



Winter 2023 Newsletter

 2022 Turken Research Award and Symposium

 Image: The MarkVCID Consortium

 Image: New Additions to the Easton Center

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The Mary S. Easton Center for Alzheimer's Research and Care at UCLA has very active teams working on basic research, drug discovery, biomarkers for early diagnosis and clinical activity including clinical trials, cognitive testing, and patient care.

2022 Turken Research Award and Symposium



By: Keith Vossel, MD, MSc, Center Director

The Alzheimer's landscape has changed considerably over the past year, and scientists at the Mary S. Easton Center for Alzheimer's Research and Care have made substantial contributions to this change. The 32nd Annual Turken Research Award Event held on December 2, 2022, at the UCLA Faculty Center was a chance for our scientists and clinicians to celebrate advances that we have made in the field, as well as consider new challenges and opportunities to work together in the year ahead. This event was held in a hybrid format, and 92 faculty, staff, colleagues, and guests attended, including four featured speakers and 31 poster presenters.

Coinciding with our meeting in December 2022, investigators announced positive results from a phase 3 study of the amyloid-lowering monoclonal antibody lecanemab. The Kagan Clinical Trials Team in the UCLA Easton Center contributed to this pivotal study by enrolling and studying patients in the clinical trial called Clarity AD. We gained valuable experience in monitoring patients and tracking the drug's safety. Our experience with this drug, and continued experience during the open-label extension study, will be important going forward. Lecanemab received accelerated approval from the FDA on January 6, 2023, and is being reviewed for full FDA approval later this year.

Amyloid-lowering therapy is just one of many approaches that will be needed to effectively treat or prevent Alzheimer's disease. The Turken Event highlighted the many outstanding new approaches that our students and early career scientists are investigating in Alzheimer's and related dementias. Our posters had a great mixture of basic science, drug development, and clinical studies and covered a wide variety of molecules and disease mechanisms, including tau, apolipoprotein E, immune cells called natural killer cells and astrocytes, and inhibitory neurons.

Our first speaker was Shino Magaki, MD, PhD, Assistant Professor of Neuropathology, co-director of the Easton Center Brain Bank, and recipient of the 2021 Turken Research Award. Dr. Magaki has been a pioneer in developing new ways to examine tissue and databasing the findings to be optimal for scientists. She is an outstanding teacher of neuropathology, and she trains students, fellows, and faculty through brain-cutting sessions, slide reviews, and clinico-pathological conferences. During her Turken Award year, Dr. Makagi initiated a series of instructive slide reviews with our clinical fellows and other trainees. In these sessions, she presents the gross and histological findings of autopsy cases using a multiheaded microscope where we can all view the slides together. Dr. Magaki has a particular interest in neurodegenerative and cerebrovascular disease, especially Alzheimer's disease and related cerebral amyloid angiopathy. She frequently helps other labs optimize and troubleshoot immunohistologic protocols for their research. During the Turken Event, Dr. Makagi presented updates on the Easton Center Brain Bank, her latest advances and research findings, and discussed opportunities for further collaboration.



Eleanor Hayes-Larson, PhD, MPH, Postdoctoral Fellow in the Department of Epidemiology, received the 2022 Turken Research Award for her outstanding investigation titled "Epidemiologic Approaches to Understanding Social Drivers of Dementia and Dementia Inequalities." Dr. Hayes-Larson graduated from Columbia University with a PhD in Epidemiology. Under the mentorship of Dr. Elizabeth Rose Mayeda, Dr. Hayes-Larson is leading NIH-funded research using rigorous epidemiological methods to determine biological and social causes of Alzheimer's disease and related dementias. We are entering an era of big data in medicine, and Dr. Hayes-Larson is on the leading edge of this field. Her work will identify modifiable risk factors for developing dementia and lead to new approaches to prevent dementia in diverse populations.

Two early-career scientists were selected as Abstract Awardees, and they provided oral presentations of their projects during the meeting. Fumito Endo, MD, PhD presented his work on astrocyte diversity and morphology in Alzheimer's disease. Dr. Endo is an Assistant Project Scientist in Dr. Baljit Khakh's Lab in the Department of Physiology. Dr. Endo studies genes that regulate the shape of astrocytes in mouse models. Astrocytes were once considered glue-like cells, but we now know that they have many important functions in the brain. In recent years, the Alzheimer's field has recognized the importance of astrocytes and their reactive changes in early Alzheimer's disease. Dr. Endo discussed his surprising

discovery that Alzheimer's risk genes could regulate astrocyte shape as well as the influence of astrocytes on neuronal circuits and cognitive functions. Dr. Endo recently published these exciting findings in Science. Anthony Linares, MD, PhD, is a Clinical Fellow in Neurogenetics and Neurobehavior. He is an NIH R25 awardee and works under the mentorship of Dr. Long Cai at Caltech. Dr. Linares was recently awarded a highly competitive training fellowship from the American Academy of Neurology. As a physician-scientist, Dr. Linares is interested in understanding the basic genetic and molecular mechanisms of neurodegeneration. Dr. Linares presented his pioneering studies on characterizing changes in specific cells near amyloid plaques and neurofibrillary tangles in the Alzheimer's disease brain. The talks by Drs. Endo and Linares led to interesting discussions of ways to track changes in astrocyte shape near amyloid plaques and neurofibrillary tangles in the human brain.



We are deeply grateful to Beth Devermont, President and Director of the Sam and Ida Turken Charitable Foundation, for her enduring support and encouragement. Ms. Devermont is intimately involved in supporting early-career scientists at UCLA, and she has been an integral part of the Turken event every year. The annual gift from the Turken Foundation is given through Alzheimer's Los Angeles, and we were honored to have Heather Cooper Ortner, President and CEO of Alzheimer's L.A., in attendance. Ms. Cooper Ortner provided an overview of Alzheimer's L.A.'s outstanding services for patients living with dementia and their families.

The 2022 Turken Day was a big success, and we were excited to be together again in person. Our Center's growth and maturity into a comprehensive program studying many important facets of Alzheimer's and related dementias were on full display.

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"Making" the Risk of Vascular Brain Injury in Dementia: The MarkVCID Consortium



By: <u>Jason Hinman, MD, PhD</u>, Associate Professor and Vice Chair of Research for the Department of Neurology

Cognitive impairment and dementia are often thought to be exclusively associated with conditions like Alzheimer's disease (AD). Certainly, AD is the leading cause of dementia worldwide but there is increasing recognition that damage to brain blood vessels is a key contributor to late life dementia. In fact, some studies have suggested that vascular risk factors like high blood pressure and diabetes present in mid-life can significantly impact the rate of cognitive impairment and dementia in late life. This risk has been estimated to contribute to at least 40% of dementia cases. Importantly, this suggests that attention and treatment of these risk factors

early in life can help to reduce the risk of future dementia. Cerebral small vessel disease (cSVD) affects small blood vessels in the brain, like arteries and capillaries, which are important for moving oxygen and nutrients to cells in the brain. cSVD can cause memory and/or thinking problems and is the second leading cause of dementia worldwide.

A main limitation of understanding the contribution of vascular risk factors to the kinds of brain injury that lead to cognitive impairment and dementia is the lack of good biomarkers available to clinicians. The purpose of the MarkVCID Consortium is to identify and develop robust biomarkers to measure this vascular contribution to cognitive impairment and dementia. The Consortium began in 2016 with \$25M in NIH funding and included 7 centers around the country with expertise in vascular contributions to cognitive impairment and dementia. UCLA Neurology was part of the Consortium together with colleagues at other UC campuses including UC Davis and UC San Francisco. In 2021, the MarkVCID Consortium was refunded by NIH and expanded to 10 leading centers around the country.



Under the leadership of Dr. Jason D. Hinman, Associate Professor, Vice Chair of Research, and Easton Center Member in the UCLA Department of Neurology, several promising blood-based biomarkers to measure vascular contributions to cognitive impairment and dementia have been identified. Work from Dr. Hinman's lab has implicated a series of inflammatory signaling molecules as biomarkers for vascular brain injury including some that are specifically tied to obesity, a key driver of vascular brain injury. As part of the MarkVCID Consortium, Dr. Hinman's research group is also studying the ability of several critical molecules related to new blood vessels as blood-based measures that can predict future cognitive decline attributable to vascular brain injury. During this expanded phase of Consortium activity, the

group is attempting to validate 6 key biomarkers including magnetic resonance diffusion tensor imaging techniques and MRI-based measures of cerebrovascular reactivity as well as other blood-based biomarkers in 1800 patients recruited across the Consortium. These exciting advances will change the landscape for clinicians allowing them to better identify how patient's common vascular risk factors can contribute to cognitive impairment and dementia and allow them to tailor new AD treatments precisely to the patients that need them the most while providing more aggressive control of vascular risk factors in others.

More details on the MarkVCID Consortium are available at <u>www.markvcid.partners.org</u>. The MarkVCID Consortium is actively recruiting patients through the Easton Center. Interested patients can reach out to Ms. Marissa Thirion at (310)206-5178 for details. Read more about Dr. Hinman's work at <u>www.hinmanlabucla.org</u>. For learn more about Dr. Hinman's recent research, please see the following links: Media Posting (<u>https://www.uclahealth.org/why-choose-us/newsroom/lab-notes</u>), Video Interview (<u>https://www.youtube.com/watch?v=1WBZn6l6i9g</u>), Scientific Article (<u>https://www.cell.com/cell-reports/pdf/S2211-1247(22)01740-5.pdf</u>)



Figure from Altendahl et al. *PlosOne* 2020 showing the association of MRI free water with inflammation blood biomarkers (ICS). Free water is one of the imaging biomarkers being evaluated in MarkVCID as an indicator of cerebral small vessel disease associated with cognitive impairment.

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New Additions to the Easton Center

Please join us in welcoming new faculty and staff members to the Easton Center.



Photo: Jennifer Adrissi, MD, MS, Assistant Professor of Neurology

Dr. Jennifer Adrissi is a movement disorders neurologist and health services researcher at UCLA dedicated to improving patient outcomes and access disparities in Parkinson's disease and other neurodegenerative disorders.

Dr. Adrissi received her bachelor's degree from the University of Maryland, College Park in Physiology and Neurobiology and her M.D. from Northwestern University. She completed her Neurology residency and Movement Disorders fellowship at Northwestern University. During her fellowship training, she also received her Master of Science degree in Clinical Research from the Medical University of South Carolina (MUSC). As a fellow, she was accepted into the competitive American Academy of Neurology (AAN) Training in Research for Academic Neurologists to Sustain Careers and Enhance the Numbers of Diverse Scholars (TRANSCENDS) Program and was an NIH Neuro-NEXT fellow for clinical trial development.

Dr. Adrissi is currently dual-appointed as Assistant Professor of Neurology and Internal Medicine (Health Services Research). Her clinical expertise focuses on movement disorders, particularly Parkinson's disease and atypical parkinsonism syndromes such as multiple system atrophy, progressive supranuclear palsy, corticobasal syndrome, and Lewy body dementia. Her research interests include the use of community based participatory research methods to develop community-partnered interventions to improve access to specialized care and clinical trials in Parkinson's disease and other neurodegenerative disorders within the Black community and other historically marginalized communities.



Photo: Ariadna Martinez, MS, CGC, Genetic Counselor, Chang Lab

Ariadna Martinez is a bilingual (Spanish and English) board-certified genetic counselor with experience providing services to diverse patient populations in various clinical areas and work settings. Ariadna began her genetic counseling career as a prenatal genetic counselor at UCLA-Olive View Medical Center. Ariadna then worked at UCLA Neuropsychiatric Institute as a genetic counselor

and research coordinator for genetic studies working with parents of deaf/hard of hearing children as well as deaf/hard of hearing adults. Ariadna then spent several years as a clinical genetic counselor and study manager at UCLA Jules Stein Eye Institute with a focus on inherited retinal conditions. Ariadna subsequently joined the cardiogenetics program at Cedars-Sinai Medical Center, serving individuals and families with various inherited cardiovascular conditions. Ariadna transitioned to working in industry, initially at Ambry Genetics, working on variant interpretation and report writing. Ariadna then joined Invitae Corporation, where she provided clinical support to ordering providers throughout the genetic testing process, telehealth post-test genetic counseling in multiple clinical areas, including neurodegenerative conditions, and led the Genetic Counseling Services Ophthalmology/Deafness subteam. Ariadna is licensed in several states, including California, and is a member of the National Society of Genetic Counselors, Minority Genetics Professional Network, Southern California Genetic Counselors. Ariadna has a Master's Degree in Human Genetics from UCLA and a Master's Degree in Genetic Counseling from California State University, Northridge.



Photo: Sydney Kilgore, BS, Clinical Research Coordinator, Vossel Lab

Sydney Kilgore graduated from UC Santa Barbara in 2022 with a Bachelor's degree in Psychological and Brain Sciences with a minor in Applied Psychology. During her time as an undergraduate, she worked in a lab focused on factors that affect students' academic performance and success. Recently, she completed a year-long honors thesis that tested the effectiveness of social belonging

interventions on students-of-color's academic persistence. She is interested in aging and the brain and hopes to investigate the social and psychological factors that affect healthy aging, such as gentrification and poverty. As an integral part of the UCLA Easton Center, Sydney is excited to combine her passion for racial equity with her academic interest in aging.



Photo: Leopoldo Valiente-Banuet, MS, Health Analyst, Chang Lab

Leopoldo Valiente-Banuet is a Health Analyst in Dr. Tim Chang's lab. Leopoldo started his career in Mexico City, where he was a national researcher in medical sciences associated with the National Center of Blood Transfusion, the Center of Complexity Sciences at the National University, and statistical manager in the Center of Biopharmaceutical Studies. He was recognized as a national expert in

statistical analysis of bioequivalence studies by the Federal Commission for Sanitary Risks (COFEPRIS), which is the regulatory body for healthcare in Mexico, equivalent to the FDA. More recently, he worked for Thermo Fisher Scientific and Cedars-Sinai Medical Center focused on bioinformatic tools to study the HLA complex, the intestinal microbiome, and multiple pipelines for cancer detection. Leopoldo has various hobbies and passions in addition to genomics sciences, and he enjoys working in the context of an innovative and challenging research group, which has certainly found in the Mary S. Easton Center at UCLA.

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Clinical Research Opportunities

If you would like to advance Alzheimer's disease research, please consider being a study participant. Below are the current recruiting trials. For a complete list of enrolling studies, visit our website at <u>https://eastonad.ucla.edu/</u>.

OBSERVATIONAL STUDIES:

- <u>Alzheimer's Disease Neuroimaging Initiative 3 (ADNI3) Protocol</u>
- Alzheimer's Disease Research Center Biomarkers in Neurodegenerative Disease (ADRC-BIND)
- <u>ARTFL-LEFFTDS Longitudinal Frontotemporal Lobar Degeneration (ALLFTD)</u>
- Longitudinal Early-Onset Alzheimer's Disease Study (LEADS)
- Vascular Contributions to Cognitive Impairment and Dementia (MarkVCID)
- <u>Music Stimulation to Improve Cognition (MUSIC)</u>
- <u>National Institute on Aging Alzheimer's Disease Family Based Study (NIA-AD-FBS)</u>

INTERVENTIONAL STUDIES:

- A Study of JNJ-63733657 in Participants with Early Alzheimer's Disease (Autonomy)
- <u>A Research Study Investigating Semaglutide in People with Early Alzheimer's Disease (EVOKE and EVPKE Plus)</u>
- <u>Clinical Trial of Oxytocin for Frontotemporal Dementia (FOXY)</u>
- SUVEN-502 Study

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For more information on our upcoming lectures and events, please visit the Easton Center <u>Community</u> <u>Calendar</u>.

High-Tech and Neurological Disorders (HAND) at UCLA Presents: Neurodegenerative Disorder Awareness Night Date: Thursday, February 16, 2023 Time: 6:00 PM – 8:00 PM (PST) Location: Ronald Reagan UCLA Medical Center (Tamkin Auditorium) 757 Westwood Plaza, Los Angeles, CA 90095

Join HAND at UCLA for an evening with UCLA researchers discussing the various neurological disorders and the research they are conducting, hear accounts from individuals living with such disorders, and visit interactive activity booths to learn more!

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