UC Irvine Institute for Memory Impairments and Neurological Disorders

MIND Matters

A quarterly publication of UCI MIND

Summer 2019

UCI MIND Scientists Discover Exercise Can Reprogram Genes

It is increasingly recognized that exercise builds brain health. At a fundamental level, brain structure and function depend on the expression of the brain's genes, the blueprints for the brain's cells.

In a recent paper published in the journal *Neurobiology of Aging*, Carl Cotman, Nicole Berchtold, and colleagues demonstrated that in the brains of healthy older people, exercise reprograms gene expression patterns to a more youthful state, even in cognitively normal people, ages 75 to 100 years old. Genes that were particularly targeted are those that boost cellular energy production and build synaptic connectivity, suggesting mechanisms by which exercise rejuvenates brain health and slows cognitive aging. Their study is the first to report that exercise can reprogram gene expression in the human brain of cognitively healthy older individuals. In practical terms, this finding should encourage exercise participation for those who are sedentary.

Dr. Cotman is currently leading a national clinical trial, the EXERT study, to evaluate whether moderate to high intensity exercise can improve cognition in older adults with memory concerns. To learn more about the EXERT study, call **949.824.0008** or email **research@mind.uci.edu**.

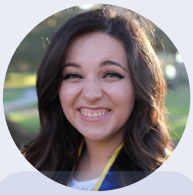
Contributed by Carl W. Cotman, PhD (center) and Nicole C. Berchtold, PhD (right), pictured with Maria Shriver (left). Dr. Cotman is the Founding Director of UCI MIND and Distinguished Professor of Neurology and Neurobiology and Behavior. He is internationally recognized for his contributions on how exercise builds brain health. Dr. Berchtold is an Associate Project Scientist at UCI MIND in Dr. Cotman's laboratory, which studies the mechanisms causing neuronal degeneration in Alzheimer's disease and the development of interventions to promote successful aging. *Photo credit: Katja Heinemann/HBO*

Please join us in welcoming talented new faculty and staff members to help further our mission:

Daniel Nation, PhD
joins UCI from USC and serves as Associate Professor of Psychological Science in the UCI School of Social Ecology. Dr. Nation's research examines the role of vascular factors in cognitive aging with an aim to improve early detection and identify targets for potential new therapies.

Andre Obenaus, PhD
is a Professor of Pediatrics and Director of the Preclinical and Translational Imaging Center in the UCI School of Medicine. His research focuses on neuroimaging of disease, including Alzheimer's disease and neuro-repair using stem cells.

David Sultzer, MD
joins UCI after more than 20 years at UCLA and the West Los Angeles VA Hospital and serves as Professor of Psychiatry and Human Behavior in the UCI School of Medicine. Dr. Sultzer is internationally recognized for his research activities to better understand the phenomenology, pathophysiology, and treatment of Alzheimer's disease. In his role, Dr. Sultzer will lead UCI MIND's clinical research operations, including trials of new treatments.



Alyssa Harris
Psychometrist

Morgan Baumgartner
Asst. Clinical Research Coordinator

Mary Nguyen
Clinical Research Recruitment Coordinator

Kelsey Leavy
Tissue Repository Coordinator

Justine Silva
Tissue Repository Coordinator

From the Director

Joshua D. Grill, PhD

Dear Friends of UCI MIND,

We hope you are enjoying a pleasant and restful summer. This summer, as you see below, UCI MIND researchers were busy playing a prominent role in the annual Alzheimer's Association International Conference. More than 30 faculty, staff, and trainees presented their important work, including an exceptional plenary lecture by Dr. Ruth Benca, attended by several thousand researchers from around the globe.

In academia, summer also invariably means saying goodbye. This summer, we send off some of our outstanding staff members, Ryan Bohannan, Chad Caraway, Vanessa Lin, and Ivy Nguyen, who resume their scholarly pursuits in graduate and medical education. These remarkable young people have held important positions at UCI MIND, and you may have had the chance to get to know them yourself.

We are proud of what they have learned in their time with us and excited to follow their careers. A new and impressive group of staff members join us as a result, as well as several new distinguished faculty members (page 1). As our team grows, we increase our research productivity allowing us to make a bigger, faster difference in the fight against Alzheimer's disease and other neurodegenerative conditions—our singular pursuit.

What makes UCI MIND exceptional is that each faculty member brings a unique expertise and research program, such as the study of exercise (page 1) or sleep (page 3), facilitating innovative collaborations here at UCI MIND. And as ever, recruiting and maintaining leading faculty, funding innovative research, and training the next generation of researchers are made possible by strong support from the local community. We are excited to honor some of those supporters at the 10th annual UCI MIND gala (page 3).

UCI MIND @ #AAIC19

UCI MIND was well-represented at the Alzheimer's Association International Conference in Los Angeles in July, where 6,000 researchers from more than 70 countries gathered to share new ideas and progress in the fight against Alzheimer's disease and related dementias. Some highlights:

Bryce Mander, PhD, presented research using local slow-wave measures during non-REM sleep to track beta amyloid status.

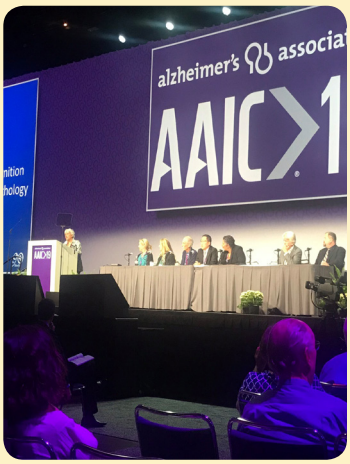
Ruth Benca, MD, PhD (right), presented a distinguished plenary lecture on the state of sleep medicine research in Alzheimer's disease and brain health.

The MODEL-AD team led by UCI MIND investigators (left), presented over a dozen projects sharing the latest advances toward a next generation mouse model for Alzheimer's disease.

Chelsea Cox, MPH, MSW, presented research on attitudes toward preclinical Alzheimer's disease trials based on interviews with participants in the UCI C2C Registry.

Ira Lott, MD, Liz Head, PhD, and Mark Mapstone, PhD, played a prominent role in discussion about the state of Alzheimer's disease research in individuals with Down syndrome.

Claudia Kawas, MD (right), participated on an esteemed panel discussion of a newly identified pathological cause of dementia.



Two postdoctoral fellows, Lindsay Hohsfield, PhD (below right), and Davis Woodworth, PhD (below left), received awards for the best posters among all postdoctoral trainees in the entire conference – Lindsay presenting work on the role of microglia in Alzheimer's disease, and Davis presenting work on imaging of hippocampal sclerosis.

New FDA Black Box Warning for Insomnia Medications

The U.S. Food and Drug Administration (FDA) recently required black box warning labels be added to some sleep medications commonly used to treat insomnia, including eszopiclone (Lunesta), zaleplon (Sonata), and zolpidem (Ambien, Ambien CR, Edluar, Intermezzo, Zolpimist). The decision was based on reported incidents of individuals engaging in activities during sleep while on these medications, including sleep walking, sleep driving, sleep eating, and sleep cooking. On rare occasions, these symptoms have resulted in serious injuries or life-threatening incidents, which has led to the inclusion of the black box label. The FDA has also issued a contraindication for use of these medications in any individual that has already experienced these behaviors while taking these medications.

Since insomnia is a fairly common sleep disorder, particularly in older individuals, it is important for both the medical community and the general population at large to know that the American Academy of Sleep Medicine (AASM) has already indicated that the primary intervention for insomnia is not sleep medications but cognitive behavioral therapy for insomnia (CBT-i). Sleep medications, such as those now including black box labels, should only be implemented in those who cannot undergo CBT-i, have ongoing symptoms following CBT-i, or as a temporary adjunct supporting CBT-i. Use of such medications should only occur after careful consideration with a board-certified sleep medicine specialist. If you or someone you know has concerns about sleep, consult a physician or call UCI Sleep Medicine Services at **714.509.2230**.

Contributed by Bryce Mander, PhD, Assistant Professor of Psychiatry and Human Behavior. Dr. Mander is a leading expert in the neuroscience of sleep and brain health. His research looks at how sleep disturbance impacts brain function, thinking, and memory in older adults, particularly those at risk for dementia.

10TH ANNUAL UCI MIND GALA

A December to Remember

DECEMBER 7, 2019 • BALBOA BAY RESORT

The 2019 Gala is presented by the Brethren Community Foundation. We are excited to announce this year's honorees!

UCI MIND HONOREE, Harriet Harris is a dedicated business owner, philanthropist, wife, mother, and grandmother. Professionally, Harriet has a strong background in the homebuilding industry and currently serves as President of Harris Taylor Management, Inc., a property management company handling family-owned real estate throughout Southern California. Personally, Harriet is devoted to the family she has built with her husband, Bill, and has committed a tremendous amount of support to UCI MIND so that one day, her grandchildren can live in a world without Alzheimer's disease.

COMMUNITY LEADERSHIP HONOREE, Betty's Foundation for the Elimination of Alzheimer's Disease is a family-operated nonprofit organization led by Holly, Clint, and Karah Woesner (image, left to right). The Woesner's established the Foundation in 2008 in honor of Clint and Karah's grandmother Betty, who passed away in 2012 after a 16-year battle with Alzheimer's disease. Since inception, the Foundation's grassroots, 100% volunteer fundraising efforts have resulted in over $85,000 raised for Alzheimer's disease research, including support of UCI MIND investigators.

To learn more, please visit **gala.mind.uci.edu** or contact Linda Scheck at **949.824.3251** or **LScheck@uci.edu**

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Join national experts on October 25, 2019 at the Irvine Marriott!

30 Years of
DISCOVERY
HOPE
on the Horizon

ADMISSION
$100 General Admission
$200 Professional Admission (5 CEU)

INFORMATION & REGISTRATION
conference.mind.uci.edu

QUESTIONS
Email: **conference@mind.uci.edu**
Phone: **949.824.9896**

AGENDA

Lessons Learned of Mice (& Men)
Frank LaFerla, PhD
University of California, Irvine

Advances in Clinical Diagnosis
David Sultzer, MD
University of California, Irvine

Gifted Brains Yield Priceless Gains
Julie Schneider, MD, MS
Rush University

Brain Scans & Biomarkers
William Jagust, MD
University of California, Berkeley

Panel: Hope on the Horizon
Moderator: Joshua Grill, PhD
University of California, Irvine

Detection in the Digital Era
Rhoda Au, PhD, MBA
Boston University

Risk & Prevention Across the Lifespan
Rebecca Gottesman, MD, PhD
Johns Hopkins University

For a list of upcoming community events, visit www.mind.uci.edu/calendar or call 949.824.9475