

# Department of Psychiatry & Human Behavior

Quarterly Newsletter

Spring 2018

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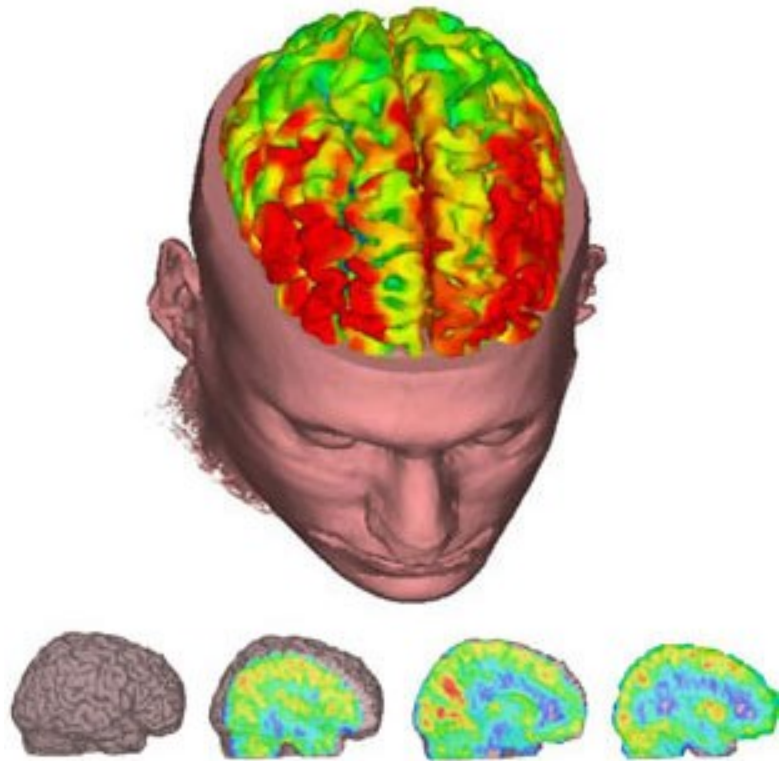
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**Above:** Positron emission tomography (PET) with  $^{18}\text{F}$ -FDG glucose tracer acquired at UCI's Neuroscience Imaging Center and integrated with a T1-weighted magnetic resonance imaging (MRI) structural scan. Cortex iso-surface reconstruction during a continuous performance test shows areas of high  $^{18}\text{F}$ -FDG binding during task.

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UC Irvine Health

Welcome to our inaugural issue of our departmental newsletter. I hope this will be a tool to help highlight our achievements, share our aspirations, and communicate important events and milestones of our colleagues.

As we approach the new academic and fiscal year, it is important to celebrate our recent achievements that will position us for success in the future. Improvements in educational programming and new leadership are already producing dividends and will be a great base for the continued development and expansion of our training programs. After an ambitious ePIC implementation, we are now positioned to make significant strides in our ambulatory operations and facilities as well as our clinical research initiatives. Thanks to all the staff, faculty, and trainees who “put their shoulders” into this transition, and especially to Dr. Safani, who led the transition for us.

It is my desire for us to continue our growth in all our missions—teaching, healing, and discovering—in a sustainable and fiscally responsible manner. Our organization is vibrant and healthy, and the market demand for our services continues to outpace our capacity. We have a bright and capable team of trainees, for whom we will provide the highest quality educational experiences. Dr. McCarron’s TNT program is providing valuable learning and capacity for primary care providers throughout the region to help with this supply and demand mismatch for mental health services in the state.

The coming year will be busy and will hopefully allow us to continue our successes of the past year. Our sleep medicine and sleep research programs are moving from the drawing board and will be a reality this fall. Construction is now underway on our new sleep and outpatient psychiatry facility in Newport Beach. We are also developing UCI’s first combined Medicine/Psychiatry residency program as well as several initiatives to integrate psychiatric training into primary care specialties.

Our research mission is being strengthened by recruitment of new faculty and increased collaboration with, and provision of joint appointments to, faculty on the UCI main campus. Adolescent mental health research has transformed our Child and Adolescent Psychiatry division. We are also building a UCI-wide center for Sleep and Circadian Neurobiology.

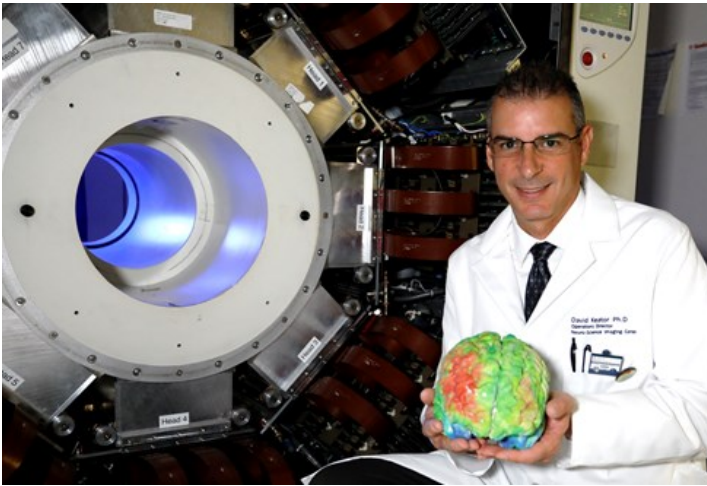
The past several months has been a time of change for all of us. I know change can be difficult, and I want you to know that I appreciate your support and resilience as we reconfigure for the future.



**Dr. Ruth M. Benca M.D., Ph.D.**

**Professor and Chair,  
Department of Psychiatry &  
Human Behavior  
University of California, Irvine**

# Predicting Dementia in Adults with Down's Syndrome



David B. Keator, M.S., Ph.D.  
University of California , Irvine Department of Psychiatry and Human Behavior  
Operations Director , Neuroscience Imaging Center

## Dr. David Keator's

education consists of a B.S. in Biological Sciences from UCI, an M.S. in Computer Science from California State University, Long Beach specializing in software engineering, and a Ph.D. in Computer Science from UCI specializing in machine learning. He is currently the Operations Director of the Neuroscience Imaging Center (NIC) and an Associate Professional Researcher.

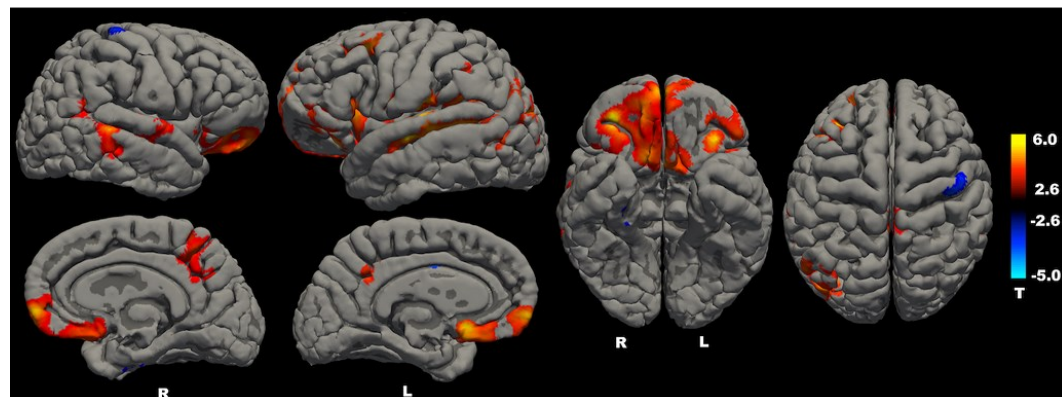
Dr. Keator is engaged in a multi-faceted research program focused in three principle domains: (1) Identification of biomarkers and neuro-phenotypes for psychiatric disorders; (2) Development of machine learning models for problems in neuroimaging; (3)

Developing models and techniques in knowledge representation, management, and retrieval for problems in medicine. In each of these domains Dr. Keator has made significant research contributions, many of which have gained international exposure. Examples include contributions to improving data acquisition quality using a probabilistic graphical modeling approach to improve system tuning in PET, building algorithms to detect functional abnormalities in brain imaging data based on hierarchical models of the ventral visual stream, and the development of the Neuroimaging Data Model (NIDM), a next-generation, semantically-annotated, graph-based metadata format for neuroimaging.

Dr. Keator has been working on brain-based biomarkers for early dementia prediction in Downs Syndrome with Dr. Ira Lott. Down syndrome (DS) is associated with elevated risk for Alzheimer's disease (AD) and lifelong accumulation of beta amyloid ( $A\beta$ ). He hypothesized that the spatial distribution of  $A\beta$  plaque burden predicts transition to dementia in individuals with DS. We acquired  $^{18}\text{F}$ -Florbetapir PET scans from 19 non-demented adult individuals with DS at baseline and monitored them over a four-year period, identifying 5 individuals who transitioned to dementia. Heused machine learning classification to determine features on  $^{18}\text{F}$ -Florbetapir maps that were most predictive of transition. This work resulted in showing that regional spatial patterns of amyloid accumulation could be used to accurately predict which participants would develop clinical dementia in the future. In addition to "AD signature" regions including the inferior parietal cortex, temporal lobes, and the cingulum, we found that  $A\beta$  cortical binding in the orbitofrontal and inferior parietal cortices distinguished subjects who transitioned to dementia from those who did not. This work was recognized by the international community and invited for an oral

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*Right: Participants with Down's Syndrome who transitioned to clinical dementia (n=5) compared to those that did not transition (n=14). Red areas show increased amyloid burden in  $^{18}\text{F}$ -Florbetapir PET scans of transitioned subjects ( $t(14)=2.6$ ;  $p<0.01$  uncorrected,  $p<0.05$  cluster-forming).*





# UCI Psychiatry Taking the Lead to

## Expand a Statewide Psychiatric Workforce

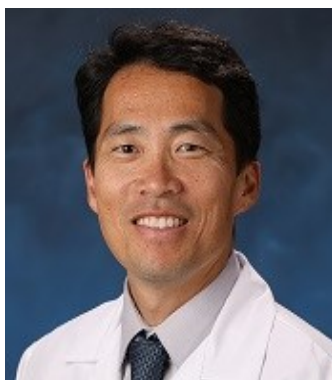


**Robert M. McCarron, D.O.**  
Professor and Vice Chair

**D**epression is now a leading cause of disability in the United States and the demand for psychiatric services is steadily on the rise. The University of California, Irvine and UC Davis has taken the lead to expand statewide psychiatric workforce with the creation of an innovative educational initiative called, Train New Trainers (TNT) Primary Care Psychiatry (PCP) Fellowship. The TNT PCP program began in 2016 with 35 enrolled fellows and is beginning year three with a total of 68 fellows. The fellowship is a one-year, non-ACGME accredited certificate program for primary care trainees and provides (e.g. internal medicine, family medicine, obstetrics/gynecology, emergency medicine, neurology, physician assistants, nurse practitioners) who wish to receive advanced training in

the provision of psychiatric care, as delivered in the busy primary care setting. The curriculum is designed and taught by national experts in psychiatric integrated care (including dually trained faculty in psychiatry and internal medicine or family medicine) and targets how to diagnose and effectively treat the most frequently encountered mental health-related disorders, such as depression, anxiety, substance misuse and others.

The fellowship consists of two in-person conferences, the first of which is a traditional CME conference in which fellows and other attendees learn the basics of “primary care psychiatry” - an overview of mood disorders, anxiety, psychosis, substance use, personality disorders, and chronic pain management. Our kick off conference was held in Las Vegas on January 26 and 27, 2018. The second conference focuses on high-yield exercises involving mental health systems analysis; training on how to train other



**Jaesu Han, M.D.**  
Core Faculty



**Matthew Reed, M.D.**  
Director of Education,  
TNT Primary Care Psychiatry Fellowship

providers; and practical tips on using motivational interviewing and cognitive behavioral therapy in the non-psychiatric setting.

Each month, learners participate in web-based didactics on topics which take them deeper into the engagement, diagnosis, and treatment of common psychiatric disorders. In addition, each fellow is assigned a mentor with whom they have monthly individually tailored mentoring sessions. These sessions included in person meetings, video conferencing and phone calls depending on the location of the fellow and mentor. The mentoring sessions are designed for fellows to discuss the questions and clinical challenges that they are likely to encounter in their practice setting. The final component of the fellowship – the “TNT” portion- focuses on developing skills to disseminate

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## Awards

### **“Assessment of WGS-derived genetic modifiers in differentiated HD—derived iPSCs”**

- Dr. Leslie Thompson
- Hereditary Disease Foundation
- \$75,000/1 Year
- September 2017



Dr. Leslie Thompson

### **“Pathogenic Impact of Huntington Phosphorylation in Huntington’s Disease”**

- Dr. Joan Steffan
- National Institute of Health
- \$377,000/1 Year
- July 2017



Dr. Joan Steffan

### **“Ethnic Influences on Stress, Energy Balance and Obesity in Adolescents”**

- Dr. Uma Rao
- National Institute of Health
- 3.9 Million/5 Years
- August 2017



Dr. Uma Rao

### **“Analysis of an ubiquitin-binding domain within Huntington’s Disease”**

- Dr. Joan Steffan
- Hereditary Disease Foundation
- \$75,000/1 Year
- August 2017



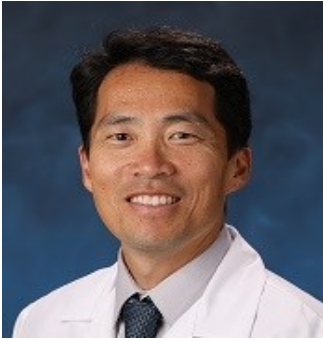
### **“Effects of Childhood Maltreatment on Neurocircuitry in Adolescent Depression”**

- Dr. Uma Rao
- National Institute of Health
- 3.9 Million/5 Years
- August 2017

### **“Prevention of Adolescent Risky Behaviors: Neural Markers of Intervention Effects”**

- Dr. Uma Rao
- National Institute of Health
- 3.2 Million/5 Years
- July 2017

## New Faculty & Staff



**Dr. Jaesu Han M.D.**

**Clinical Professor of Psychiatry**

**From University of California, Davis**

**Professional Interests:**

Interface and integration of primary care and psychiatry as a clinician educator



**Dr. Ariel Neikrug Ph.D.**

**Clinical Health Psychologist**

**From University of Utah**

**Professional Interests:**

Sleep Medicine, Chronic Pain, Coping with Chronic Disease  
& Behavioral Sexual Medicine



**Wendy Cant**

**Program Coordinator for Train New Trainers (TNT) Primary Care Psychiatry (PCP) Fellowship**

**Professional Experience:**

City-wide event planning, recreation management, marketing and social media coordination, budget & sponsorships

## Holiday Party 2017





## Psychiatrists among the "Physicians of Excellence" Recognized by OC Medical Association

**Congratulations!**

**Psychiatry & Human Behavior**

[Anju Hurria, MD](#)

[Andrei Novac, MD](#)

[Atur V. Turakhia, MD](#)

[Lawrence R. Faziola, MD](#)

[Rimal B. Bera, MD](#)

[Robert G. Bota, MD](#)



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### **Dementia**

presentation at the 2017 Alzheimer's and Parkinson's Disease conference. Dr. Keator continues this work with Dr. Lott and others as part of a large U01 grant to develop broad-based, multi-modal risk scores for early dementia prediction.

Dr. Keator has many hobbies he shares with his wife and son. He is an Assistant Scoutmaster for his son's Boy Scout troop, he is an avid surfer and skier, he is a guitar player who became a luthier and now hand makes acoustic guitars, and an amateur car racer who placed third in his class at a recent event.

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### **TNT Fellowship Program**

newfound knowledge and attitudes to other providers and administrators.

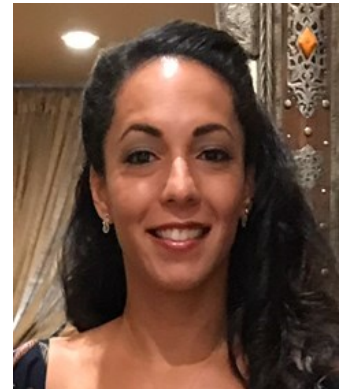
As the program continues, we will continue to monitor both trainee and practice pattern related outcomes. Preliminary pre and post TNT PCP Fellowship results include: increased psychiatric knowledge, increased self-efficacy in mental health, decreased stigmatization of patients with mental illness, increased use of the PHQ-9 and decreased PHQ total scores in those patients who have a TNT PCP Fellowship provider. Fellows agreed they felt more secure with their knowledge in primary care psychiatry after completing the program.

For more information regarding the TNT PCP Fellowship please visit our website at:

<http://www.ucdmc.ucdavis.edu/psychiatry/education/fellowships/tnt-pcp/>

### **New Faculty & Staff**

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**Melissa Silva**

**Program Coordinator for the Psychiatry Training Program**

**Professional Interests:**

**Graduate Medical Education program**