

# MIND MATTERS

Making Memories Last a Lifetime

Fall 2014

 UNIVERSITY of CALIFORNIA • IRVINE

## NEUROINFLAMMATION IN ALZHEIMER'S DISEASE: ONE PATH TO NEW THERAPIES

*Andrea J. Tenner, Ph.D.*

Alzheimer's disease (AD) presents a particularly complex challenge to scientists, as multiple pathways of injury to the brain appear to be implicated in this degenerative disorder.

One prominent theory detailing the sequence of events that cause AD is the "amyloid" hypothesis. It proposes that a pathogenic peptide,  $\beta$  amyloid, leads to the cognitive dysfunction in AD. While the amyloid hypothesis has been a prominent focus of research, the mechanisms involved in AD, in fact, remain controversial and likely include more than one damaging pathway.

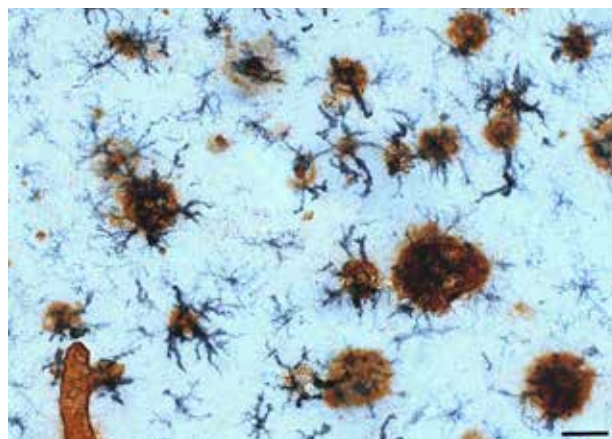
The immune system consists of cells and proteins that protect the body from infection or injury. Some of the cells, such as macrophages and, in the brain, microglia, work together with other particular components of the immune system, called the "complement system," to generate a protective response. The common indicators of such a response, called inflammation, include swollen areas associated with pain and redness that can even be warm to the touch. An excessive inflammatory response, such as seen in arthritis when inflammation actually erodes joints and bone, can be detrimental. In the brain, excessive inflammation is not well tolerated as the skull leaves little room for swelling. However, even a chronic low level of inflammation can generate substances toxic to neurons and result in cognitive impairment.

While one cannot see evidence of inflammation externally, indicators are prominent in AD tissue posthumously, particularly at stages of the disease when cognitive impairment was evident during life. The  $\beta$  amyloid plaque deposits themselves (see brown areas in figure to the right), which are resistant to degradation and removal, activate the complement system. Researchers at UCI MIND are investigating the two components of this system and the microglia (see black spider-like structures in figure) that are activated in AD to identify if this inflammatory response results in significant neuronal injury and, consequently, contributes significantly to the loss of neurons and cognitive abilities.

By identifying the molecules that lead to toxic inflammatory effects on neurons, researchers at UCI MIND and elsewhere

hope to find novel targets for therapeutics that will suppress those effects and the subsequent memory loss. One example is C5a, a small peptide generated by the activation of the complement pathway. C5a moves from the amyloid plaques that initially activate the complement cascade and binds to a specific molecule on microglia. Microglia react to the presence of C5a by migrating to the plaque, at which point they recognize the amyloid deposits as "threatening" and respond by secreting proinflammatory molecules to destroy the "danger." Unfortunately, these inflammatory molecules are also damaging to sensitive neurons in the surrounding area. Since it is damage to neurons that correlates most with cognitive dysfunction in AD, inhibition of this complement-induced inflammation could dramatically slow the "snowballing" cascade of cognitive decline, perhaps even after the initial stages of impairment are recognized.

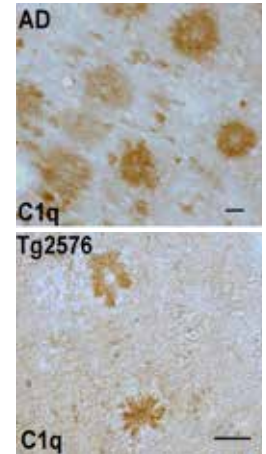
Studies in mice have shown that inhibitors of the C5a interaction with microglia can suppress developing pathology and delay cognitive deficits. More studies are ongoing to determine if it is the body's generation of an inflammatory reaction (complement mediated or otherwise) to the plaques that causes loss of neuron function and cognitive ability. If so, designing new drugs to specifically inhibit that inflammatory reaction will be a key to slowing or stopping the progression of AD in humans.





As I promised in the last edition of our newsletter, I would like to take this opportunity to introduce myself to you more fully. Twenty-two years after arriving at UCI, it is now my privilege to follow in the footsteps of Dr. Carl Cotman, who founded the Institute, and Dr. Frank LaFerla, now Dean of Biological Sciences, as Director of UCI MIND. In fact, it was UCI's exceptionally strong neuroscience research program and, in particular, the Alzheimer's disease research group led by Dr. Cotman that enabled me to broaden my studies on the immune system to its influence on neurodegeneration, with a focus on Alzheimer's disease (AD).

As of yet, no potential "cures" or disease-modifying treatments for AD have been effective in humans. This is particularly problematic as it is estimated that 5.4 million Americans suffer from this disorder, with that number expected to rapidly increase as the population ages. To achieve our goal of better treatments, effective prevention strategies, and ultimately a cure, we must research the multiple biological events that may contribute to AD. One important contributor to AD is inflammation. My research explores a part of the immune system called the complement system. Pathologic inflammation occurs when this system is activated by amyloid plaques in the brain. Complement proteins are associated with amyloid plaques as seen in the images at the right of brain sections from human AD (top) and mouse models of AD (bottom). Thus, one goal of my laboratory is to understand the individual players involved in neuroinflammation such that therapies to limit damaging inflammation or enhance protective immune responses can be designed.



Using two mouse models of AD, we found that oral administration of an inhibitor of complement-induced inflammation results in reduction of AD-like pathology. (See lead neuroinflammation article on page 1.) This treatment also improved cognitive impairment in mice who received it at an age when some plaque accumulation had begun. Using this inhibitor is particularly attractive since, so far, it appears to specifically interact with the protein thought to be necessary for initiation of the inflammation that occurs when amyloid plaques and tangles in the brain activate a part of the immune system. Consequently, this inhibitor should have little to no side effects. However, we are continuing to investigate the mechanisms by which this drug works to rule out potential negative effects and assess its promise as a therapy for humans with mild cognitive impairment (MCI) or early AD to at least delay progression of the disease.

Our studies "complement" many other areas of ongoing research at UCI MIND. Our common goal at UCI MIND is to explore many suggestive pathways that contribute to the initiation and rate of progression in AD and other neurodegenerative diseases. As with other diseases, a "cocktail" approach to therapy, in which different detrimental events are inhibited by one or more drugs and protective processes are enhanced by other drugs, will likely be the most successful.

Most importantly, I want to communicate to you, as part of our UCI family of supporters, that I am excited by science itself, committed to mentoring and training excellent future research scientists and physicians, and dedicated to facilitating the progress toward amelioration of inflammatory and degenerative diseases through both basic and clinically applied research. Thus, I am thrilled to serve as Director of UCI MIND and promote research toward treatments or cures of devastating neurodegenerative diseases by the innovative and forward-thinking investigators from many disciplines at the Institute. I am also a wife and a mother of three grown children, and understand the pain of loved ones potentially impaired in life. Therefore, I also look forward to partnering with our interested and engaged community, both those facing the challenges of AD or another neurodegenerative disorder and their loved ones, so that together we can accelerate our journey to treatments for these devastating conditions.



# IN THE NEWS

*Exciting discoveries, achievements, and updates from the Institute for Memory Impairments and Neurological Disorders*

## **CHARLES GLABE, PH.D., RECEIVES KAU DISTINGUISHED PROFESSORSHIP**

Congratulations to Dr. Charles Glabe, a longstanding UCI MIND faculty member, who was recently honored with a Distinguished Professorship from King Abdulaziz University (KAU), Saudi Arabia. Selection criteria for the KAU Distinguished Professorship are based on the Thompson Reuters Essential Science Indicators index. Named in the 2014 Thompson Reuters list of Highly Cited Researchers in biology and biochemistry, Dr. Glabe investigates amyloid aggregation and the molecular pathogenesis of Alzheimer's disease.

KAU has the highest number of highly cited researchers worldwide affiliated with it, second only to the University of California. Goals of KAU's program for highly cited researchers include (1) fostering collaborative studies with adjunct professors to increase scientific quality, and (2) mentoring pre- and post-doctoral students and junior faculty, especially women, who do not have as many opportunities as men to train overseas due to cultural differences.



Charles Glabe, Ph.D.

## **MATHEW BLURTON-JONES, PH.D., AWARDED ALZHEIMER'S ASSOCIATION GRANT**

Dr. Matt Blurton-Jones, Assistant Professor in Neurobiology and Behavior and Director of the UCI MIND iPS Cell Core, was recently awarded a new three-year grant from the Alzheimer's Association. Using induced pluripotent stem (iPS) cells derived from skin biopsies in Alzheimer's patients and healthy controls, this project will study the role of the TREM2 gene in AD pathogenesis.

Recently found to increase AD risk three to four times, TREM2 is thought to influence the function of microglia, an important immune cell within the brain. To test this hypothesis, Dr. Blurton-Jones and his team will modify iPS cells derived from the skin biopsies to delete or "knockout" the TREM2 gene. These modified cells will then be differentiated into microglia to study the normal function of TREM2 and help determine how this gene might contribute to AD risk. Much of the preliminary data included in this grant application was generated through philanthropic support of the iMIND iPS Cell Core. Clearly, this grant award demonstrates the powerful leveraging that can be achieved when generous donors provide seed funds to help UCI MIND scientists develop new research strategies.



Jim McAleer presents three-year grant to Dr. Blurton-Jones.

## **UCI TO ESTABLISH BRAIN CELL LIBRARY WITH NIH GRANT**

Under the leadership of Dr. Leslie Thompson, Professor of Psychiatry and Human Behavior and Neurobiology and Behavior, UCI will establish one of six national LINCS (Library of Integrated Network-based Cellular Signatures) centers, dedicated to creating a database of human cellular responses to improve scientific efforts to accelerate the development of new therapies for many diseases.

Awarded \$8 million dollars from the National Institutes of Health, and called NeuroLINCS, a consortium of researchers from UCI, Cedars-Sinai Medical Center's Regenerative Medicine Institute, the Gladstone Institute of Neurodegenerative Disease and UC San Francisco, Johns Hopkins University, and the Massachusetts Institute of Technology will study brain cell activities in motor neuron disorders, including ALS, and build a detailed archive of disease "signatures" that will identify cell targets for new drug treatments.



Leslie M. Thompson, Ph.D.

# THE FUTURE OF ALZHEIMER'S DISEASE RESEARCH

*Cordula Dick-Muehlke, Ph.D.*



Turning its eyes towards a future free of Alzheimer's disease (AD), the 25th Annual Southern California Alzheimer's Disease Conference, held on September 12, 2014, featured a slate of scientific and clinical leaders who shared innovative ways to diagnose, treat, and prevent AD. A joint effort of UCI MIND and the UCI School of Medicine in collaboration with the Alzheimer's Association, Orange County Chapter, this silver jubilee event drew nearly 450 physicians, professionals in health care and aging services, caregivers, and community members at large.

Special thanks go to the 45 exhibitors who helped make this conference possible and shared information about resources for families affected by dementia. In particular, we gratefully acknowledge the significant support of title exhibitors CareChoices - St. Michael Hospice and Sonnet Home Health, and Summer House at Walnut Village.

Covering the gamut, presentations explained how, for example, (1) identifying contributor genes to AD can lead to the identification of new disease mechanisms and drug targets, as reviewed by Dr. Gerard D. Schellenberg from the University of Pennsylvania School of Medicine; (2) studying Columbian families with a dominantly inherited form of AD can advance overall understanding of the disorder, as described by Dr. Kenneth Kosik of the Neuroscience Research Institute at the University of California Santa Barbara; and (3) appropriate use of new amyloid imaging tools can improve diagnosis, as detailed by Dr. Liana Apostolova of the University of California at Los Angeles. A few highlights of the conference follow, with all eleven presentations available at [www.mind.uci.edu/2014presentations/](http://www.mind.uci.edu/2014presentations/).

Welcoming comments came from Dr. Frank LaFerla, the Dean of Biological Sciences at UCI, Dr. Andrea Tenner,

the new director of UCI MIND, and Patty Mouton, Vice President of Outreach and Advocacy at AAOC. To kick off the day, Dr. Howard Federoff of Georgetown University provided an update on progress toward a blood test for predicting AD. Recognizing that neurodegeneration, while prevalent in the brain, is associated with systemic changes, Dr. Federoff reported new, yet to be published findings, of a highly accurate molecular profile indicative of future AD in human plasma.

Highlighting the important role of the Alzheimer's Disease Research Centers (ADRC) nationwide, including at UCI MIND, in conducting scientifically rigorous studies, Dr. Peter Nelson shattered three common myths about



AD. First, AD isn't the only cause of dementia, as often thought. In fact, it's normal for the human brain to be affected by non-AD pathology, particularly cerebral vascular disease, in advanced old age. Secondly, AD is not inevitable, as evident in the 20-25% of centenarians who do not show hallmark senile plaques and neurofibrillary tangles in the brain. And, thirdly, dementia is not the same at age 95 as at 75, with different dementing diseases appearing at different points in the aging spectrum. For example, Dr. Nelson pointed out that hippocampal sclerosis, which is easily mistaken for AD, increases dramatically in those 80-95 years old.

Bringing real-life experience to the science presented, four individuals affected by mild cognitive impairment (MCI) or mild AD and their care partners, led by the author of this article, shared their experience of living with cognitive impairment.

*Continued on page 11*



# THE KEITH SWAYNE FAMILY CHALLENGE IN HONOR OF JUDY SWAYNE THE UCI MIND iPS CELL BANK INITIATIVE

In honor of his wife, Judy Swayne, who is battling Alzheimer’s disease, Keith Swayne and his family issued a challenge to raise \$150,000 for the iPS Cell Bank at UCI MIND. The Swayne Family is generously matching every dollar that is raised (up to \$150,000) for the unique cell bank. They are nearly two-thirds of the way to their goal.



## What are iPS Cells?

Few discoveries have as great a transformative potential for altering modern medical research as induced pluripotent stem (iPS) cells. These cells are special in that they can enhance our ability to study and understand the impact of disease in human cells in ways not previously possible. Both pluripotent and immortal, the cells are capable of giving rise to every cell type in the human body and allowing unprecedented resource sharing among scientists. It is notable that iPS cells can be derived from skin samples. Anyone, even older adults, can easily donate the skin cells needed to develop iPS cells.

## Why is the iPS Cell Bank Necessary?

UCI MIND received a grant from the National Institute on Aging (NIA) to establish the first National Alzheimer’s Disease iPS Cell Bank. This is proving to be a valuable resource for the entire Alzheimer’s research community and fits with our pioneering role in stem cell research.

Stem cell therapy has received considerable attention, particularly as UCI MIND investigators pioneered this avenue of research specifically for Alzheimer’s disease. The iPS cells can be directly obtained from adults, thereby bypassing any ethical concerns. And, since iPS cells are harvested from the patient, they minimize the incidence of rejection by the body.

The Swayne Family Challenge is an exemplary demonstration of the importance that philanthropic support plays in continuing and expanding advancement of Alzheimer’s research at UCI MIND. A predictable funding source greatly enhances groundbreaking and transformative research to make memories last a lifetime. Research requires a commitment of time as well as funding, and we ask that the community help us invest in discovery.

Your support will impact generations to come. You can move UCI MIND closer to its vision of bringing an end to Alzheimer’s disease. Invest in discovery today to fund the fight against this degenerative disease by making a donation to the Keith Swayne Family Challenge iPS Cell Bank Fund. Contact Linda Scheck for more information at 949-824-3251 or [lscheck@uci.edu](mailto:lscheck@uci.edu).

### Make a Donation Online

Every contribution helps support Alzheimer’s disease research at UCI MIND. Your gift of any amount is important. It all adds up in the fight to end Alzheimer’s disease.

You can make a donation online.

Go to:

[http://mind.uci.edu/giving/  
online-donations/](http://mind.uci.edu/giving/online-donations/)

Help make a difference today.

## MEET NEW UCI MIND MEMBERS



### MICHAEL YASSA, PH.D.

Michael Yassa, Ph.D., is an Assistant Professor of Neurobiology and Behavior, a fellow of the Center for Neurobiology of Learning and Memory, and a new member of UCI MIND. Dr. Yassa received his Ph.D. from UCI in 2010. After several years as a faculty member at Johns

Hopkins University, where he ran a neuroimaging laboratory focusing on memory mechanisms in aging and Alzheimer's disease (AD), he returned to UCI in January, 2014 to continue this line of work. At UCI, he is surrounded by like-minded scientists who are interested in tackling the problem of AD at every level, from the molecular to the clinical.

Dr. Yassa has an accomplished record of publication in AD neuroimaging and has developed many tools and techniques that are employed in clinical trials today. He also loves to speak more broadly, to both scientific and lay audiences, about his work, and memory in aging and AD. Dr. Yassa will be a featured speaker at future UCI MIND Ask the Doc forums and Behind the Scenes tours.



### DRITAN AGALLIU, PH.D.

One of the newest members of UCI MIND, Dr. Agalliu received his Ph.D. in Genetics and Development from Columbia University and completed his postdoctoral training in Neuroscience at Stanford University. In 2011, Dr. Agalliu joined the UCI Department of

Developmental and Cell Biology, where he is currently an Assistant Professor. Dr. Agalliu's research is focused on the mechanisms of central nervous system (CNS) angiogenesis and blood-brain barrier (BBB) formation and breakdown. In addition, Dr. Agalliu's laboratory studies the cell biology and mechanisms of BBB damage in stroke or autoimmune diseases, interactions of immune cells with blood vessels in multiple sclerosis, and autoimmune sequelae of recurrent *S. pyogenes* infections (PANDAS). Dr. Agalliu's laboratory uses genetic, molecular, cell biological, and in vivo imaging approaches in live animals to investigate how BBB function is impaired in various CNS diseases and how to repair it in these disorders.



Dr. Alois Alzheimer identified Alzheimer's disease in 1906.

## UCI MIND Matters Club

Are you interested in learning more about recent discoveries in Alzheimer's research at UCI MIND and elsewhere? Would you like to meet experts in the field of cognitive fitness? Are you interested in promoting your own cognitive health as you support research at UCI MIND?

The MIND Matters Club is the club for you. It is a group of individuals committed to supporting UCI MIND in expanding our understanding of Alzheimer's disease and other neurodegenerative disorders through research, education, and service to the community.

Members of the MIND Matters Club receive unique benefits, including quarterly private receptions featuring expert speakers on cognitive fitness and current research; a quarterly news brief highlighting recent discoveries; an annual appreciation event hosted by Andrea Tenner, Ph.D., Director, offering an opportunity to "meet and greet" UCI MIND researchers; and, if desired, a confidential annual memory screening and personalized brain health consultation, including a review of your risk factors.

The MIND Matters Club is a donor support group and recognizes donors who contribute \$1,906 or more annually to UCI MIND. Contact Linda Scheck, Director of Development and Donor Stewardship, at 949-824-3251 or [lscheck@uci.edu](mailto:lscheck@uci.edu) to discuss this very special and personal donor club supporting Alzheimer's research at UCI MIND.

## MEET NEW UCI MIND MEMBERS



TONIA VOJTKOFSKY, PSY.D.

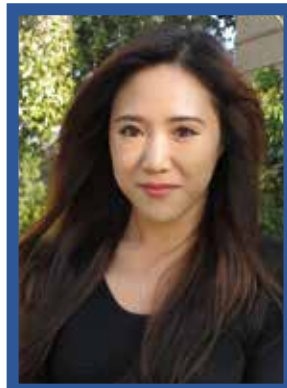
Tonia Vojtkofsky, Psy.D., specializes in the development and research of lifestyle-based interventions for mild cognitive impairment, Alzheimer's disease, and the related dementias. As a new project scientist, Dr. Vojtkofsky will perform data analyses correlating neuropsychological measures

with clinical outcomes in the UCI MIND Alzheimer's Disease Research Center.

In 2013, Dr. Vojtkofsky founded Cognitive Care Solutions, which provides cognitive enhancement therapy sessions, targeting modifiable risk factors such as diet and exercise, for individuals with MCI and mild dementia. Previously, at Hoag Memorial Hospital, she was involved in education and research related to cognitive disorders, and helped develop and run a cognitive fitness program for the community. She will publish *Keep Your Brain Stronger for Longer* in April 2015.

Currently Dr. Vojtkofsky is consulting for Ceresti Health to develop a population health management program for dementia. Dr. Vojtkofsky received her doctorate in clinical psychology from Rosemead School of Psychology in 2007.

## MEET NEW UCI MIND STAFF



CRYSTAL CHEN

In August of this year, Crystal Chen joined UCI MIND as the new administrative specialist, splitting her time between purchasing for the Institute's research labs and providing support to its new director, Dr. Andrea Tenner. Before coming to UCI MIND, Crystal worked at UCLA for almost 2 years as

an administrative specialist for three dermatologists who conduct research on melanoma and acne.

Crystal's background makes her uniquely qualified to support the research endeavors of UCI MIND. Crystal holds a master's degree in public health from Columbia University in New York and a bachelor's degree from the University of Southern California. There she majored in social sciences, with an emphasis in psychology, and pursued a well-rounded education, also completing coursework in gerontology, sociology, and history.

Drawn to UCI MIND to pursue her longstanding interest in aging and healthcare, Crystal rounds out the Institute's team by providing much-needed support services. In her free time, Crystal enjoys traveling, candle-making, baking, playing videogames and watching fantasy adventure films.

## WELCOMING BACK...

CORDULA DICK-MUEHLKE, PH.D.



We welcome back Cordula Dick-Muehlke, Ph.D., who returned to UCI MIND as a project scientist this past August. Dr. Dick-Muehlke, who served as the Institute's director of education from 2012-2013, is back specifically to assist UCI MIND scientists in communicating their findings to the lay public through the written word. Besides being a licensed psychologist, and involved in care and support of people with Alzheimer's disease and their families for 30 years, Dr. Dick-Muehlke has a love for writing that she'll be exercising to help UCI MIND broadly communicate its message. Principal of Cordula Cares, Cordula now works as a consultant in aging and dementia. Recipient of the 2011 Dementia Care Professional of the Year award from the Alzheimer's Foundation of America, Dr. Dick-Muehlke earned her doctorate in clinical psychology as well as a master's degree in theology at Fuller Theological Seminary.

# GIVING AT UCI MIND

*Helping UCI MIND Research Ways to Make Memories Last a Lifetime*

## HOW YOUR GIFTS SUPPORT RESEARCH AT UCI MIND

Linda Scheck, (949) 824-3251, lscheck@uci.edu

### THE REALITY

The reality is that the majority of funds for research at UCI MIND are awarded through a highly competitive grant application process with the National Institutes for Health (NIH) and National Institute on Aging (NIA), which award funding to individual investigators. The pool of dollars available to these investigators has not grown over the last several years. In addition, funding has not kept pace with the enormous increase in the number of people affected by Alzheimer's disease, one every 67 seconds in the U.S.

Approximately one-half billion dollars is allocated for Alzheimer's research annually in the federal budget. Cancer research receives six times that amount, \$5.4 billion, and heart disease, \$4 billion.<sup>1</sup> Growing numbers of treatments and cures for cancer and heart disease are being discovered. As well, the number of people lost to these diseases each year is decreasing. This is not true for Alzheimer's. In fact, it is just the opposite.

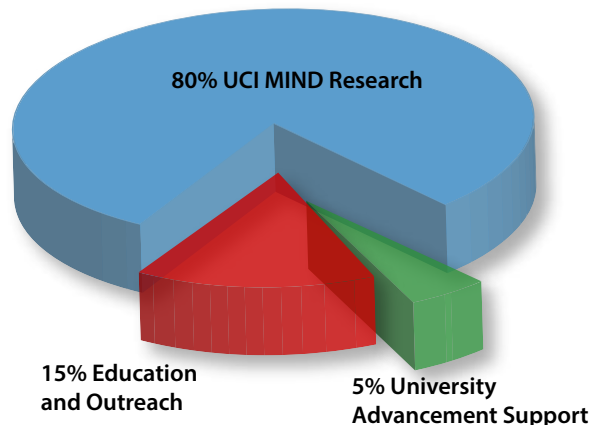
The cost of providing care for Alzheimer's disease patients is also higher than that for cancer or heart disease patients. It is expected to rise to levels that our nation will not be able to sustain.<sup>2</sup>

### SOURCES OF FUNDING

Over 84% of the funding for UCI MIND research comes from public sources, that is, federal and state grants and awards. An additional 9% is from private grants, contracts, and other sources.

Individuals, along with family and corporate foundations, currently provide an important 7% of the income for UCI MIND research. This private funding is vital to the growth of UCI MIND. Private donors, who make gifts of all sizes, allow UCI MIND to allocate funds to move research projects ahead and give young scientists with promising concepts an opportunity.

This 7%, and growing, portion of our research funding may be used in the following critical ways:



- To fund junior investigators who have promising research ideas which have been approved by UCI MIND faculty leadership
- To purchase vital research equipment
- To fund pilot projects that will test new ideas or “out-of-the-box” research concepts
- As “bridge” funding for researchers whose grant period will end before newly awarded funding is appropriated
- For clinical research involving participants at the UCI MIND Memory Assessment and Research Center

### HOW RESEARCH DONATIONS ARE SPENT

The chart above represents how charitable donations for UCI MIND research from individuals, as well as family and corporate foundations, are spent. Comprising 7% of the total income for research at UCI MIND, 80% of these donations are used directly for research; 15% fund educational programs, workshops, outreach and fundraising; and 5% offsets University Advancement support.

1. Coy, P. (2013, April 25). Alzheimer's: The Costliest Killer. Retrieved from <http://www.businessweek.com/articles/2013-04-25/alzheimers-the-costliest-killer>

2. Hurd, M., Martorell, P., Delavande, A., Mullen, K., & Langa, K. (2013). Monetary Costs of Dementia in the United States. *New England Journal of Medicine*, 368, 1326-1334.

# DONATIONS *from March 2014 to August 2014*

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Lt. Col. Harlan Q. Leonard, Jr.	Mr. Hank Seman	Ms. Mina Zivkovic
	Drs. Ronnie Hanecek and Bert Semler	Ms. Lisa J. Zupan

## A New Year, New Taxes

With tax season upon us, there are a number of tax changes that might affect you. You could find yourself paying a higher tax bill, even if nothing changed for you personally last year (income, marriage, financial situation, etc.).

While you can't do anything about last year, you can resolve to take some steps to help you mitigate your taxes this year.

## Resolve to Save on Taxes This Year and Help UCI MIND

A quick look at tax changes within the last two years and their potential impact on your income.

### IF YOU ARE AN INDIVIDUAL

With more than:	You pay:
\$200,000 in income	0.9% Medicare tax
\$200,000 in modified adjusted gross income	3.8% Medicare surtax on net investment income
\$400,000 in taxable income	39.6% top marginal income tax rate

### IF YOU ARE A MARRIED COUPLE

With more than:	You pay:
\$250,000 in income	0.9% Medicare tax
\$250,000 in modified adjusted gross income	3.8% Medicare surtax on net investment income
\$450,000 in taxable income	39.6% top marginal income tax rate

Call us today at (949) 824-6454 to learn more about what you can do to reduce your taxes and make a positive impact in our community.

## FUTURE OF ALZHEIMER'S, CONTINUED FROM PAGE 4

Teaching audience members how to face AD boldly and with dignity, Roger, whose wife has mild AD, shared the daily mantra that helps them cope: "We have the 4 Cs we adopted some time ago: We didn't Cause it, we can't Control it, we can't Cure it, but we can Choose to have a good day."

The afternoon's Research and Clinical Tracks offered attendees a wide variety of topics to select from. Attendees had the opportunity to hear from UCI MIND scientists and clinicians, including Dr. Kim Green on microglia as a therapeutic target in AD, Dr. Michael Yassa on the use of imaging as a research tool, and Dr. Aimee Pierce on the effects of bilingualism on the brain. Additionally, Dr. Thomas Montine of the University of Washington reviewed new neuropathological guidelines for the diagnosis of AD and related dementias, and Dr. Tracy Young-Pearse of Harvard Medical School described progress in AD-related stem cell research.

Twenty-five years ago, in 1990, when Dr. Carl Cotman, founding director of UCI MIND, started this annual conference, dementia was being diagnosed late, often not until moderate-to-severe impairment was evident; we had yet to discover the first medication for AD symptoms; and no significant thought was being given to prevention. In 25 years, we have come far, with reliable biomarkers

aiding in earlier identification and accurate diagnosis, new drug targets being identified and aggressively tested, and increasing evidence that lifestyle strategies, such as staying physically, mentally, and socially active, can reduce risk for dementia. With effective treatment and prevention strategies closer in our reach, and courageous families speaking out, this forward-looking conference created hope for all in attendance.

**To view conference presentations, go to [www.mind.uci.edu/2014presentations/](http://www.mind.uci.edu/2014presentations/)**



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## Research Today. Hope Tomorrow.



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*Editor: Cordula Dick-Muehlke, Ph.D.*  
*Layout: Marcelo Soares*



### Events Calendar

#### **Tues., February 24, 2015**

Ask the Doc Forum in Buena Park  
9:30 a.m. - 11:00 a.m.

8150 Knott Ave., Buena Park

**RSVP online at:**

**[www.askucimind.eventbrite.com](http://www.askucimind.eventbrite.com)**

#### **Sat., May 16, 2015**

Time of Your Life Gala

Hyatt Regency Newport Beach

1107 Jamboree Rd, Newport Beach

**Save the Date!**

For additional information about any of these events, please contact Marcelo Soares at 949-824-9896 or [mpsoares@uci.edu](mailto:mpsoares@uci.edu)

Visit [www.mind.uci.edu](http://www.mind.uci.edu) for updates on future events.

### Save the Dates for the 2015 Family Education Series

#### **Tues., March 10, 2015**

Alzheimer's Disease

& Other Dementias:

What Does the Diagnosis Mean?

4:30 p.m. - 7:00 p.m.

#### **Tues., September 8, 2015**

Managing Everyday Challenges

in Alzheimer's Disease:

Behavioral and

Communication Strategies

4:30 p.m. - 6:30 p.m.

#### **Tues., June 9, 2015**

Advances in Dementia Treatment:

Current and Future Medications

4:30 p.m. - 6:30 p.m.

#### **Tues., November 10, 2015**

Reducing Your Risk for

Alzheimer's Disease:

Lifestyle Changes and More

4:30 p.m. - 6:30 p.m.

**RSVP online for the first workshop on March 10, 2015 at**

**[www.familyedseries.eventbrite.com](http://www.familyedseries.eventbrite.com)**

*To be held at the University Club on the University of California, Irvine campus*