetics, biomarkers and outcomes***

2013 New Investigator Research Grant—\$100,000 over 2 years

How do various MCI subtypes manifest themselves, and for each MCI subtype what is the risk of developing dementia over a four to five year period?

Selamawit Negash, Ph.D.  
University of Pennsylvania  
Philadelphia, PA

***Implicit learning paradigms as potential markers of preclinical Alzheimer's disease***

2013 New Investigator Research Grant to Promote Diversity—\$100,000 over 2 years

Can measurement of implicit learning ability be used to identify people who have early-stage Alzheimer's disease?

Wendy Wei Qiao Qiu, M.D., Ph.D.  
Boston University  
Boston, Massachusetts

***Setting up a challenge diagnostic test for Alzheimer's disease***

2013 Investigator-Initiated Research Grant—\$239,490 over 3 years

Does injecting pramlintide into the blood stream lead to an increase in beta-amyloid levels in people who have Alzheimer's disease but not in healthy individuals?

Christopher Rowe, Ph.D.  
Austin Health at Austin Life Sciences  
Heidelberg, Australia

***AIBL III - Data distribution***

2013 Investigator-Initiated Research Grant—\$237,600 over 3 years

Are biomarkers able to tell us how the brain changes during aging and Alzheimer's disease?



Mark Tuszynski, M.D., Ph.D.  
University of California, San Diego  
San Diego, California

***MRI guidance for BDNF gene delivery in Alzheimer's disease***

2013 Zenith Fellows Award—\$450,000 over three years  
Will MRI guidance of BDNF gene delivery improve its effectiveness?

Heather Whitson, M.D., M.H.S.  
Duke University  
Durham, North Carolina

***Novel retinal biomarkers for early detection of Alzheimer's disease***

2013 New Investigator Research Grant—\$100,000 over 2 years  
Can certain kinds of retinal damage be linked to the transition from normal brain health to dementia?

Donna Wilcock, Ph.D.  
University of Kentucky  
Lexington, Kentucky

***Inflammatory biomarkers to predict transition to dementia in Down syndrome***

2013 Down Syndrome/Alzheimer's Disease New Investigator Research Grant—\$149,999 over 2 years  
How do changes in serum molecules correlate with changes in the brain structure of a group of people who are at high risk of Alzheimer's disease because of Down syndrome?

## **Translational Research and Clinical Interventions**

Adam Boxer, M.D., Ph.D.  
University of California—San Francisco  
San Francisco, California

***Phase I multiple ascending dose trial of the MT stabilizer TPI-287 for AD***

2013 Part the Cloud Translational Research for Alzheimer's Disease—\$600,000 over 2 years  
How does the loss of the proteins clusterin or lipocalin-2 affect the development of disease, including the development of amyloid plaques, as well as learning and memory?

Dale Bredesen, M.D.  
Buck Institute  
Novato, California

***An exploratory safety, PK/PD, and preliminary efficacy study of F03 in MCI***

2013 Part the Cloud Translational Research Bridge for Alzheimer's Disease Grant —\$200,000 over 2 years  
How is the drug F03 absorbed and processed by the body, and what effects does it have on the brain and other body systems in persons with mild cognitive impairment?

Fernando Goni, Ph.D.  
New York University  
New York, New York

***Conformational directed immunotherapy targeting both tau and A $\beta$  pathology***

2013 Investigator-Initiated Research Grant—\$233,960 over 3 years  
Will a new type of vaccine component consisting of a monoclonal antibody prevent the development of Alzheimer's-like brain changes, or reduce such changes after they have already formed?

Ann-Charlotte Granholm, Ph.D.  
Medical University of South Carolina  
Charleston, South Carolina

***BDNF and executive dysfunction in Down syndrome***

2013 Down Syndrome/Alzheimer's Disease Investigator-Initiated Grant—\$287,482 over 3 years  
How do varying activity levels of noradrenergic neurons in mice affect the production of BDNF, and how does noradrenergic cell activity affect executive function related behavior?

Stephen Haggarty, Ph.D.  
Massachusetts General Hospital  
Boston, Massachusetts

***HDAC1 activating compounds as a novel therapeutic for Alzheimer's disease***

2013 New Investigator Research Grant—\$99,999 over 2 years  
Can a series of drug-like compounds protect nerve cells and prevent nerve cell death by activating HDAC1?

Frank Longo, M.D.  
CEO: Anne T. Longo  
Pharmatrophix, Inc.  
Menlo Park, California

***Phase I trial for P75 receptor ligand***

2013 Part the Cloud Translational Research for Alzheimer's Disease  
What is a safe dose of the drug LM11A-31-BHS in humans, and how does the human body dispose of the drug?

Liviu Mirica, Ph.D.  
Washington University  
St. Louis, Missouri

***Bifunctional chemical agents as theranostic Tools for Abeta Aggregation***

2013 New Investigator Research Grant—\$100,000 over 2 years  
Can a novel drug that binds-up toxic metals and proteins simultaneously not only reduce their toxicity, but can it also used as a diagnostic to visualize this process?

Eitan Okun, Ph.D.  
Bar-Ilan University  
Ramat-Gan, Israel

***Developing a DNA vaccine for Alzheimer's disease in Down syndrome patients***

2013 DS/AD New Investigator Research Grant—\$150,000 over 2 years  
Is it possible to develop a new vaccine with the ability to remove different forms of beta-amyloid, and will the vaccine prevent or reverse impairments in brain function or behavior associated with Alzheimer's disease?

George Perry, Ph.D.  
Case Western Reserve University  
Cleveland, Ohio

***PGC-1alpha as a therapeutic target for Alzheimer disease***

2013 Investigator-Initiated Research Grant—\$240,000 over 3 years  
Do drugs that stimulate PGC1-alpha activity restore mitochondrial that generate energy and brain function?

Ahmad Salehi, M.D., Ph.D.  
Palo Alto Institute for Research & Education, Inc.  
Palo Alto, California

***Improving B2 adrenergic signaling in Alzheimer's disease***

2013 Part the Cloud Translational Research Bridge for Alzheimer's Disease Grant —\$200,000 over 2 years  
How does the drug formoterol affect brain function of individual's with moderate Alzheimer's disease?

Andrew Teich, M.D., Ph.D.  
Columbia University  
New York, New York

***A therapeutic approach to synaptic dysfunction in Alzheimer's disease***

2013 New Investigator Research Grant—\$100,000 over 2 years  
What are the effects of treatment using a protein called ZCCHC17 in mice with Alzheimer's-like synaptic changes and memory loss, and does this treatment partially restore synaptic health and cognitive abilities?

Keith Vossel, M.D.  
University of California—San Francisco  
San Francisco, California

***Phase 2a levetiracetam trial for Alzheimer's-associated network hyperexcitability***

2013 Part the Cloud Translational Research Bridge for Alzheimer's Disease Grant —\$200,000 over 2 years  
How does levetiracetam (an anti-epilepsy drug) affect brain function in individuals with early-onset Alzheimer's disease and mild brain seizures?

Eneida Mioshi, Ph.D., M.Sc.  
Neuroscience Research Australia  
Randwick, NSW, Australia

***Enhancing activity participation in frontotemporal dementia***

2013 New Investigator Research Grant—\$97,992 over 2 years  
What is the effectiveness of a customized activity program intended to improve behavioral symptoms in people with frontotemporal dementia?

## **Care and Support of Alzheimer's Disease**

Dolores Gallagher-Thompson, Ph.D.  
Stanford University  
Palo Alto, California

***Global caregiving: iSupport for dementia family caregivers***

2013 Everyday Technologies for Alzheimer's Care—\$199,992 over 2 years  
How does a new interactive web-based caregiver support tool (iSupport) compare to more traditional caregiver education materials, and does it reduce caregiver stress?

Georges Karam, M.D.  
Institute for Development, Research, Advocacy and Applied Care  
Beirut, Lebanon

***Setting up the infrastructure for early diagnosis of dementia in Lebanon***

2013 New Investigator Research Grant—\$73,884 over 2 years  
Several tests that evaluate activities of daily living and dementia severity will be translated into Arabic, but can they be validated in another language to improve the timeliness and accuracy of Alzheimer's disease diagnosis?

Emily Rogalski, Ph.D.  
Northwestern University  
Chicago, Illinois

***Internet-based speech therapy: Improving quality of life and access to care***

2013 Everyday Technologies for Alzheimer's Care—\$200,000 over 2 years

What is the feasibility of using web-based speech and language therapy tool among individuals with aphasia due to dementia?