

# MIND Matters

WINTER 2020

## SPECIAL FEATURE

### 25 years of discovery

The year was 1995. Amazon sold its first book online, the “Macarena” went viral, and UCI MIND was established as an Organized Research Unit, or ORU.

What is an ORU? An ORU is a unique and competitive distinction on UCI’s campus, reserved for interdisciplinary research programs tackling critical topics through collaborative efforts.

To facilitate new research initiatives across the UC system, ORUs rarely receive support past three five-year cycles. But, because Alzheimer’s disease and related dementias (ADRD) are escalating healthcare crises and because of UCI MIND’s track record of research discoveries and community impact, the University has sustained support for this one-of-a-kind Institute, now beginning its 25<sup>th</sup> year.

As eloquently penned by Founding Director Carl Cotman, PhD in the original ORU application: “Discovering how some individuals live the last years of life unhindered by debilitating cognitive impairment has the potential to extend to others the same privilege. Other medical advances have added years to life; the goal of our program is to put life into years.” This vision remains at the heart of UCI MIND’s mission.

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UCI MIND Founding Director, Dr. Carl Cotman



Dear Friends of UCI MIND,

Happy New Year from the faculty, staff, and trainees of UCI MIND. 2020 promises to be an exciting and important year in the mission to rid the world of Alzheimer's disease and other dementias. This is the 25<sup>th</sup> year that UCI MIND has held the prestigious distinction of an Organized Research Unit on the UCI campus (p. 1, 3). In many ways, our organization ideally fulfills this campus structure, which is meant to bring together experts from various corners of the campus to work together to enhance a research mission. We hope you will join us as we celebrate our anniversary throughout 2020. Numerous events are planned, and the year of celebration will culminate with our annual *A December to Remember* Gala on December 5<sup>th</sup>.

The 2019 Gala was our most successful ever, thanks to the leadership and commitment of our honorees, Harriet Harris and Betty's Foundation, as well as numerous generous event sponsors (p. 4). Philanthropy remains vital to our mission, allowing

us to bring more investigators into our work and permitting innovative research that might otherwise not be possible (p. 6-7). Leaders like Harriet Harris and Keith Swaine (p. 5) have brought UCI MIND to new heights in this arena.

Lastly, every year we say goodbye to patients, caregivers, and champions of our cause. Already in 2020, we have lost a remarkable partner, Frieda Caplan. A tiny piece of Frieda's story is told on page 7 and our Blog. We are grateful to Frieda and thousands of others who have donated their time to helping advance our understanding of Alzheimer's disease and related dementias.



*Joshua D. Grill*

**Joshua D. Grill, PhD**  
Director, UCI MIND

## Faculty members

### Anatomy & Neurobiology

Aileen Anderson, PhD  
Tallie Baram, MD, PhD  
Christine Gall, PhD, Chair  
Kei Igarashi, PhD  
Gary Lynch, PhD  
Steven Schreiber, MD  
John Weiss, MD, PhD  
Xiangmin Xu, PhD

### Chemistry

James Nowick, PhD

### Developmental & Cell Biology

Ali Mortazavi, PhD  
Diane O'Dowd, PhD

### Epidemiology

Maria Corrada, ScD  
Karen Edwards, PhD, Chair  
Daniel Gillen, PhD

### Medicine

Masashi Kitazawa, PhD  
Steven Tam, MD

### Molecular Biology & Biochemistry

Charles Glabe, PhD  
Andrea Tenner, PhD

### Neurobiology & Behavior

Mathew Blurton-Jones, PhD  
Jorge Busciglio, PhD  
Carl Cotman, PhD  
Christine Gall, PhD  
Kim Green, PhD  
Joshua Grill, PhD  
Claudia Kawas, MD  
Frank LaFerla, PhD, Dean  
Michael Leon, PhD  
Craig Stark, PhD  
Vivek Swarup, PhD  
Leslie Thompson, PhD  
Marcelo Wood, PhD, Chair  
Michael Yassa, PhD

### Neurology

Tallie Baram, MD, PhD  
Maria Corrada, ScD  
Carl Cotman, PhD  
David Cribbs, PhD  
Malcolm Dick, PhD

### Neurology (continued)

Mark Fisher, PhD  
Lisa Flanagan, PhD  
Claudia Kawas, MD  
Ira Lott, MD  
Mark Mapstone, PhD  
Tahseen Mozaffar, MD, Int. Chair  
S. Ahmad Sajjadi, MD, PhD  
Steven Schreiber, MD  
Gaby Thai, MD  
John Weiss, MD, PhD  
Michael Yassa, PhD

### Pathology & Laboratory Medicine

Elizabeth Head, PhD  
Ronald Kim, MD  
Edwin Monuki, MD, PhD, Chair  
Mari Perez-Rosendahl, MD

### Pediatrics

Tallie Baram, MD, PhD  
Virginia Kimonis, MD  
Ira Lott, MD  
Andre Obenaus, PhD

### Physical Medicine & Rehabilitation

Aileen Anderson, PhD  
Brian Cummings, PhD

### Physiology & Biophysics

Kevin Beier, PhD

### Psychiatry & Human Behavior

Ruth Benca, MD, PhD, Chair  
Joshua Grill, PhD  
Gary Lynch, PhD  
Bryce Mander, PhD  
Joan Steffan, PhD  
David Sultzer, MD  
Leslie Thompson, PhD  
Michael Yassa, PhD

### Psychological Science

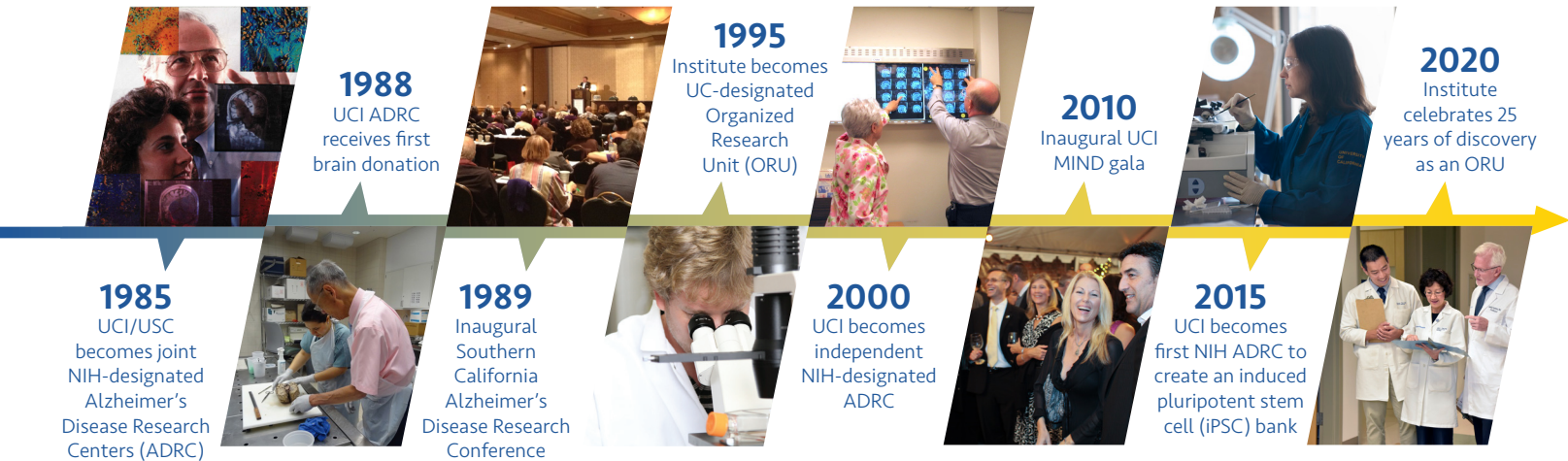
Daniel Nation, PhD

### Radiation Oncology

Charles Limoli, PhD

### Statistics

Daniel Gillen, PhD, Chair  
Bin Nan, PhD



In 1995, over 25,000 people were afflicted with ADRD in Orange County, and the cost to the U.S. healthcare system was \$80 billion a year. Each of these numbers has more than tripled over the lifespan of UCI MIND, a frustrating reality that fuels our determination to do more, faster.

To this end, we continue to grow our interdisciplinary team and prioritize training students so that more researchers from diverse backgrounds are collaborating to answer important scientific questions. Since its inception, UCI MIND has more than doubled its faculty researchers, now representing 16 academic departments at UCI (p. 2). The Institute has formally trained over 300 graduate students and postdoctoral scholars in ADRD. As our team has grown, so has our research productivity and success in securing more grant funding.

While our capacity and knowledge has expanded over the past 25 years, there is still much work to be done to achieve our mission of a world without ADRD. With the support of our University and partnership with our local community, the future is bright for UCI MIND.

As an ORU in 2020 and beyond, the Institute will pioneer improved disease models, develop new treatment targets, and conduct the most promising clinical trials.

Since 1995:

**\$150+ million**  
in NIH grant funding

**1,000+**  
brains donated by research participants

**1,500+**  
publications of research discoveries

**300+**  
new scientists trained by UCI MIND faculty

Leadership:

- 1995-2009**  
Carl Cotman, PhD
- 2009-2014**  
Frank LaFerla, PhD
- 2014-2016**  
Andrea Tenner, PhD
- 2016-2018**  
Frank LaFerla, PhD/  
Joshua Grill, PhD
- 2018-present**  
Joshua Grill, PhD





# 10<sup>th</sup> Annual Gala receives record support



UCI MIND Honoree, Harriet Harris with Director, Dr. Joshua Grill

UCI MIND raised a record net total of \$473,000 for Alzheimer's research at its 10<sup>th</sup> Annual *A December to Remember* Gala presented by the Brethren Community Foundation. Top sponsors who helped reach this record include Julia and George Argyros, Bill and Harriet Harris, Joe Gonzalez, in honor of Barbara Gonzalez, and Chris and Kathy Taylor.

We are grateful that the work of UCI MIND and this signature fundraising event are increasingly recognized and supported by the local Orange County community, where over 80,000 people are living with Alzheimer's disease. Community support is vital to the cutting-edge research performed at UCI MIND in the race to find a cure.

The UCI MIND Award honoree was Harriet Harris, President of Harris Taylor Management, Inc. "Harriet has had a transformative impact on UCI MIND because of her dedication and commitment to supporting the critical work of the Institute. She helped make the 2019 event the best-attended gala, resulting in a sold-out venue, and it also raised the most funding for UCI MIND's research," said UCI MIND Director, Dr. Joshua Grill.

UCI MIND also honored Betty's Foundation for the Elimination of Alzheimer's Disease with the Community Leadership Award. Betty's Foundation is a family-operated nonprofit established by



Community Leadership Honorees, Karah, Clint, & Holly Woesner

the Woesner family to honor their grandmother Betty, who passed away after a 16-year battle with Alzheimer's. Betty's Foundation has brought a new generation of supporters to the fight against Alzheimer's through innovative programming, such as their *Remember the Music Festival*.

The evening culminated with a live performance by singer-songwriter Ashley Campbell, whose late father, musician Glenn Campbell, suffered from Alzheimer's disease. Ashley's personal story, commitment to raising funds for Alzheimer's research, and incredible talent were a moving highlight for guests of the Gala.

To date, UCI MIND's Annual *A December to Remember* Gala has raised more than \$2 million to fund Alzheimer's research.



Musical Guest, Ashley Campbell

# Why I support UCI MIND

It is humbling to be recognized as the 2019 Orange County Philanthropist of the Year, particularly when I think about the many individuals who are working to make a difference in the world. The OC National Philanthropy Day event brought together Orange County philanthropists and non-profit organizations to celebrate our shared vision of improving our community. This is what drives me. I wish to use my voice to connect people and organizations to achieve more and help others. I have strived to do this over the last five years with my involvement with UCI MIND.

Alzheimer's disease is devastating and its impact on the afflicted and the family is overwhelming. The cost to society is immense and the outlook is for the situation to become dramatically worse over the next few decades.

My wife, Judy, succumbed to Alzheimer's in 2014, and I have committed myself to doing what I can to help find a cure and treatment. For me, UCI MIND offered that opportunity to support efforts that will have an impact.

I wish to say thank you to UCI MIND, Orange County Community Foundation and the other organizations who nominated me for this award.



**Keith Swayne**  
2019 Orange County  
Philanthropist of the Year

## Thank you to our donors



To make a gift, call 949.824.3793  
or visit [www.mind.uci.edu/donate](http://www.mind.uci.edu/donate)

### Gifts of \$100,000+ (since Jan. 2019)

Brethren Community Foundation  
Willard V. Harris, Jr. &  
Mrs. Harriet A. Harris  
Mr. Robert A. Kleist  
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Keith Swayne  
In memory of Elsa C. Watson,  
by the Ray and Elsa Watson  
Charitable Trust  
Women's Alzheimer's Movement

### Gifts of \$50,000+ (since Jan. 2019)

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Mrs. George L. Argyros  
The Crean Foundation  
Draper Family Foundation  
Harris Taylor Family Foundation  
Drs. James B. Pick &  
Rosalyn M. Laudati  
The Leandro P. Rizzuto Foundation

### Gifts of \$5,000+ (since Jan. 2019)

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Joan and Don Beall  
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Elimination of Alzheimer's Disease

### \$5,000+ (continued)

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Mrs. Janet Gianulias  
Mr. Richard R. Godber &  
Mrs. Mary B. Godber  
Mr. Joseph R. Gonzalez  
Harris Taylor Management, Inc.  
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Carole A. Harris, LCSW, PsyD  
Mrs. Julie A. Hill / Anthem

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Patricia Ruth O'Leary  
Mr. and Mrs. Jeff Osborn  
Mr. Michael G. Rademaker

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Leslie Michels Thompson, Ph.D.  
The William K. Applebee  
Family Trust 1995

### UCI MIND Legacy Society

(Donors who have included  
UCI MIND in their estate plans)

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William Robert Chase, D.D.S.  
Ms. Paula Hunter  
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Mrs. Carol Murrell  
Mrs. Carolyn Rorman  
Mrs. Karen Rockel Speros



# Maria Shriver boosts sex disparities research



(Left to Right) Alisha Ballard, Dr. Mathew Blurton-Jones, Dr. Anshu Agrawal, Maria Shriver, Dr. Sunil Gandhi, & Dr. Joshua Grill

In 2017, Maria Shriver's Women's Alzheimer's Movement (WAM), which is committed to helping researchers discover why two out of every three people with Alzheimer's disease are women, and UCI MIND announced a funding initiative to encourage top UCI scientists from multi-disciplinary areas to study sex and gender disparities in Alzheimer's disease.

The goal of the Initiative, funded through philanthropy, is to fund at least one grant each year to quickly make UCI MIND a national hub for this critical area of research. At a press event on campus in January, Shriver and UCI MIND announced the next phase in their partnership:

"While we are still at the beginning stages of understanding how being a woman affects the risk and impact of Alzheimer's disease, we are very pleased to have taken these many steps forward in partnering with UCI MIND and with the researchers and the philanthropists who are committed to finding answers," Shriver said.

## Inaugural Recipients Achieve Additional \$2 Million in Funding

The recipients of the inaugural \$100,000 grant challenge, Mathew Blurton-Jones, PhD and Sunil Gandhi, PhD from the UCI School of Biological Sciences, announced that their initial findings that immune cells of the brain, "microglia," act differently in males versus females, has now earned an additional \$1.9 million multi-year grant from the National Institutes of Health.

## Initiative Attracts Large New Donation

The Initiative also announced a new \$250,000 donation from the Living Legacy Foundation, presented by Alisha Ballard, Vice President and Executive Director of the Foundation. The generous gift will allow UCI MIND and WAM to fund more than one grant competition this year and sustain the Initiative into the future.

## Year Two Recipient Announced

WAM and UCI MIND announced their second \$100,000 grant recipient, Anshu Agrawal, PhD from the UCI School of Medicine. Dr. Agrawal will examine how sex affects inflammation and immunity, a critical element of the research agenda to solve Alzheimer's disease.

# A potential vaccine for Alzheimer's disease?

Alzheimer's disease (AD) is characterized by the accumulation of two hallmark pathologies within the brain – amyloid plaques and neurofibrillary tangles. Together these pathologies lead to the loss of neurons and neuronal connections, driving the progressive cognitive impairments observed in AD patients. Amyloid plaques form through the accumulation of sticky protein fragments known as beta-amyloid (A $\beta$ ). Tangles form when a protein known as tau aggregates within neurons, leading to the destruction of vital transport systems within the cell. Given the importance of these two pathologies in AD, many studies have sought to develop ways to target and reduce either A $\beta$  or tau. Yet unfortunately, phase 3 clinical trials of these approaches have thus far failed to delay disease progression in humans. Strong evidence indicates that these two pathologies interact with one another to drive downstream neurodegeneration. Therefore, a combined therapy that targets both A $\beta$  and tau might be needed to effectively treat AD.

To this end, our team at UCI MIND and the Institute for Molecular Medicine generated a novel combined anti-tau/anti-A $\beta$  vaccine. In collaboration with Mathew Blurton-Jones' lab, we tested the therapeutic efficacy of the vaccine, administered in combination with a specialized immune-stimulating therapy, in mice with AD. The results, recently published in *Alzheimer's Research and Therapy*, suggest that the new vaccination approach could induce strong immune responses against both of the hallmark pathologies of AD. Taken together, these findings warrant further development of this vaccine technology for eventual testing in human AD.



**Hayk Davtyan, PhD**  
Associate Researcher, UCI MIND

## In memory of Dr. Frieda Rapoport Caplan

Dr. Frieda Rapoport Caplan, founder of Frieda's Specialty Produce and a tremendous advocate for Alzheimer's disease (AD) research, passed away at the age of 96 on January 18, 2020. Frieda was a pioneer in many powerful ways. A leader in the U.S. wholesale produce business since 1962, Frieda was the first woman to own and run her own firm. Her specialty was introducing unusual produce to the U.S. market. She brought more than 200 fruits and vegetables from around the world to America. She marketed each new product with instructions on how to prepare and overcame many obstacles through her bold, creative, and gritty style of communicating. She changed the way we eat.

Frieda's connection with UCI MIND began when she visited with a group of female business leaders. She learned that research advances in treatment and care for AD rely on the willingness of people to participate in studies. Frieda asked, "Where can I sign up?" She wanted to make a difference and became a spokesperson, encouraging others to do the same. As a pioneer in this area, as well, Frieda found a way to be a part of helping end AD, including donating her own brain to further research at UCI MIND. UCI MIND joins thousands of others in celebrating the rich life and amazing contributions of our friend, Frieda.



Dr. Frieda Rapoport Caplan



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and Neurological Disorders  
2643 Biological Sciences III  
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## CONTACT US

### General Information

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### Giving Opportunities

949.824.3793  
[ddharper@uci.edu](mailto:ddharper@uci.edu)

### Research Participation

949.824.0008  
[research@mind.uci.edu](mailto:research@mind.uci.edu)



Connect with us  
on social media!

## UPCOMING EVENTS

### Sleep and the Aging Brain

**Ruth Benca, MD, PhD, Director of UCI Sleep Center**

Senator Pat Bates Senior Day OC

Friday, March 13, 2020 | 8:00 am - 12:00 pm

Norman P. Murray Senior Center

24932 Veterans Way, Mission Viejo, CA 92692

RSVP: [seniordayoc.com](http://seniordayoc.com) | 949.598.5850

### ASK THE DOC Panel

**Joshua Grill, PhD, Director of UCI MIND**

**David Sultzer, MD, Geriatric Psychiatrist**

**Daniel Nation, PhD, Neuropsychologist**

**Elizabeth Head, PhD, Neuroscientist**

Tuesday, March 31, 2020 | 4:00 pm - 6:00 pm

UCI Beall Applied Innovation @ the Cove

5270 California Ave #100, Irvine, CA 92617

RSVP: [www.mind.uci.edu/ATD](http://www.mind.uci.edu/ATD) | 949.824.9475



Save  
the date!

### 31<sup>st</sup> Annual SoCal Alzheimer's Research Conference

Thursday, September 10, 2020

Irvine Marriott Hotel

### 11<sup>th</sup> Annual A December to Remember Gala

Saturday, December 5, 2020

Balboa Bay Resort

### 2020 Facebook LIVE Q&A Series

**Guest experts from UCI MIND**

First Friday of every month | 11:00 - 11:30 am PST



Learn more about our upcoming  
events at [www.mind.uci.edu/calendar](http://www.mind.uci.edu/calendar)