Molecular Pathogenesis and Pathophysiology of Alzheimer’s Disease

Karen Hsiao Ashe, M.D., Ph.D.
University of Minnesota — Twin Cities
Minneapolis, Minnesota
*Toward Understanding Mechanisms of Tau Neurotoxicity in the Mammalian Brain*
2015 Zenith Fellows Award — $449,946 over 3 years
*Do different modifications of the tau protein lead to toxic effects in nerve cells?*

David Baglietto-Vargas, Ph.D.
University of California, Irvine
Irvine, California
*Molecular Mechanisms of Synaptic Degeneration in Alzheimer’s Disease*
2015 New Investigator Research Grant — $100,000 over 2 years
*How do beta-amyloid and tau proteins hinder the structure and function of synapses and promote memory loss in Alzheimer’s disease?*

Sami Barmada, M.D., Ph.D.
University of Michigan
Ann Arbor, Michigan
*RNA Dysregulation in Frontotemporal Dementia*
2015 New Investigator Research Grant — $100,000 over 2 years
*Does abnormal processing of RNA molecules contribute to nerve cell death in frontotemporal dementia?*

John Crary, M.D., Ph.D.
Icahn School of Medicine at Mount Sinai
New York, New York
*Neuropathological Characterization of Primary Age-Related Tauopathy*
2015 New Investigator Research Grant — $100,000 over 2 years
*Can the accumulation of abnormal tau protein in the brain lead to disorders that are distinct from Alzheimer’s disease?*

Carlos Cruchaga, Ph.D.
Washington University in St. Louis
St. Louis, Missouri
*Understanding the Role of APP, PSEN1, PSEN2, TREM2, and PLD3 in Alzheimer’s Disease*
2015 Investigator-Initiated Research Grant: Biological Underpinnings of Genetic Risk Factors in Alzheimer’s Disease — $249,607 over 3 years
*How do variations in genes that increase Alzheimer’s risk affect the biological pathways that may be involved in disease onset and progression?*
Chun-Ling Dai, Ph.D.
Research Institute for Mental Hygiene, Inc. at NYS Institute for Basic Research
Staten Island, New York

**Role of O-GlcNAcylation in Tau Pathology and Cognitive Function**
2015 New Investigator Research Grant —$100,000 over 2 years
*How do changes in the brain’s ability to use glucose for energy affect the formation of tau tangles and decline in brain function during Alzheimer’s disease?*

Javier DeFelipe, Ph.D.
Spanish National Research Council
Madrid, Spain

**The Pyramidal Neuron in Cognition and Alzheimer’s Disease**
2015 Zenith Fellows Award —$449,913 over 3 years
*How does damage to certain nerve cells called pyramidal neurons impact brain function in Alzheimer’s disease?*

Florin Despa, Ph.D.
University of Kentucky
Lexington, Kentucky

**Role of Oligomerized Amylin in Vascular Injury and Alzheimer’s Disease**
2015 Investigator-Initiated Research Grant: Role of Vascular Metabolic Factors in the Pathogenesis of Alzheimer’s Disease and Related Dementia —$250,000 over 3 years
*Do high levels of amylin in the blood contribute to brain blood vessel damage and other brain changes associated with Alzheimer’s disease?*

Carole Deyts, Ph.D.
The University of Chicago
Chicago, Illinois

**Targeting APP-CTF as Potential Disease Modifier to Reduce Abeta Burden**
2015 New Investigator Research Grant —$100,000 over 2 years
*How do amyloid precursor protein carboxy terminal fragments (APP-CTFs) affect brain levels of beta amyloid and nerve cell function?*

Randall Goldsmith, Ph.D.
University of Wisconsin-Madison
Madison, Wisconsin

**Exploring Tau Behavior in a Microfluidic Trap**
2015 New Investigator Research Grant —$100,000 over 2 years
*Can molecular movies help reveal how the tau protein forms tangles in the brains of people with Alzheimer’s disease?*

Marcia Gordon, Ph.D.
University of South Florida
Tampa, Florida

**Molecular Therapeutics to Mitigate Inflammation, Tauopathy and Degeneration**
2015 Zenith Fellows Award —$450,000 over 3 years
*Do novel therapies that regulate brain inflammation help prevent the build-up of tau tangles and nerve cell damage?*
Johannes Gräff, Ph.D.
Ecole Polytechnique Fédérale de Lausanne (EPFL)
Lausanne, Switzerland

*Neuronal Activity as a Trigger for Alzheimer’s Disease: A Cell Type-Specific Investigation*
2015 New Investigator Research Grant — $100,000 over 2 years
*How does abnormal activity in certain nerve cells contribute to the development of Alzheimer’s disease?*

Syed Abid Hussaini, Ph.D.
Columbia University Medical Center
New York, New York

*Role of Lateral Entorhinal Cortex in Alzheimer’s Disease*
2015 New Investigator Research Grant — $100,000 over 2 years
*How does Alzheimer’s disease affect the function of nerve cells in a brain region vulnerable to damage in the early stages of disease?*

Gary Landreth, Ph.D.
Case Western Reserve University
Cleveland, Ohio

*Roles of TREM2 in Alzheimer’s Disease Pathogenesis*
2015 Investigator-Initiated Research Grant: Biological Underpinnings of Genetic Risk Factors in Alzheimer’s Disease — $240,000 over 3 years
*Which immune cells in the brain express the TREM2 protein and how does this relate to the brain changes associated with Alzheimer’s disease?*

Fei Liu, Ph.D.
Research Foundation for Mental Hygiene, Inc. at NYS Institute for Basic Research
Staten Island, New York

*Dyrk1A in Early Onset of Alzheimer’s Pathology in Down Syndrome*
2015 Investigator-Initiated Research Grant: Understanding the Development and Devising Treatments for Alzheimer’s Disease in Individuals with Down Syndrome — $250,000 over 3 years
*Do high levels of the protein Dyrk1A in people with Down syndrome contribute to the development of Alzheimer’s disease?*

María Llorens-Martín, Ph.D.
Center for Networked Biomedical Research on Neurodegenerative Diseases
Madrid, Spain

*GSK-3β and Adult Neurogenesis – Therapeutic Potential for Alzheimer’s Disease*
2015 New Investigator Research Grant — $100,000 over 2 years
*Does GSK-3 beta protein contribute to the development of Alzheimer’s disease by preventing the generation of new nerve cells in the brain?*

Tao Ma, Ph.D.
Wake Forest University Health Sciences
Winston-Salem, North Carolina

*Role of eEF2 Kinase in Alzheimer’s Disease-Associated Synaptic Failure and Memory Deficits*
2015 New Investigator Research Grant — $100,000 over 2 years
*Does dysfunction of a protein called eukaryotic elongation factor 2 (eEF2) promote nerve cell damage and memory loss in Alzheimer’s disease?*
Rodrigo Morales, Ph.D.
University of Texas Health Science Center at Houston
Houston, Texas

**Contribution of Peripheral Amyloid-Beta over Brain Pathology in Alzheimer’s Disease**
2015 New Investigator Research Grant to Promote Diversity — $100,000 over 2 years
How does beta-amyloid enter the brain from the body and does this contribute to the onset or progression of Alzheimer’s disease?

Ricardo Rodrigues, Ph.D.
Center for Neuroscience and Cell Biology (CNCB)
Coimbra, Portugal

**P2Y1 Receptor-CRMP2 Control Synaptic Loss and Memory Impairment in Early Alzheimer’s Disease**
2015 New Investigator Research Grant — $99,220 over 2 years
Does abnormal activation of a developmental signaling pathway promote nerve cell damage and memory loss in early-stage Alzheimer’s disease?

Carlos Rodriguez-Ortiz, Ph.D.
University of California, Merced
Merced, California

**Astrocyte-Enriched miR181 Impact on Neuronal Plasticity and Memory in Alzheimer’s Disease**
2015 Mentored New Investigator Research Grant to Promote Diversity — $150,000 over 3 years
Do increased levels of the molecule miR181 lead to impaired nerve cell function and memory decline in Alzheimer’s disease?

Panagiotis Roussos, M.D., Ph.D.
Icahn School of Medicine at Mount Sinai
New York, New York

**Dissecting the Cis Regulation of Gene Expression in Alzheimer’s Disease**
2015 New Investigator Research Grant — $99,985 over 2 years
Do variations in regulatory regions of DNA affect one’s genetic risk for developing Alzheimer’s disease?

Ismael Santa-Maria Perez, Ph.D.
Columbia University Medical Center
New York, New York

**Role of microRNAs in the Regulation of Tau Pathology**
2015 New Investigator Research Grant — $100,000 over 2 years
Do unique molecules carrying genetic information (microRNAs) influence the formation of toxic tau tangles in the brain during the development of Alzheimer’s disease?

Manu Sharma, Ph.D.
Weill Medical College of Cornell University
New York, New York

**Tau Proteostasis by Cysteine String Protein-alpha (CSP-alpha)**
2015 New Investigator Research Grant — $99,858 over 2 years
Can certain molecules help prevent the abnormal folding of tau protein and reduce abnormal tau accumulation in the Alzheimer’s brain?
Jan Stoehr, Ph.D.
University of California, San Francisco
San Francisco, California
**Characterization of Natural Occurring Alzheimer’s Disease Strains**
2015 New Investigator Research Grant —$100,000 over 2 years
Can the structure of beta-amyloid plaques and tau tangles determine whether or not they promote Alzheimer’s disease and other dementias?

Tim Storr, Ph.D.
Simon Fraser University
Burnaby, Canada
**Toxicity Pathways and Catalytic Potential of Cu-containing Aß Oligomers**
2015 New Investigator Research Grant —$99,880 over 2 years
How do copper-containing beta-amyloid clumps promote the development of Alzheimer’s disease?

Srini Subramaniam, Ph.D.
The Scripps Research Institute-Scripps Florida
Jupiter, Florida
**Role of Rheb GTPase in Alzheimer Disease’s Pathways**
2015 New Investigator Research Grant —$100,000 over 2 years
How does the Rheb protein affect the production of beta-amyloid and tau in the brain?

Shinya Yamamoto, D.V.M., Ph.D.
Baylor College of Medicine
Houston, Texas
**Functional Analysis of an Alzheimer’s Disease-Associated Mutation in TM2D3**
2015 New Investigator Research Grant —$99,505 over 2 years
How do variations in the gene for TM2D3 influence the risk for Alzheimer’s disease?

Zhen Zhao, Ph.D.
University of Southern California
Los Angeles, California
**PICALM-Mediated Autophagic Aß Clearance and Toxicity Mitigation in Pericytes**
2015 New Investigator Research Grant —$99,977 over 2 years
Can variations in the PICALM gene promote the risk for Alzheimer’s disease by hindering the cells that help remove beta-amyloid from the brain?

**Diagnosis, Assessment and Disease Monitoring**

Marwan Sabbagh, M.D.
Banner Sun Health Research Institute
Sun City, Arizona
**Longitudinal Circulating RNA Biomarker Profiling in Down Syndrome**
2015 Investigator-Initiated Research Grant: Understanding the Development and Devising Treatments for Alzheimer’s Disease in Individuals with Down Syndrome — $250,000 over 3 years
Can a new non-invasive blood test using RNA biomarkers help detect who is at the greatest risk for developing Alzheimer’s disease?
Nicole Schupf, Ph.D., M.P.H.
Columbia University Medical Center
New York, New York

**Proteomic Profile for Incident Alzheimer’s Disease in Down Syndrome**
2015 Investigator-Initiated Research Grant: Understanding the Development and Devising Treatments for Alzheimer’s Disease in Individuals with Down Syndrome — $249,997 over 3 years

*Can a blood-based proteomic profile help determine the risk for developing Alzheimer’s disease in people with Down syndrome?*

Katherine Bangen, Ph.D.
University of California, San Diego
San Diego, California

**Novel MRI Measures of Demyelination in Middle-Aged Adults with MCI**
2015 New Investigator Research Grant — $99,985 over 2 years

*Can a new brain imaging technique detect early abnormal changes in the brain’s wiring (white matter) and identify people at risk for developing Alzheimer’s disease?*

Jennifer Campos, Ph.D.
Toronto Rehabilitation Institute
Toronto, Canada

**Real World Multitasking Challenges in MCI and Alzheimer’s Disease**
2015 New Investigator Research Grant — $98,707 over 2 years

*How does mild cognitive impairment and Alzheimer’s disease affect a person’s ability to perform complex tasks?*

Danni Li, Ph.D.
University of Minnesota — Twin Cities
Minneapolis, Minnesota

**Vascular Biomarkers to Predict Response to Exercise in Alzheimer’s Disease**
2015 New Investigator Research Grant — $99,999 over 2 years

*Can a blood-based biological marker help predict how effective an exercise program will be in improving brain function in individuals with Alzheimer’s?*

Henrietta Nielsen, Ph.D.
Mayo Clinic Jacksonville
Jacksonville, Florida

**Apolipoprotein E Levels: a Risk-Determinant for Neurodegenerative Disease**
2015 New Investigator Research Grant — $100,000 over 2 years

*Are levels of apolipoprotein E in the blood and cerebrospinal fluid related to the onset, progression and severity of Alzheimer’s disease and dementia with Lewy bodies?*

Adriana Seelye, Ph.D.
Oregon Health & Science University
Portland, Oregon

**Routine Everyday Activities of Life (REAL) Cognitive Assessment**
2015 New Investigator Research Grant — $97,524 over 2 years

*Can a technique for monitoring everyday activities be used to detect early declines in brain function among older people at risk for Alzheimer’s disease?*
Min Shi, Ph.D.
University of Washington
Seattle, Washington

**Tau Efflux via Exosomes and Potential Plasma Biomarker of Alzheimer’s Disease**
2015 New Investigator Research Grant — $99,975 over 2 years
*Can the study of exosome activity lead to a novel blood test for Alzheimer’s disease?*

Babak Taati, Ph.D.
Toronto Rehabilitation Institute
Toronto, Canada

**The Automated Monitoring of Gait as a Predictor of Fall Risk**
2015 New Investigator Research Grant — $100,000 over 2 years
*Can a novel technology that detects subtle changes in walking patterns be used to predict the risk of fall in people with Alzheimer’s?*

Eric Tanifum, Ph.D.
Baylor College of Medicine
Houston, Texas

**Probing Blood-Brain Barrier Integrity in APP/PSEN1 Mice by 19F MRI**
2015 New Investigator Research Grant to Promote Diversity — $99,940 over 2 years
*Can a novel imaging technique that detects damage to the blood-brain barrier be used for the early detection of Alzheimer’s disease?*

**Translational Research and Clinical Interventions**

Deborah Barnes, Ph.D., M.P.H
University of California, San Francisco
San Francisco, California

**Paired Integrative Exercise Program for People with Dementia and Caregivers**
2015 Investigator-Initiated Research Grant: Non-Pharmacological Strategies to Ameliorate Symptoms of Alzheimer’s Disease and Related Dementia — $250,000 over 3 years
*Can a home-based exercise program for individuals with Alzheimer’s and their caregivers improve health and quality of life?*

Sandipan Bhattacharjee, Ph.D.
University of Arizona
Tucson, Arizona

**Comparative Effectiveness of Medications to Treat Alzheimer’s Disease**
2015 New Investigator Research Grant — $100,000 over 2 years
*Which approved medications to treat Alzheimer’s symptoms are the most effective?*

Gong Chen, Ph.D.
Pennsylvania State University
University Park, Pennsylvania

**In Vivo Regenerating Functional Neurons in Alzheimer’s Model**
2015 Zenith Fellows Award — $450,000 over 3 years
*Can converting glial cells in the brain into nerve cells help restore brain function in Alzheimer’s?*
Stephen Cunnane, Ph.D.
University of Sherbrooke
Sherbrooke, Canada

**Proof of Mechanism of a New Ketogenic Supplement Using Dual Tracer PET**

2015 Part the Cloud Translational Research Funding for Alzheimer’s Disease — $546,260 over 3 years

*Can a novel dietary supplement help stabilize or reverse declining memory in early stages of Alzheimer’s disease?*

Jennifer Fairchild, Ph.D.
Palo Alto Veterans Institute for Research
Palo Alto, California

**Exercise and Cognitive Function in Older Adults with MCI**

2015 New Investigator Research Grant — $100,000 over 2 years

*Do proteins secreted from muscles during exercise contribute to the benefits of physical exercise on brain health?*

Liang Feng, Ph.D.
Stanford University
Stanford, California

**Development of New Therapeutic Reagents for Alzheimer's Disease**

2015 New Investigator Research Grant — $100,000 over 2 years

*Can novel drugs be developed that inhibit the production of toxic beta-amyloid without having unacceptable side effects?*

Jeremy Herskowitz, Ph.D.
The University of Alabama at Birmingham
Birmingham, Alabama

**Fasudil as Therapy for Alzheimer’s Disease**

2015 New Investigator Research Grant — $100,000 over 2 years

*Can the drug fasudil prevent tau tangles and effectively treat Alzheimer’s disease?*

Regina Jokel, Ph.D.
Baycrest Centre for Geriatric Care
Toronto, Canada

**Preventing Language Decline in Dementia**

2015 Investigator-Initiated Research Grant: Non-Pharmacological Strategies to Ameliorate Symptoms of Alzheimer’s Disease and Related Dementia — $85,392 over 3 years

*Can group-based therapy help people with dementia-associated language problems relearn forgotten words and retain communication skills?*

Roneil Malkani, M.D.
Northwestern University
Chicago, Illinois

**Auditory Stimulation of Delta Sleep and Memory in Mild Cognitive Impairment**

2015 New Investigator Research Grant — $100,000 over 2 years

*Can a novel technology that enhances sleep quality be used to improve memory in older adults with mild cognitive decline?*

William Mobley, M.D., Ph.D.
University of California, San Diego
San Diego, California

**Enhanced APP Processing to Prevent Alzheimer Pathogenesis in Down Syndrome**

2015 Investigator-Initiated Research Grant: Understanding the Development and Devising Treatments for Alzheimer’s Disease in Individuals with Down Syndrome — $249,999 over 3 years

*Can a novel drug candidate that decreases toxic amyloid fragments help prevent Alzheimer’s-like brain changes?*
Brian Ott, M.D.
Rhode Island Hospital
Providence, Rhode Island

**Video Feedback Intervention for Cognitively Impaired Older Drivers**
2015 Investigator-Initiated Research Grant: Non-Pharmacological Strategies to Ameliorate Symptoms of Alzheimer’s Disease and Related Dementia — $249,324 over 3 years
Can video feedback monitoring improve safe driving behaviors in older drivers who are cognitively impaired?

Guilio Maria Pasinetti, M.D., Ph.D.
Icahn School of Medicine at Mount Sinai
New York, New York

**BDPP Treatment for Mild Cognitive Impairment and Prediabetes**
2015 Part the Cloud Translational Research Funding for Alzheimer’s Disease — $600,000 over 3 years
What are the safety, side effects and optimal dosing of a combination treatment using three grape-derived compounds in people with very early stages of Alzheimer’s disease?

Isaac Schiefer, Ph.D.
University of Toledo Health Science Campus
Toledo, Ohio

**PK/PD Study of a Prototype Attenuated Nitric Oxide (NO) Mimetic Furoxan**
2015 New Investigator Research Grant — $100,000 over 2 years
Can a novel compound that boosts brain levels of molecules important for nerve cell function help prevent memory loss in Alzheimer’s disease?

Grace Stutzmann, Ph.D.
Rosalind Franklin University of Medicine and Science
North Chicago, Illinois

**Intracellular Ca2+ Channels as a Therapeutic Target for Alzheimer’s Disease Drug Discovery**
2015 Investigator-Initiated Research Grant: Discovery-Validation of Therapeutic Targets for Developing Novel Interventions for Alzheimer’s Disease — $248,700 over 3 years
Could drugs that stabilize calcium levels inside nerve cells be developed as a treatment for Alzheimer’s disease?

Rachita Sumbria, Ph.D.
Keck Graduate Institute
Claremont, California

**A Brain-Penetrating Biologic TNF-alpha Inhibitor for Alzheimer’s Disease**
2015 New Investigator Research Grant — $98,382 over 2 years
Can a novel molecule that inhibits TNF-alpha in the brain reduce inflammation and nerve cell damage in Alzheimer’s disease?

Russell Swerdlow, M.D.
Kansas University Medical Center
Fairway, Kansas

**Trial of Oxaloacetate in Alzheimer’s Disease (TOAD) Study**
2015 Part the Cloud Translational Research Funding for Alzheimer’s Disease — $564,800 over 3 years
What is the safety and effectiveness of oxaloacetate as an alternative energy source to improve brain function in individuals with Alzheimer’s disease?
Geoffrey, Tremont Ph.D.
Rhode Island Hospital
Providence, Rhode Island

Pilot Trial of a Mind-Body Intervention for Mild Cognitive Impairment
2015 Investigator-Initiated Research Grant: Non-Pharmacological Strategies to Ameliorate Symptoms of Alzheimer’s Disease and Related Dementia — $245,830 over 3 years
Can a yoga intervention improve cognitive, emotional and daily living skills in people with mild cognitive impairment?

Tim West, Ph.D.
C2N Diagnostics
St. Louis, Missouri

A Single Ascending-Dose, Double-Blinded, Placebo-Controlled Study of an Anti-Tau Antibody
2015 Part the Cloud Translational Research Funding for Alzheimer’s Disease —$600,000 over 3 years
What is the safety and effectiveness of an antibody against tau to treat various dementias, including Progressive Supranuclear Palsy (PSP) and Alzheimer’s disease?

Whitney Wharton, Ph.D.
Emory University
Atlanta, Georgia

Mechanistic Potential of Antihypertensives in Preclinical Alzheimer’s
2015 Part the Cloud Translational Research Funding for Alzheimer’s Disease —$600,000 over 3 years
Does the FDA-approved drug, perindopril, work by mechanisms other than lowering blood pressure to reduce Alzheimer’s risk in African-Americans?

Hussein Yassine, Ph.D.
University of Southern California
Los Angeles, California

Does ApoE-e4 Genotype Reduce the Delivery of Fish Oil to the Brain?
2015 New Investigator Research Grant —$100,000 over 2 years
Does an Alzheimer’s-related genetic variation reduce the beneficial effects of fish oil on brain health?

Jie Zheng, Ph.D.
The University of Akron
Akron, Ohio

Design of Peptide-Nanoparticle Conjugates as Abeta Inhibitors
2015 New Investigator Research Grant —$100,000 over 2 years
Can a new class of peptide-based inhibitors be developed as a potential treatment to prevent beta-amyloid accumulation in Alzheimer’s disease?

Epidemiology (Dementia Risk Factors and Prevention)

Lisa Bratzke, Ph.D.
University of Wisconsin-Madison
Madison, Wisconsin

The Effects of Surgery and Anesthesia on Cognitive Trajectory
2015 New Investigator Research Grant —$99,998 over 2 years
Does surgery and anesthesia affect one’s risk for developing Alzheimer’s disease?
Jesse Mez, M.D.
Boston University
Boston, Massachusetts
Exploring MAPT and Tau-Related Genes in Chronic Traumatic Encephalopathy
2015 New Investigator Research Grant —$100,000 over 2 years
How do variations in certain genes affect the risk of dementia related to traumatic brain injury in athletes?

Care, Support and Health Economics of Alzheimer’s Disease

Lee Jennings, M.D.
University of California, Los Angeles
Los Angeles, California
Effect of a Dementia Care Co-management Program on Health Outcomes
2015 New Investigator Research Grant —$100,000 over 2 years
Can a team approach for Alzheimer’s care improve health outcomes while lowering costs?

Lisa Molnar, Ph.D.
University of Michigan
Ann Arbor, Michigan
Enhancing Safe Mobility among Older Drivers with and without Dementia
2015 New Investigator Research Grant —$100,000 over 2 years
Can a better understanding of how dementia affects decisions about driving help older adults self-assess their ability to drive safely?

Lori Montross Thomas, Ph.D.
University of California, San Diego
San Diego, California
A Legacy Project to Improve Dignity for Those Living with Dementia
2015 New Investigator Research Grant —$99,996 over 2 years
Can Dignity Therapy help reduce symptoms of depression and improve well-being in people with dementia?

Elena Portacolone, Ph.D., M.B.A, M.P.H
University of California, San Francisco
San Francisco, California
Living Alone in Older Age with Alzheimer’s Disease
2015 New Investigator Research Grant —$100,000 over 2 years
Can a better understanding of the experience of individuals living alone with Alzheimer’s disease inform the design of support systems and interventions for this population?

Van Ta, Ph.D.
San Jose State University
San Jose, California
Culturally Tailored Program to Reduce Stress Among Vietnamese Caregivers
2015 Mentored New Investigator Research Grant to Promote Diversity—$150,000 over 3 years
What are the unique needs and stressors of Vietnamese-American caregivers?