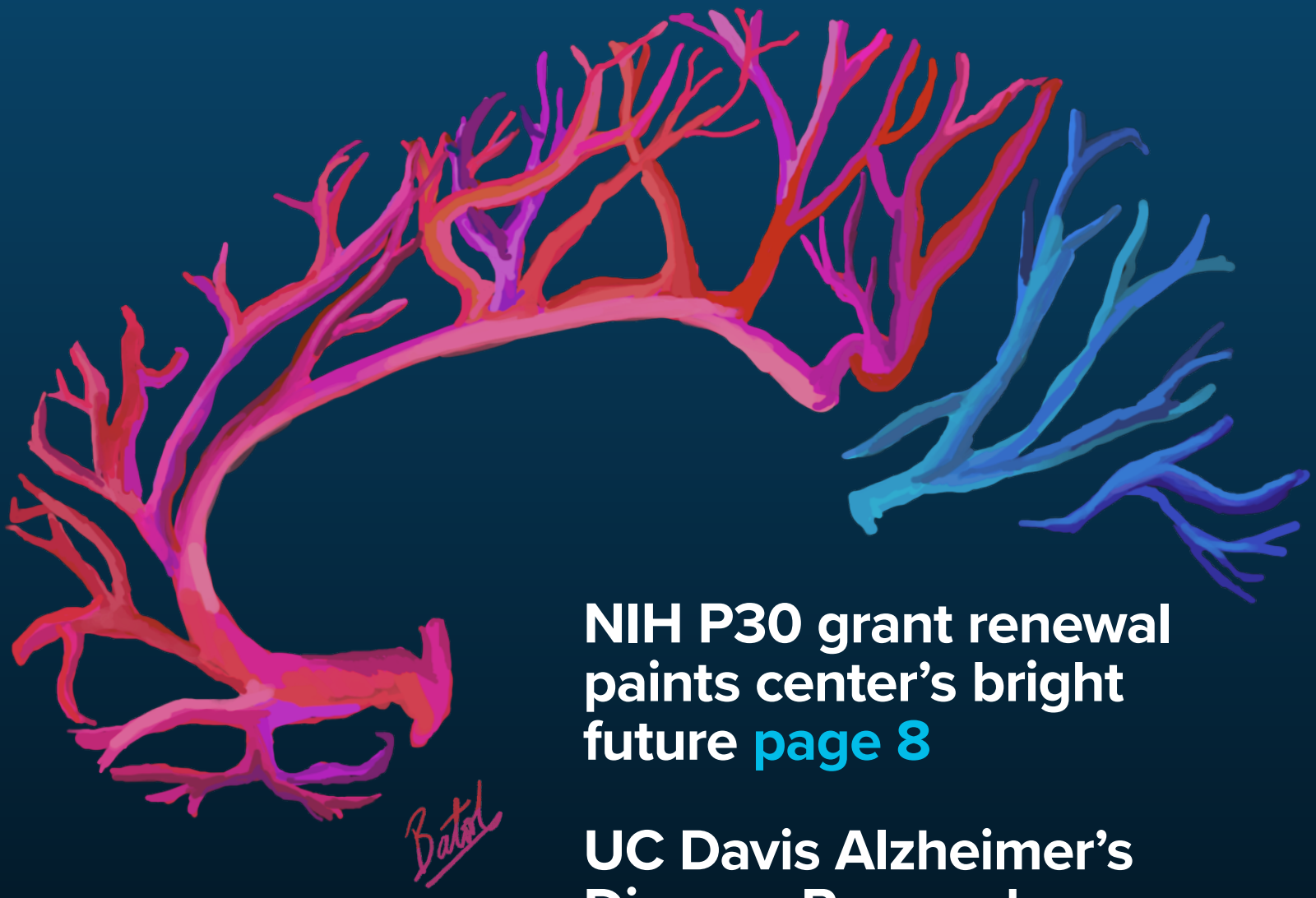
UC DAVIS HEALTH | Alzheimer's Disease Research Center

2025–26 YEAR IN REVIEW



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Smartwatch study finds older adults can accurately judge their mental sharpness in daily life **page 16**



Charles DeCarli, M.D.

Co-director, UC Davis Alzheimer's Disease Research Center

Victor and Genevieve Orsi Endowed Chair in Alzheimer's Research

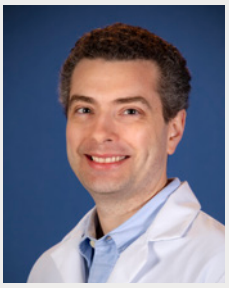
Distinguished Professor, Department of Neurology



Rachel Whitmer, Ph.D.

Co-director, UC Davis Alzheimer's Disease Research Center

Professor, Departments of Public Health Sciences and Neurology



Thomas Wingo, M.D.

Associate Director, UC Davis Alzheimer's Disease Research Center

Professor, Department of Neurology

From the directors

This year, the UC Davis Alzheimer's Disease Research Center (ADRC) celebreates **35 years as a nationally recognized NIH-funded Alzheimer's Disease Research Center** advancing discoveries that improve the understanding, prevention, diagnosis and treatment of Alzheimer's disease and related dementias.

With our **National Institutes of Health P30 core infrastructure grant freshly renewed**, we look forward to the discoveries that await us in the next five years and beyond. The renewal also brings a season of transition in the center's leadership: Co-director Charles DeCarli, M.D., will complete the wind-down of his longtime director role in the center. In parallel, Co-director Rachel Whitmer, Ph.D., is moving as planned into the role of sole center director. The transition will be completed in June 2027.

Dementia remains among the most pressing public health challenges of our time. More than 7 million Americans age 65 and older are living with Alzheimer's disease, and the number of new dementia cases is projected to grow dramatically in the decades to come.

Our center continues to meet this moment through major research investments, including new and renewed studies examining brain health in Hispanic/Latino and Vietnamese American communities. We continue investment in emerging approaches that leverage omics technologies, artificial intelligence, and advanced neuroimaging. The opening of Aggie Square and the growth of our research community, including the addition of new faculty expertise, create exciting opportunities for collaboration and discovery.

One of the fastest-developing frontiers in brain health today is dementia prevention, and as a site of the groundbreaking US-POINTER trial, our faculty, staff and research participants continue to reveal the specific lifestyle changes individuals can make today to enhance brain health now and reduce future risk. The center continues to add community programs and resources to support our collective health.

We are especially proud of the people who make this work possible: Our participants and families, community partners, trainees, faculty, staff, and supporters. Together, we ensure our research reflects the diversity of the communities we live in and serve — and that scientific advances translate into **our shared vision of neurological health for all.**

Thank you for partnering to build on 35 years of progress in our mission to treat, prevent, and ultimately cure Alzheimer's disease and related dementias.

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We envision a world free of dementia as we work toward a lifetime of

brain health for all

through research, training, community education and outreach.



On the cover

Remembering vasculature

Batool Rizvi, Ph.D. (Whitmer Lab)

Understanding brain vasculature is one of Rizvi's research passions as she works at the intersection of modifiable risk factors and age-related brain changes. Impaired blood flow in cerebral arteries can contribute to cerebrovascular disease; individuals can reduce this risk through lifestyle changes.

View more of Rizvi's brain art on Instagram @batoolneuroart.



Strategic partners

National partners

- NIH National Institute on Aging (NIA)
- NIA National Centralized Repository for Alzheimer's Disease and Related Dementias (NCRAD)
- Alzheimer's Association
- National Alzheimer's Coordinating Center (NACC)
- Alzheimer's Disease Research Center (ADRC) National Network

Community partners

- ARI

State and local partners

- California Department of Public Health's California Alzheimer's Disease Centers (CADC)
- City of Sacramento's Ethel MacLeod Hart Senior Center

Campus partners

- UC Davis Health
- UC Davis ADRC Community Advisory Board (CAB)
- Family Caregiving Institute
- Healthy Aging in a Digital World Initiative
- Clinical and Translational Science Center
- Center for Neuroscience



Leadership

Charles DeCarli, M.D.

Co-director, UC Davis Alzheimer's Disease Research Center

Victor and Genevieve Orsi Endowed Chair in Alzheimer's Research

Distinguished Professor, Department of Neurology

DeCarli's research focuses on using advanced brain imaging to study aging, cognitive impairment, Alzheimer's disease and dementia.

Rachel Whitmer, Ph.D.

Co-director, UC Davis Alzheimer's Disease Research Center

Professor, Departments of Public Health Sciences and Neurology

Whitmer's research focuses on using epidemiological methods and population science to reduce inequities in brain aging.

Thomas Wingo, M.D.

Associate Director, UC Davis Health Alzheimer's Disease Research Center

Professor, Department of Neurology

Wingo is a neurologist and scientist researching genetic and molecular causes of Alzheimer's disease and related dementing illnesses.

Core leaders

Sarah Tomaszewski Farias, Ph.D., A.B.P.P.

Clinical Core Leader

Professor, Department of Neurology

Farias is a neuropsychologist with an NIH-funded research program investigating various aspects of cognitive aging.

Danielle Harvey, Ph.D.

Core Co-leader, Data Management and Statistical Core Co-leader

Professor, Department of Public Health Sciences, Division of Biostatistics

Harvey is a biostatistician with expertise on the use of neuroimaging to identify markers of Alzheimer's disease progression.

Brandon Gavett, Ph.D., A.B.P.P.

Core Co-leader, Data Management and Statistical Core Co-leader

Associate Professor, Department of Neurology

Gavett is a neuropsychologist researching how cognitive abilities change in healthy aging and neurdegenerative disease.

Brittany N. Dugger, Ph.D.

Neuropathology Core Leader

Professor, Departments of Pathology and Laboratory Medicine

Dugger is a neuropathologist with expertise in precision medicine approaches to create biomarkers, therapies and disease models.

David K. Johnson, Ph.D.

Outreach, Recruitment and Education Core Leader

Associate Professor, Department of Neurology

Johnson is a clinical neuropsychologist with research interests in healthy brain aging and cognitive decline due to dementia of all types.

Lee-Way Jin, M.D., Ph.D.

Biomarker Core Leader

Professor, Departments of Pathology and Laboratory Medicine

Jin is a neuropathologist and neuroscientist with expertise in the molecular analysis of brain diseases, including Alzheimer's.

Audrey P. Fan, Ph.D.

Neuroimaging Core Leader

Associate Professor, Departments of Neurology and Biomedical Engineering

Fan is an imaging physicist aiming to diagnose cerebrovascular disease and dementia through developing new imaging technologies.

Oanh Meyer, Ph.D.

Research Education Component Core Co-leader

Professor, Department of Neurology

Meyer studies cognitive and mental health disparities in racial and ethnic minorities from the population and individual levels.

Alyssa Weakley, Ph.D.

Research Education Component Core Co-leader

Assistant Professor, Department of Neurology

Weakley is a neuropsychologist researching aging and dementia, cognitive rehabilitation and geron-technology.



Researchers

David Bissig, M.D., Ph.D.

Assistant Professor, Department of Neurology

Bissig is a neurologist with expertise in dementia care. His research focuses on cognitive screening for brain health.

Doris Chen, M.D.

Assistant Professor, Department of Neurology

Chen is a cognitive neurologist who sees research participants at the UC Davis ADRC. Chen also leads the clinical trials unit for drug trials.

Jaclyn Fox, Ph.D.

Assistant Professor, Department of Neurology

Fox's research focuses on cognition in a variety of diagnoses. She implements novel approaches to promote cognitive health in older

Pauline Maillard, Ph.D.

Associate Professional Researcher, Department of Neurology

Maillard is a researcher seeking better understanding of cognitive decline and brain differences in association with vascular risk.

Dan Mungas, Ph.D.

Professor, Department of Neurology

Mungas's research utilizes psychometric methods to develop measures of cognitive decline in diverse older populations.

John Olichney, M.D.

Professor, Department of Neurology

Olichney is a behavioral neurologist researching early diagnosis of neurodegenerative diseases and other higher cognitive disorders.

Vihar Patel, M.D.

Assistant Professor, Departments of Pathology and Laboratory Medicine

Patel is a surgical neuropathologist and neuroscientist researching metabolomics of Alzheimer's disease and brain tumors.

Shraddha Sapkota, Ph.D.

Assistant Professional Researcher, Department of Neurology

Sapkota's research in cognitive aging applies advanced statistical modeling to investigate synergistic associations of biomarkers.

Christina B. Young, Ph.D.

Assistant Professor, Departments of Radiology and Neurology

Young is a neuropsychologist aiming to improve the detection and monitoring of early cognitive decline due to Alzheimer's disease.

Administrative leadership

Stacy Miller

Administrative Director

Martha R. Forloines, Ph.D., CCRP

Director, Clinical Research

Alana Clark

Program Director

Anna G. Schmidt

Executive Analyst to Charles DeCarli, M.D.

Sacramento clinical research staff

Alyssa Abreu
Clinical Research Coordinator

Leslie Alvarez
Assistant II

Keith Anglin
Finance Manager

Claudia Ayala
Clinical Research Supervisor II

Shreyas Aswar
Data Analyst II

Maria Flores Avila
Clinical Research Coordinator

Dayana Banuelos
Clinical Research Coordinator

Marily Barron
Data Analyst II

Faisal Bawahab
Clinical Research Coordinator

Ana Lilia Bernal
Assistant II

Colleen Burke-Pitts
Research Administrator II

Casey Thanh-Hang Castro
Clinical Research Supervisor I

Jacob Conston
Staff Research Associate II

Luz Contreras
Clinical Research Coordinator

Emily Crivello
Clinical Research Analyst IV

Jacopo Di Lucente, Ph.D.
Assistant Project Scientist

Mayra Y. Diaz
Health Educator III

Jessica Enriquez
Anatomical Professional IV

Michelle Ernster
Health Educator III

Cynthia Eva-Silva
Data Clerk

Guadalupe Flores-Marin
Assistant II

Maria Gallegos
Clinical Research Coordinator

Parvaneh Gerami, N.P.
Nurse Practitioner II

Gina Giambruno, M.P.H., MCHES
Health Educator IV

Juan Gonzalez
Community Education Specialist II

Lyndsey T. Guerra
Clinical Research Coordinator

Tessa M. Hafenstein
Clinical Research Coordinator

Sergio Heredia
Clinical Research Coordinator

Nicholas Howard
Research Assistant

Maria Horan
Research Administrator

Priyanka Koppolu
Student Assistant

Emily Kostner
Senior Clinical Research Coordinator

Theodore Lam
Research Data Analyst I

Luu Ky Ha Le
Clinical Research Coordinator

Cathy Liu
Clinical Research Coordinator

Jeannette Lopez
Phlebotomist II

Hoa Ly
Clinical Research Supervisor I

Shreya Maddhali
Student Assistant

Tyler Scott McConnell
Clinical Research Supervisor I

Anika Mehra
Clinical Research Coordinator

Ulises Ruiz Mendiola
Staff Research Associate I

Macaria Mendoza
Clinical Research Supervisor I

Kristine Mondano
Student Assistant

Daisy Nguyen
Assistant Clinical Research Coordinator

Kody Nguyen
Applications Programmer III

Thi Nguyen
Staff Research Associate I

Tien Nguyen
Clinical Research Coordinator

Mitzi Hurtado Orozco
Clinical Research Coordinator

Precious Parks
Assistant Clinical Research Coordinator

Nhu Pham
Assistant Clinical Research Coordinator

Kimberly Pipe
Anatomical Professional IV

Conrado Preciado
Clinical Research Coordinator

Magaly Quinteros
Project Policy Analyst III

Shalini Devi Raj
Clinical Research Coordinator

Jagnoor Randhawa
Clinical Research Coordinator

Ciara Richardson
Senior Clinical Research Coordinator

Maria Rivas
Clinical Research Coordinator

Leandro "Junie" Roquel
Driver

Justin Donald Salts
Clinical Research Coordinator

Hector Hernandez Saucedo
Senior Clinical Research Coordinator

Louise Sevilla
Staff Research Associate II

Welver M. Suarez
Clinical Research Coordinator

Quynh Truc Tran
Clinical Research Coordinator

Erica Sosa
Student Assistant

Itzel Vargas Sotelo
Clinical Research Coordinator

Morgan Tate
Clinical Research Analyst IV

Rita Venua
Clinical Research Coordinator

Galilea Villagrana-Renteria
Student Assistant III

Andrew Weakley
Bioinformatic Supervisor II

Jeannine Logan White
Lab Research Supervisor

Patricia Zapata
Research Administrator

Itzel Zarate
Clinical Research Coordinator

Sitong (Agnes) Zhou-Thomasse, Ph.D.
Assistant Project Scientist

East Bay clinical research staff

Yonas Abraham
Clinical Research Coordinator

Nicole Alexander, M.S.N., N.P.-C.
Nurse Practitioner II

Kristi Ayers
Clinical Research Coordinator

Selene Leal Carillo
Clinical Research Coordinator

Fatima Chavez
Assistant Clinical Research Coordinator

Reham Gaied
Clinical Research Supervisor I

Mark Gandrau
Auto Equipment Operator Senior

Blen Gebremeskel
Clinical Research Coordinator

Nancy Jauregui
Clinical Research Coordinator

Shanette Merrick
Clinical Research Supervisor I

Luiz Mora
Auto Equipment Operator Senior

Gina Monique Morris
Community Education Specialist II

Melinda Peniche
Medical Assistant II

Johanna Rengifo, Ph.D.
Clinical Neuropsychologist

Angie Ortiz
Assistant Clinical Research Coordinator

Edsel Samson
Phlebotomist II

Tsegai Sereke
Clinical Research Coordinator

Meghan Kailynn Sinn
Assistant Clinical Research Coordinator

Andres Soto
Assistant Clinical Research Coordinator

Nirmalbhai Tandel
Clinical Research Coordinator

Welcome new faculty: Christina B. Young

Christina B. Young, Ph.D., brings to the ADRC a unique combination of neuropsychology and PET imaging expertise as she advances efforts to detect Alzheimer's disease earlier and more precisely.

Young's research integrates leading-edge brain imaging with real-world measures of cognition, including smartphone-based assessments and analyses of speech patterns that may reveal subtle cognitive changes before they are detectable with standard tests. She also studies everyday behaviors, such as item misplacement, to develop objective markers of early decline.

Young will leverage UC Davis' EXPLORER total-body PET scanner to investigate how amyloid and tau pathology relate to cognition as well as explore associations throughout the body and brain. She will collect and analyze 200 tau PET images from the diverse women enrolled in the ADRC's Greater Sacramento Women's Brain Health (GROW) Program, led by Rachel Whitmer, Ph.D.



Based at Aggie Square, Young is building a growing lab. "I'm already very happy," said Young. Her space at Aggie Square provides shared equipment and resources that she would be unable to procure on her own as a junior faculty member. "Most of all, my staff and I value the collaborative environment, particularly opportunities to work closely with radiology researchers and others who welcome my team into our vibrant, high-tech research community."



NEWS AND HONORS

NIH grants UC Davis $23 million to continue Alzheimer's research

A legacy of research innovation, community engagement and patient care

The UC Davis Alzheimer's Disease Research Center (ADRC) received a five-year, $23 million P30 grant renewal from the National Institute on Aging (NIA). This funding supports the ADRC's mission of advancing Alzheimer's disease and related dementia research, patient care and community engagement. Charles DeCarli, M.D., is co-director of the center and the grant's principal investigator.

The ADRC aims to develop more precise prevention and treatment for all individuals at risk of dementia and related diseases. This effort includes studying how early and midlife factors can impact brain health. "The center continues its decades-long work through meeting people where they are, in their communities," DeCarli said.

"We are interested in understanding why people age differently. What factors contribute to resilience and what others increase risks?" said ADRC Co-director Rachel Whitmer, Ph.D. Whitmer is a UC Davis Health professor of public health sciences and neurology and the chief of epidemiology. "Examining individual differences in trajectories of brain aging and transitions to dementia can help advance the science of healthy brain aging for everyone."

Why meeting people where they are matters

DeCarli, a distinguished professor of neurology at UC Davis Health, has directed the ADRC for the last 22 years. In 2001, he and UC Davis professors Dan Mungas, Ph.D., and Bruce Reed, Ph.D., put together an NIH grant application to fundamentally change the ADRC's approach of recruiting participants for clinical trials and research studies.

They proposed moving away from a strictly clinic-based specialty recruitment to a hybrid model with half of the participants coming from ADRC's neighboring communities. The approach was novel at the time and meant the ADRC teams would build strong long-term relationships with community partners and stakeholders.

"This approach results in more representative research cohorts, especially from the areas surrounding ADRC's two sites in Sacramento and Walnut Creek," DeCarli said. In 2026, the ADRC moved to almost entirely community-based recruitment. This led to research cohorts with better representation of African Americans and people of Hispanic and Latino heritage. Now, the center is extending its reach to include more people from Asian American communities.

Driving discovery in Alzheimer's and related dementia research

The ADRC team uses various tools to study commonalities as well as individual differences among people. Researchers use advanced imaging technologies and identify blood biomarkers to improve early diagnosis and inform treatment plans.

They also construct and validate assessment scales that reflect participant diversity. Mungas, for example, developed the Spanish and English Neuropsychological Scales (SENAS) that works well with participants of Hispanic and Latino heritage and minimizes cultural and linguistic bias in research. Sarah Tomaszewski Farias, Ph.D., A.B.P.P., also developed the Everyday Cognition (ECog) scale to detect early functional and cognitive changes in older adults.

The ADRC is home to many ongoing clinical trials. For example, it is a primary site of the groundbreaking US-POINTER trial with Whitmer as one of its principal investigators. Early findings from this trial point to specific lifestyle changes individuals can make to enhance their brain health and reduce future risks.

In addition to research, the center offers community programs and resources to support collective health. Also, its research education core, co-led by professors Oanh Meyer, Ph.D. and Alyssa Weakley, Ph.D., serves as a training hub for the next generation of researchers.

NIH awards $15.8 million to UC Davis Health for major Hispanic-Latino brain health study

Multisite research to examine changes in brain imaging, blood biomarkers and cognition over time

The National Institutes of Health has awarded UC Davis Health a $15.85 million grant to expand one of the nation's largest studies of brain aging in Hispanic-Latino communities. Led by neurologist and UC Davis ADRC Co-director Charles DeCarli, M.D., in collaboration with UC San Diego professor Héctor González, Ph.D., co-principal investigator, the research will track brain and cognitive changes in Latino adults from diverse backgrounds to better understand why they face higher rates of mild cognitive impairment and dementia. Researchers will create the most comprehensive long-term dataset on Hispanic-Latino brain aging, with a focus on identifying early signs of memory decline, vascular brain disease, modifiable dementia risk factors, and interactions between social, cultural, environmental and genetic influences.

Landmark Vietnamese American study on dementia reveals new findings, receives $13.3 million NIH boost to expand research

Exploring link between resilience and healthy aging after trauma

A UC Davis-led study of more than 500 older Vietnamese Americans found that resilience may help reduce the long-term mental health effects of war-related trauma. Backed by a new $13.3 million NIH award, researchers will expand the Vietnamese Insights into Cognitive Aging Program (VIP) to examine how trauma, resilience, genetics, brain imaging and Alzheimer's biomarkers influence cognitive aging. Findings suggest psychological strength may lessen depression linked to early adversity and could inform dementia prevention strategies. Oanh Meyer, Ph.D., senior author of the study and leader of VIP, will use the new funding to follow more than 900 participants, creating one of the largest cognitive aging studies in Vietnamese Americans.

Can the 'worried well' detect cognitive decline before objective tests?

UC Davis neurologist Sarah Tomaszewski Farias, Ph.D., A.B.P.P., has received a $3.3 million National Institute on Aging grant to study subjective cognitive decline (SCD), when older adults notice cognitive changes despite normal test results. Research suggests SCD may signal risk for future mild cognitive impairment or dementia. The five-year study will follow nearly 4,000 diverse adults age 55+ to examine how self-reported cognitive concerns, culture, brain imaging and blood biomarkers relate to later cognitive decline. Findings could help clinicians identify early warning signs of Alzheimer's disease and other dementias years before diagnosis.

In 2024-25, 262 UC Davis principal investigators (PIs) were awarded 383 NIH grants. **Our co-directors are among the top 10 PIs in terms of NIH funding**, according to Blue Ridge Institute for Medical Research (BRIMR) NIH funding ranking.

Rachel Whitmer, Ph.D.

$13.4 million
in NIH funding
(in 2024-25)

- Top ranking (#1) for NIH-funded investigators in Public Health Sciences nationwide
- Remained UC Davis' #1 NIH-funded Principal investigator

Charles DeCarli, M.D.

$12.5 million
in NIH funding
(in 2024-25)

- Ranked in the top ten (#9) for NIH-funded investigators in Neurology nationwide.
- Principal investigator with second highest NIH funding at UC Davis.

Learn how NIH research funding fuels innovation and health discovery at UC Davis Health by scanning the QR code.

Rachel Whitmer, co-director, recognized for transformational leadership in research, mentoring

Rachel Whitmer, Ph.D., was recognized with the 2026 UC Davis School of Medicine Dean's Award for Excellence. For the third year in a row, Whitmer is the principal investigator with the largest NIH funding at UC Davis and in public health sciences nationwide.

Whitmer's high-impact discoveries, including pioneering dementia risk scores and establishing long-term links between midlife cardiometabolic factors and later cognitive decline, have reshaped scientific understanding and expanded knowledge of dementia in historically understudied populations.

In addition, Whitmer received an Honorable Mention for the 2026 UC Davis Graduate Studies Distinguished Graduate and Postdoctoral Mentoring Award, a testament to her exceptional commitment to mentoring and supporting graduate student achievement and well-being.

Aggie Square Expands neuroscience research

The UC Davis School of Medicine is a key partner in Aggie Square, the Sacramento innovation district that opened in May 2025. Over the last year, the school began moving in the approximately 350 School of Medicine scientists and affiliated centers that will conduct collaborative research in public health, health policy, neuroscience, cancer, and surgical biomedical engineering, as well as musculoskeletal research.

The U.S. Department of Veterans Affairs, a longtime partner of the medical school, has established dedicated space at Aggie Square to advance joint cancer and neuroscience research.

Developed by Wexford Science & Technology and anchored by UC Davis, Aggie Square is a first-of-its-kind innovation district on the UC Davis Sacramento campus that leverages the university's strengths in research and teaching, industry and the community to accelerate innovation and create opportunities across the region. By co-locating experts and resources, the district promotes collaboration,



shared equipment and strategic investments that increase scientific impact.

Aggie Square is also home to an expanded UC Davis Tech Foundry, which provides expert support and state-of-the-art hardware prototyping capabilities for health innovations and projects from all disciplines. The medical school will occupy about 300,000 square feet of collaborative research and education space at Aggie Square, which will enhance educational opportunities for UC Davis biomedical and health professions students and clinicians with leading-edge anatomical and surgical training capabilities.

East Bay highlights

Advancing brain health through research, education, and community partnership

The UC Davis Alzheimer's Disease Research Center's East Bay site advances Alzheimer's disease and dementia research, clinical trials, education, and outreach across Alameda County and the greater East Bay.

This year, the team expanded research and education efforts in Oakland, Emeryville and nearby communities while encouraging participation from cognitively healthy relatives, spouses, siblings, friends and other support partners. This family-centered approach helps researchers better understand healthy brain aging and promotes brain health education across generations.

Leadership in Alameda County's healthy brain initiative

The East Bay site strengthened its partnership with Alameda County's Healthy Brain Initiative, a public-health effort to promote brain health, reduce dementia disparities, and support people living with dementia and their caregivers. Site Director David K. Johnson, Ph.D., serves on the county's Healthy Brain Initiative Coordinating Committee.

At an April 2026 countywide convening, Johnson presented "Secrets of a Long Good Life," highlighting the importance of physical activity, healthy nutrition, cardiovascular health, sleep and social connection for healthy aging. Recruitment Coordinator Gina Monique Morris also represented the ADRC at a community workshop in Oakland, helping expand awareness of brain health education and research opportunities.

Expanding access and strengthening partnerships

The East Bay team expanded transportation options, extended service hours, and continued offering psychological counseling. Partnerships with community organizations and participation in health fairs, festivals and Alzheimer's awareness events connected residents with resources, promoted healthy aging and increased research participation among historically underrepresented communities.

Sacramento highlights

15th Annual Spanish Mini Medical School: A quinceañera-themed day of learning and connection

The UC Davis Alzheimer's Disease Research Center, Center for Reducing Health Disparities and Clinical Translational Science Center presented the Annual Mini Escuela de Medicina Virtual en Español, an educational program for the Spanish-speaking community.

The event was hosted on Saturday, October 4th, 2025, in Sacramento. This year's program featured expert-led presentations on mental health and well-being, pain management, dementia's impact on patients and caregivers, and cardiovascular health and aging. Over 100 people attended.

2026 Vietnamese mini medical school highlights

The UC Davis Alzheimer's Disease Research Center, Clinical Translational Science Center and Betty Irene Moore School of Nursing presented the Vietnamese Mini-Medical School.

The Vietnamese-language program included presentations on important community health topics, followed by Q&A. Attendees also had access to optional blood pressure and blood glucose screenings.

UC Davis Health infectious diseases specialist Minh-Vu H. Nguyen, M.D., M.S.C., presented on tuberculosis and its impact on the Vietnamese community.

Oanh Meyer, Ph.D., and San Luu presented on Alzheimer's disease, dementia and caregiving, providing information and practical strategies.

35 years of groundbreaking research

2026 marks 35 years of federally-funded high-impact outcomes from the UC Davis Alzheimer's Disease Research Center.

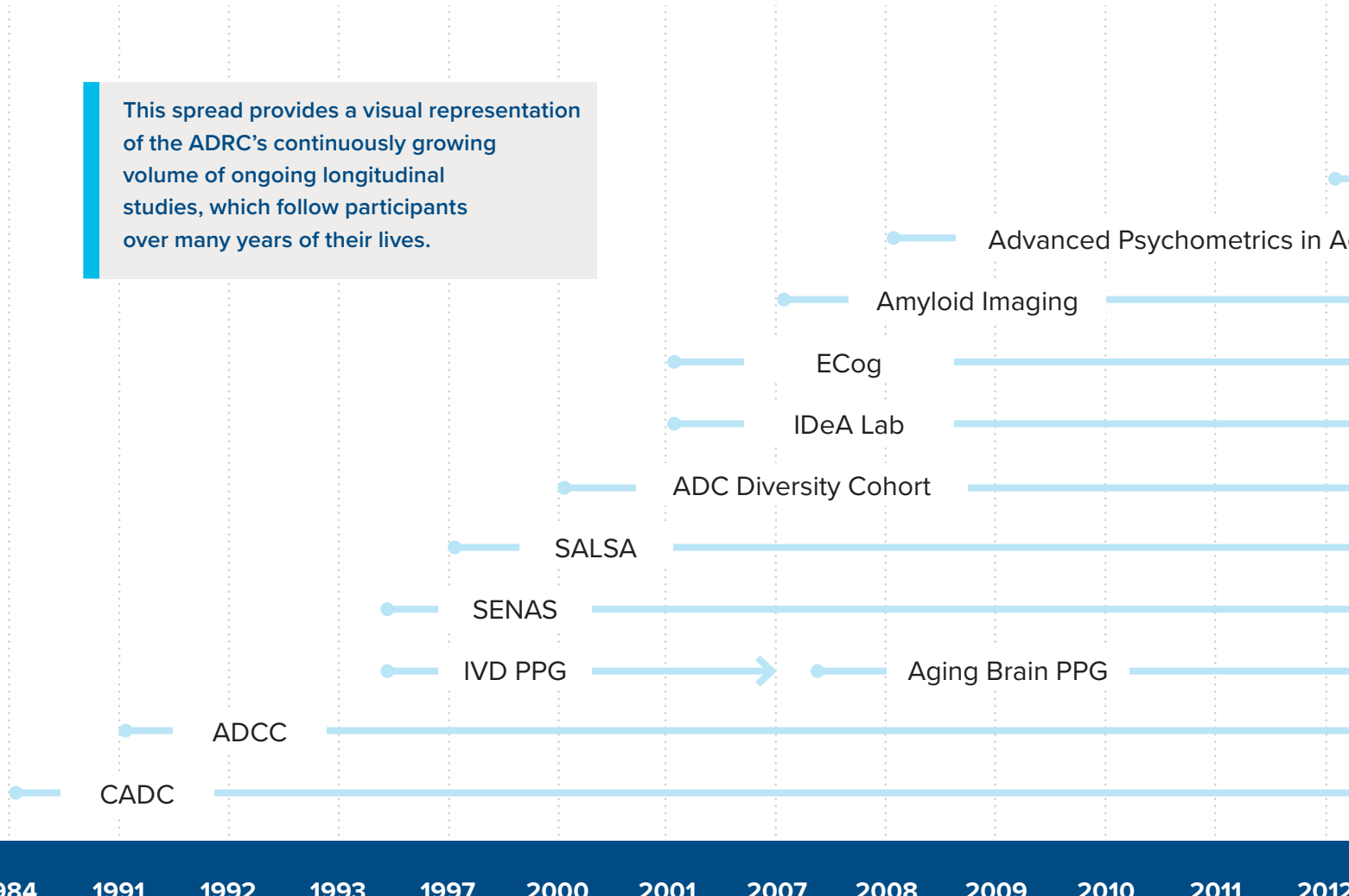
Looking ahead, the center is advancing three complementary priorities to accelerate progress in the science of Alzheimer's disease and related dementias.

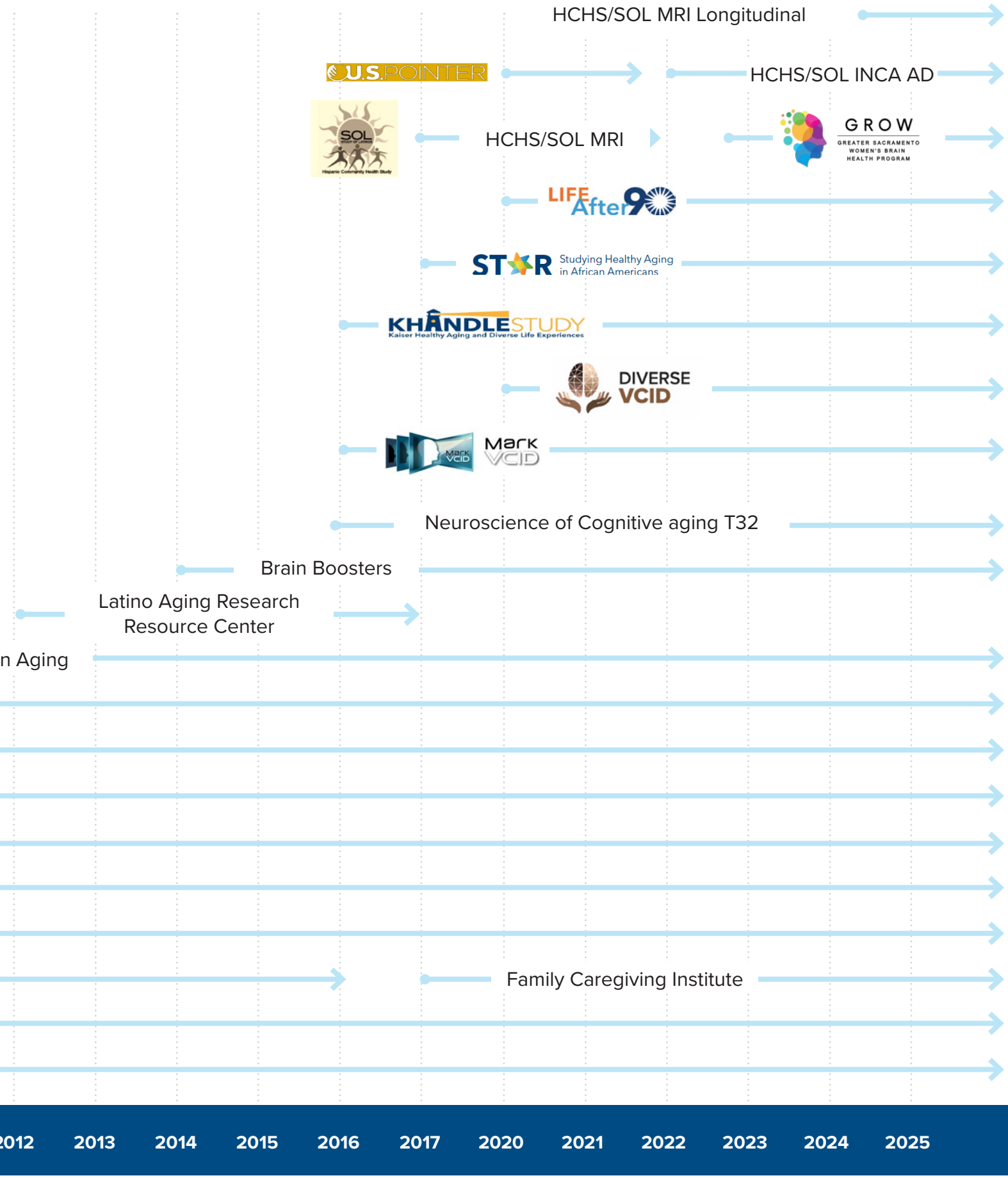
First, Co-director Rachel Whitmer, Ph.D., will continue to strengthen dementia prevention efforts by identifying modifiable risk factors, reducing health inequities, and advancing community-based interventions that promote brain health across diverse populations.

Second, under the leadership of Associate Director Thomas Wingo, M.D., the center is expanding its use of omics approaches. Which integrate large-scale genomic, transcriptomic, proteomic, and other biological data to better understand the molecular drivers of brain aging and dementia and identify new opportunities for precision medicine.

Third, the center is leveraging artificial intelligence through innovations such as Bystro, an AI-powered genomics platform co-founded by Wingo, while helping reimagine data-sharing infrastructure across NIH Alzheimer's Disease Research Centers.

This spread provides a visual representation of the ADRC's continuously growing volume of ongoing longitudinal studies, which follow participants over many years of their lives.




HCHS/SOL MRI Longitudinal
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LIFE After 90
STAR Studying Healthy Aging in African Americans
KHANDLE STUDY
Kaiser Healthy Aging and Diverse Life Experiences
DIVERSE VCID
Mark VCID
Neuroscience of Cognitive aging T32
Brain Boosters
Latino Aging Research Resource Center
n Aging
Family Caregiving Institute
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RESEARCH HIGHLIGHTS

Having a sense of purpose may protect against dementia

New research from The Wingo Lab at UC Davis shows that having a sense of purpose in life may reduce the risk of dementia, even for people with a genetic risk for Alzheimer's disease.

The study, published in the American Journal of Geriatric Psychiatry, followed more than 13,000 adults age 45 and older for up to 15 years. Researchers found that people with a stronger sense of purpose were about 28% less likely to develop cognitive impairment, including mild cognitive impairment and dementia.

The protective effect was seen across racial and ethnic groups and remained significant after accounting for education, depression and the APOE4 gene, a known Alzheimer's risk factor.

Purpose in life helps the brain stay resilient

Participants were not asked what specifically gave their lives purpose. Previous aging studies have found that purpose often comes from:

- Relationships: Caring for family, spending time with grandchildren or supporting a spouse or friend.
- Work or volunteering: Continuing professional work, mentoring or contributing to community causes.
- Spirituality or faith: Religious beliefs, spiritual practices or faith communities.
- Personal goals: Pursuing hobbies, learning new skills or achieving milestones.
- Helping others: Acts of kindness, philanthropy, caregiving or advocacy.

Methods and limitations of study

Participants were part of the Health and Retirement Study, a nationally representative survey funded by the National Institute on Aging. All had normal cognitive health at the start.



Co-author Thomas Wingo, M.D., with senior author Aliza Wingo, M.D.

Researchers used a seven-item survey from the Ryff Measures of Psychological Well-being. Participants rated statements such as, "I am an active person in carrying out the plans I set for myself." Responses were used to calculate a score from 1 to 6, with higher scores indicating a stronger sense of purpose. Cognitive health was assessed every two years using a telephone-based test.

Researchers noted the study's large size as a strength. However, while purpose was associated with lower dementia risk, the study did not prove it caused the reduction.

Findings support role of psychological well-being

The findings support the idea that psychological well-being plays an important role in healthy aging, said Thomas Wingo, M.D., co-author of the study and professor of neurology at UC Davis Health. Wingo hopes future research will explore whether purpose-building interventions can help prevent dementia.

"What's exciting about this study is that people may be able to 'think' themselves into better health. Purpose in life is something we can nurture," he said.

Air pollution may be harming your brain's 'encyclopedia'

Fine air pollution (PM2.5) is linked to lower semantic memory — the type of memory used for facts, words and general knowledge

A new study by researchers at UC Davis Health and Kaiser Permanente found that long-term exposure to fine particulate air pollution (PM2.5) is associated with lower semantic memory, the type of memory responsible for facts, words and general knowledge.

"Semantic memory is essential for communication, comprehension and navigating everyday life," said senior author Kathryn Conlon, Ph.D., M.P.H., associate professor in the UC Davis Department of Public Health Sciences. "Our findings suggest that long-term exposure to air pollution doesn't just affect physical health; it may also shape how the brain ages, particularly in ways that matter for independence and quality of life."

The study, published in Alzheimer's & Dementia: Behavior & Socioeconomics of Aging, found no pollution-related effects on executive function or verbal episodic memory.

Methods and findings

Researchers analyzed data from 740 adults ages 53 to 94 participating in the Kaiser Permanente Study of Healthy Aging in African Americans (STAR), an ongoing study launched in 2017 to identify factors that influence healthy brain aging among Black adults. Black Americans experience Alzheimer's disease and other dementias at rates 1.5 to 2 times higher than non-Hispanic White adults.

The team examined exposure to PM2.5, tiny airborne particles less than 2.5 micrometers in diameter, over five-, 10- and 17-year periods. Individual exposure estimates were based on participants' residential addresses. Cognitive testing assessed semantic memory, verbal episodic memory and executive function.

Researchers found that individuals exposed to higher levels of PM2.5 over many years scored significantly lower on semantic memory tests. The association remained even after accounting for age, education, income and marital status. The impact of long-term PM2.5 exposure on semantic memory exceeded what researchers would typically expect from 10 years of normal aging.

Previous studies have linked PM2.5 exposure to cardiovascular disease and premature death. Growing evidence also suggests air pollution may contribute to Alzheimer's disease development and progression.



A city in China with heavily polluted air

Long-term exposure to air pollution disproportionately affects under-resourced communities, and EPA research has shown that Black, Latino and Asian populations are more likely to live in areas with higher particulate pollution levels.

Reducing air pollution may reduce dementia burden

"Understanding environmental contributors to cognitive decline is critical for addressing disparities in dementia risk," said Rachel Whitmer, Ph.D., co-author of the study and co-director of the UC Davis Alzheimer's Disease Research Center. "Air pollution is a modifiable exposure. That makes it a powerful target for prevention, both at the individual level and through public policy."

Researchers noted that reducing exposure may be possible through actions such as monitoring air quality forecasts, limiting outdoor activity during poor air quality or wildfire events, using HEPA air filters, and avoiding exercise near heavily trafficked roads.

The study was funded by the National Institute on Aging.

Technology-focused research offers new insight into earlier detection of dementia and Alzheimer's

A new study published in Neuropsychology found that older adults can accurately judge how well they are thinking in real time, with self-ratings closely matching objective cognitive performance.

Researchers followed 162 older adults, average age 72, who had concerns about memory or cognitive changes but tested within normal limits on standard cognitive exams. For one week, participants used an Apple Watch that prompted them four times daily to rate their mental sharpness and mood and complete brief cognitive tests measuring attention and processing speed.

"Our goal is to understand how people perceive their cognition, or ability to think, and how that compares with how they actually perform using objective test measures," said UC Davis Health neuropsychologist Sarah Tomaszewski Farias, Ph.D., A.B.P.P.

The researchers found that when participants rated their mental sharpness below their personal average, their test performance was also lower. The relationship remained significant regardless of mood, age or other factors.

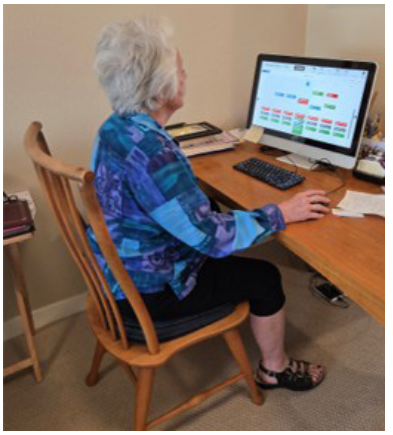
"It was exciting to find that the mood didn't play a big role in the relationship between how they felt, how sharp they felt, and how they performed on the cognitive test," Tomaszewski Farias said.

The study also found that cognitive performance tended to be better earlier in the day. Researchers said



real-time assessments may help clinicians better detect cognitive changes and understand how patients function in everyday life. The study was funded by the National Institutes of Health.

Promoting autonomy in older adults with cognitive impairment: Co-designing an interactive calendar for memory support



UC Davis ADRC faculty member Alyssa Weakley, Ph.D., led a team of researchers who developed Interactive-Care (I-Care), an online caregiving platform designed to help people with mild Alzheimer's disease remain independent and better manage daily activities.

In this study, researchers focused on the platform's calendar tool, aiming to create a more accessible alternative to standard digital calendars for people with memory and thinking difficulties. The calendar was developed through a collaborative design process that involved experts, caregivers and people living with mild dementia. Feedback gathered over multiple rounds of testing was used to refine the tool.

Researchers then compared the final calendar with both an earlier prototype and Google Calendar. Participants completed common calendar tasks and evaluated their experiences.

The co-designed calendar received high ratings for ease of use, usefulness and willingness to use it regularly. Participants struggled to complete key tasks independently using either the earlier prototype or Google Calendar. In contrast, they completed all tasks on the co-designed calendar without assistance and did so more quickly than with the other calendars.

Participants also reported higher satisfaction with the co-designed calendar than with either comparison tool.

The findings demonstrate that people with mild cognitive impairment can play an important role in developing technology designed for their needs. By involving end users throughout the design process, the researchers created a calendar that was more accessible, user-friendly, and effective for people living with Alzheimer's disease.

Free water MRI marker may detect very early changes in brain's small blood vessels, indicating healthy lifestyle changes may be most effective when started earlier

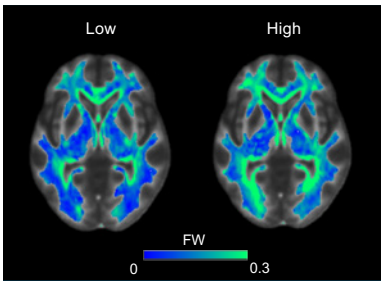
The Age, Multidomain Lifestyle Intervention, and White Matter Integrity Secondary Analysis of the POINTER Randomized Clinical Trial

UC Davis ADRC researcher Pauline Maillard, Ph.D., with senior author Charles DeCarli, M.D., and a team of researchers, wanted to know whether a healthy lifestyle program could help protect the brain's blood vessels and whether age affected the results. The study included adults age 60 to 79 who were at increased risk for cognitive decline.

They found that people younger than 70 who participated in a structured program focused on multiple healthy lifestyle habits showed less worsening of a brain MRI marker linked to small blood vessel damage than those who only received health education. However, the same benefit was not seen in participants age 70 and older.

The diffusion MRI marker, called free water, may detect very early changes in brain tissue before more obvious damage appears. The results suggest this measure could be a sensitive way to track the health of the brain's small blood vessels.

Overall, the findings indicate that healthy lifestyle changes may be most effective when started earlier in life, before significant age-related brain damage occurs. The study supports the idea that improving diet, increasing physical activity, managing vascular risk factors, and maintaining healthy habits may help protect brain health and reduce early signs of cerebrovascular injury.



Diffusion MRI free water data from two different people, overlaid on a standard brain anatomy template to enable comparison by brain location. Image on the right demonstrates higher levels of free water.

Learn more about proven actions you can take today to improve your brain health at alz.org/us-pointer/study-results.

Dementia after age 90: New insights from the LifeAfter90 study

As the population of adults age 90 and older continues to grow, understanding what drives dementia risk in the oldest-old has become increasingly important. Since 2018, the UC Davis-led LifeAfter90 study has followed a diverse group of adults age 90 and older, providing one of the first detailed looks at dementia risk beyond the ninth decade of life.

In findings published in The Lancet Healthy Longevity, researchers analyzed more than 800 participants with a median age of 92 and found that many dementia risk patterns seen in younger adults persist after age 90. Women experienced approximately twice the risk of developing dementia compared with men. Significant racial and ethnic disparities also remained, with Black participants facing substantially higher dementia risk than Asian participants.

The study also examined the role of the APOE gene, a well-known genetic factor in Alzheimer's disease. Researchers found that the protective APOE2 variant continued to reduce dementia risk after age 90, while the APOE4 risk variant increased risk the most for men and Black participants.

Importantly, the study raises new questions about resilience and healthy brain aging. Some participants remained cognitively healthy despite carrying genetic or vascular risk factors.

Understanding what protects these individuals may help researchers develop new strategies to prevent dementia and support healthy aging for future generations.

UC Davis collaborates on worldwide guideline for diagnosing vascular dementia

Doctors and researchers use diagnostic guidelines to identify vascular cognitive impairment and dementia (VCID), a group of conditions caused by reduced blood flow or damage to blood vessels in the brain. Since the original VasCog guidelines were published in 2014, research in the field has advanced significantly, creating a need for updated criteria.

To revise the guidelines, an international group of experts including UC Davis ADRC Co-director Charles DeCarli, M.D., reviewed the latest research and participated in a series of surveys to reach agreement on how VCID should be diagnosed. More than 70 experts from around the world were invited to take part, and three rounds of surveys were completed.

The experts agreed on new diagnostic criteria, called VasCog-2-WSO, for identifying different stages of vascular cognitive impairment, including early changes before symptoms appear, mild cognitive impairment, and vascular dementia. They also agreed on recommendations for using newer tools, such as brain imaging and blood or other fluid biomarkers, in research studies. The World Stroke Organization endorsed the updated criteria.

The goal of the new guidelines is to provide a consistent international standard for diagnosing VCID. This will help doctors and researchers identify patients more accurately, compare findings across studies, and improve research aimed at preventing and treating vascular-related cognitive decline and dementia.

Study identifies MicroRNAs linked to psychiatric and neurodegenerative disorders

A study published in Nature Aging from the Wingo Lab identified specific microRNAs, small non-coding RNA molecules that regulate gene expression, that may contribute to psychiatric and neurodegenerative diseases.

"We know microRNAs regulate gene expression, with a single microRNA potentially influencing hundreds of genes," said Thomas Wingo, M.D., co-senior author of the study. "Our findings advance understanding of how microRNAs contribute to the risk of major psychiatric disorders and Parkinson's disease." MicroRNAs act as a braking system within cells, attaching to messenger RNA and preventing certain proteins from being produced. While this regulation is essential for normal cell function, abnormal microRNA activity has been linked to disease.

Using post-mortem brain samples from older adults and combining genetic data with genome-wide association studies of 16 psychiatric and neurodegenerative conditions, researchers identified 49 microRNAs associated with one or more brain disorders.

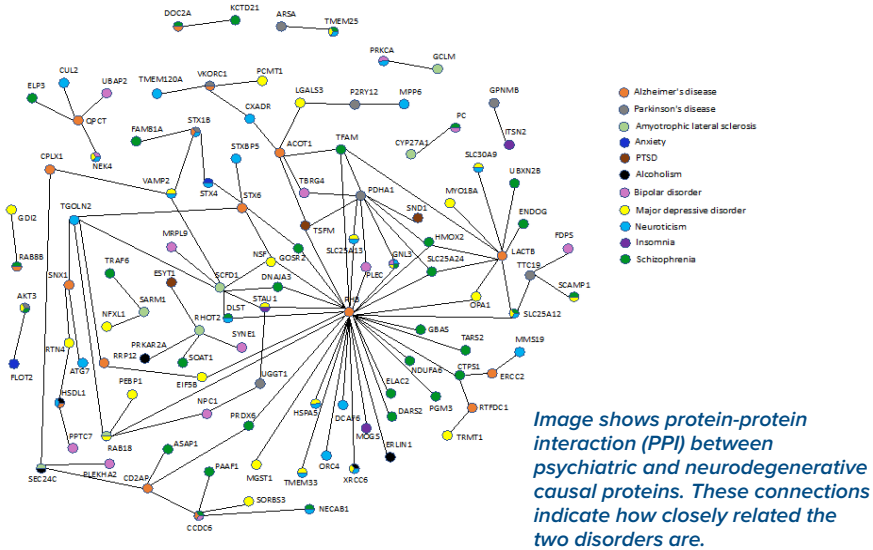


Image shows protein-protein interaction (PPI) between psychiatric and neurodegenerative causal proteins. These connections indicate how closely related the two disorders are.

Further analyses highlighted four microRNAs that likely contribute to disease development, including bipolar disorder, schizophrenia, major depressive disorder, post-traumatic stress disorder and Parkinson's disease.

The findings also suggest shared-biological mechanisms between some of these conditions.

Researchers additionally found that nearly half of the 470 microRNAs analyzed were associated with genetic variants that influence microRNA levels, providing new insight into the genetic regulation of these important molecules.

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TRAINING AND EDUCATION

Development project awards

The center has a competitive development project program and awards up to $100,000 each year. This program enables both new and established investigators to generate pilot data that can be used to advance Alzheimer's research and enhance their ability to be competitive for extramural grants.

2026-2027 Awardees



Kuan-Hua Chen, Ph.D.
Assistant Professor
UC Davis Department of Human Ecology

Project title: **iDyAD - A Personalized Passive-Sensing Technology to Ameliorate Social Disconnectedness in Spousal Care Dyads Living with Alzheimer's Disease**

Chen aims to optimize and pilot-test a novel digital health intervention, that leverages wearable technologies to monitor real-time social activity across multiple levels of social connectedness. The intervention delivers just-in-time, personalized feedback and reminders to care dyads and members of their social network and healthcare professionals to enhance social connectedness and mitigate mental health decline in Alzheimer's disease care dyads.



Jacopo Di Lucente, Ph.D.
Assistant Project Scientist
UC Davis Department of Pathology and Laboratory Medicine

Project title: **Sugar Signaling at the Synapse: L-Fucose Control of Calcium-Dependent Neurotransmission in Alzheimer's Disease**

Di Lucente aims to investigate how a naturally occurring sugar, L-fucose, can improve communication between brain cells and restore health brain activity in Alzheimer's disease, which could lead to new therapies that help preserve memory and cognitive function in people with Alzheimer's disease.

Research Education Component (REC) Scholar Program

The UC Davis Alzheimer's Disease Research Center's (ADRC) Research Education Component offers funding to support junior investigators and those new to the field of Alzheimer's disease research. The goal of the program is to support AD research training for clinicians and researchers who will advance research on cognitive decline, dementia, and AD over the coming decades. The UC Davis ADRC supports a broad range of disciplines and approaches such as basic science, neuropathology, brain imaging, clinical and cognitive science, and social sciences. This program provides a one-time stipend that may be used for Alzheimer's disease-related research expenses and/or travel to present at an Alzheimer's disease-related conference.

REC Scholars 2026-2028



Alam Rifat, Ph.D.
Postdoctoral Scholar
Public Health Sciences

Area of interest: Lifecourse social determinants of health, physical function, mobility, and cognitive aging in diverse older adults, with a focus on identifying pathways to resilience in Alzheimer's disease and related dementias (ADRD)

Rifat aims to examine how early- and late-life disadvantages shape the relationship between gait speed and ADRD risk among adults aged 80+. A central focus is the identification of "super movers", older adults with exceptionally high mobility, as a potential resilience phenotype that may buffer the effects of brain pathology on cognition.

Mentor: Rachel Whitmer, Ph.D.



Jeong Eun Kim, Ph.D., R.N.
Postdoctoral Fellow
Betty Irene Moore School of Nursing

Area of interest: Improving health outcomes for families affected by Alzheimer's Disease and Related Dementias (ADRD) with a focus on designing equitable systems that empower patients and their care partners to make informed health decisions

Kim aims to better understand decision-making processes, and patient and family values, to inform the development of tools that support shared decision-making, incorporating informatics driven solutions.

Mentor: Jennifer Linger, Ph.D., M.A., C.R.N.P., F.A.A.N.



David Garcia, Ph.D.
Postdoctoral Scholar
Dugger laboratory, Department of Pathology & Laboratory Medicine

Area of interest: Investigating the neuropathological and molecular mechanisms underlying Alzheimer's disease and related dementias, with a focus on cerebrovascular pathology, and integrating proteomics and lipidomics to better understand disease heterogeneity and advance precision medicine.

Garcia aims to leverage large-scale human brain proteomic datasets to identify lipid metabolism–related molecular networks associated with vascular pathology and to evaluate modification by APOE ε4, with the long-term goal of informing precision medicine approaches.

Mentor: Brittany Dugger, Ph.D.

Where are they now?

Catching up with past trainees

Building a Career Through Collaboration and Community

When Rachel Peterson, Ph.D., M.P.H., M.A., arrived at the UC Davis Alzheimer's Disease Research Center (ADRC) as a postdoctoral scholar in September 2019, she brought a passion for understanding how social and structural factors shape cognitive aging and brain health. Under the mentorship of Rachel Whitmer, Ph.D., as well as Charles DeCarli, M.D., Peterson quickly built a productive research program focused on identifying modifiable factors that promote healthy aging and reduce health disparities.

During her time at UC Davis, which continued through July 2022, Peterson published nine manuscripts, including five as first author, and secured a prestigious National Institute on Aging K99/R00 Pathway to Independence Award (K99AG073457). She also coordinated a symposium at the 2020 American Public Health Association meeting showcasing research from the KHANDLE, STAR, and LA90 cohorts, presented at multiple Alzheimer's Association International Conferences, and participated in advanced training in psychometric methods for cognitive aging research.

Lasting Impact Beyond the Fellowship

The fellowship proved transformative both professionally and personally. Peterson welcomed a baby in November 2020, formed lasting friendships, and established research collaborations that continue today.

Now an Associate Professor of Public and Community Health Sciences and Director of the Community Health and Prevention Sciences MPH Program at the University of Montana, Peterson continues to build on work that began at UC Davis.

In September 2025, Peterson received her first R01 grant (RF1AG091582-01A1), which leverages data from the KHANDLE, STAR, and LA90 cohorts, incorporates collaborations developed during her fellowship, and extends research launched under her K99/R00 award.

The Value of Team Science

Among the most important lessons Peterson learned at the ADRC is the power of team science. Collaborating with experts in neuroimaging, neuropathology, and cognitive assessment strengthened her research and broadened her perspective.

While working alongside leading scientists sometimes heightened feelings of imposter syndrome, the experience ultimately reinforced the value of her own expertise in community and population-based health promotion and disease prevention.

For early-career researchers, Peterson encourages openness to unexpected opportunities. Her own path, which included work as a newspaper reporter, in international development, and in sociology before finding her passion in public health and cognitive aging research, demonstrates that there is no single route to a successful scientific career.



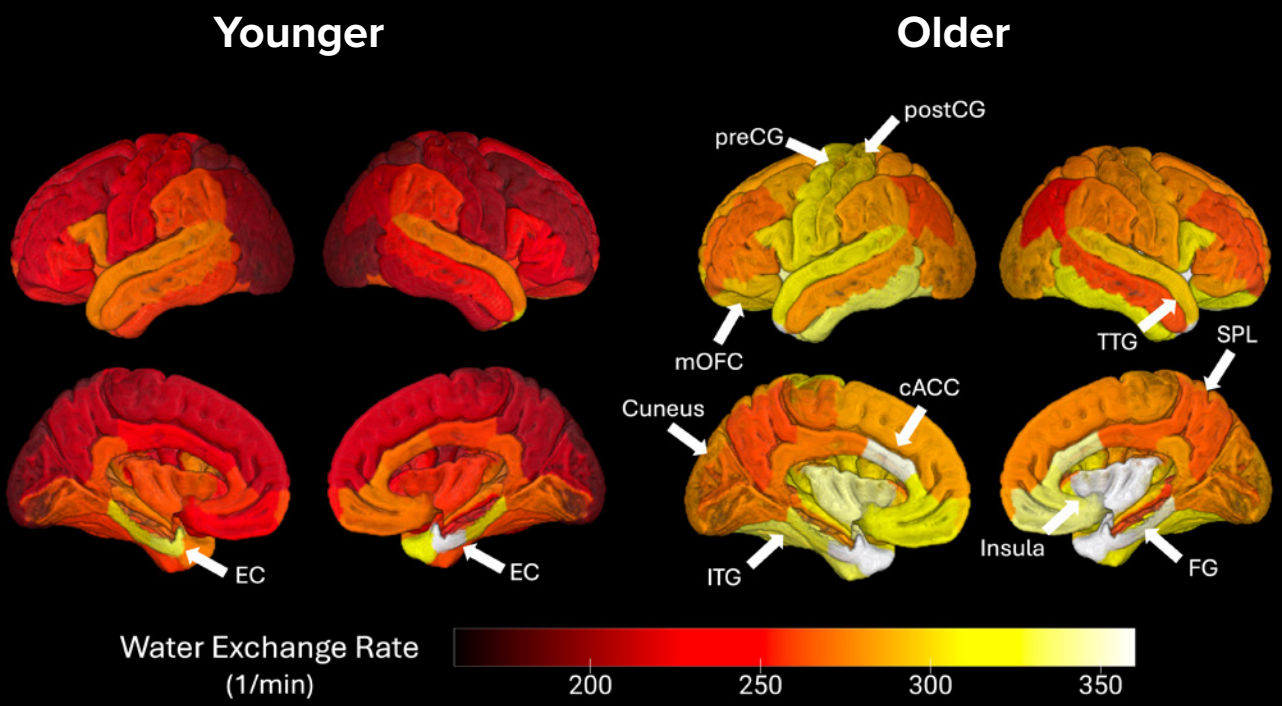
UC Davis friends and collaborators (Yi Lor, Alex Posis, Kristen George, Rachel Peterson) in Philadelphia for the 2024 Alzheimer's Association International Conference.



Peterson's University of Montana research group (from Left: Lauren Cater, research associate, Bruna Fogaca, Ph.D. student, Rachel Peterson, Joya Lucky, Ph.D. student and Yi Lor, Ph.D., graduate of UC Davis in epidemiology and incoming postdoctoral scholar with her group — another example of Peterson's ongoing collaborations.



Peterson's last gathering in Davis before she moved to Montana (Kristien George, mentor Rachel Whitmer and Rachel Peterson).



Blood-brain barrier permeability

Audrey P. Fan, Ph.D. (PI), Yufei D. Zhu, Ph.D. (alumnus) and Anjan Bhattarai, Ph.D.
(FAN Lab= Functional Advanced Neuroimaging Lab)

In these images comparing the brains of younger people to those of older people, the brighter colors (yellows, white) indicate faster exchange of water across the blood-brain barrier (BBB) measured by magnetic resonance imaging (MRI). The darker colors represent slower water exchange, which might indicate leakier BBB in older individuals compared to younger adults.

This finding is important because early neurovascular BBB changes, even in healthy aging, may be a marker of vulnerability to cognitive decline. Such a marker may offer new ways to fight cognitive impairment through improving vascular health.

Read full paper from the FAN Lab as published in the journal Fluids and Barriers of the CNS.

COMMUNITY AND OUTREACH

Outreach, Recruitment and Engagement Core (OREC) connects communities with brain health research

OREC brings brain-health research directly to Northern California communities

The Outreach, Recruitment, and Engagement Core (OREC) of the UC Davis Alzheimer's Disease Research Center (ADRC) builds trusted relationships between researchers and the communities they serve. Through education, community partnerships and personalized assistance, OREC helps people from all backgrounds learn about brain health and participate in studies focused on preventing, diagnosing and treating Alzheimer's disease and related dementias.

A growing presence across the region

During the 2025-2026 academic year, current reporting period, OREC participated in 12 community outreach and educational events, including eight in the East Bay and four in the Sacramento region, reaching more than 1,800 community members.

East Bay highlights included the Ambassadors for Health and Agents for Care event at Allen Temple Church, which brought brain-health information and caregiving resources to approximately 300 community members, and a Community Health Fair at Christian Fellowship in Oakland, attended by approximately 330 people. OREC also participated in events focused on generational health, Alzheimer's and dementia awareness, healthy families, wellness and public-health resources throughout Oakland, Berkeley, Emeryville and Fairfield.

In Sacramento, OREC participated in the 2026 Día de las Mujeres celebration at the Maple Neighborhood Center, reaching more than 90 attendees, and the Roberts Family Development Center Senior Resource Fair at the Sacramento Elks Lodge, attended by approximately 90 older adults, family members and community partners. Additional activities included the Brain Health Forum at St. Paul Church and a research-recruitment presentation at The Pines Living Community. At every event, OREC staff translated complex scientific information into practical guidance about healthy brain aging, recognizing signs of memory loss, supporting people living with dementia, and becoming involved in research.

Expanding engagement with Latino communities

OREC significantly increased outreach to Latino communities through Spanish-language lectures, workshops and individual conversations. These efforts allowed participants to ask questions and learn about brain health and research in the language in which they felt most comfortable.

Events and educational materials are designed to build relationships, recognize community strengths, and create welcoming pathways into research for people who have historically been underrepresented.

Across community events, newsletters, lectures and engagement activities, OREC works to:

- Increase awareness of Alzheimer's disease and dementia research.
- Share UC Davis ADRC discoveries in clear, useful language.
- Highlight community partnerships.
- Recognize research participants, families and staff.
- Promote educational programs and research opportunities.
- Connect caregivers and families with trusted resources.

Reaching people through digital education

OREC continued expanding its digital presence so that distance, transportation or scheduling would not prevent someone from learning about brain health. The UC Davis ADRC YouTube channel offers educational presentations, including content with Spanish-language captions. Social-media channels share research news, healthy-aging information, community events and opportunities to participate in studies.

Online Study Pages provide clear descriptions of available research and allow interested individuals to request a follow-up call. OREC has also developed culturally relevant graphics and messaging designed to make Alzheimer's research more understandable and engaging, particularly for Black and Latino older adults and their families.

Supporting participants from first contact through long-term involvement

OREC's work continues after first contact. Staff follow up with prospective participants, answer questions and help identify suitable studies. In partnership with the Clinical and Neuropathology Cores, OREC also helps participants remain connected to the ADRC through transportation assistance, flexible scheduling, wellness and follow-up calls, help navigating study requirements, and participant-appreciation and educational events. These efforts help participants feel recognized as valued partners in discovery and support the long-term participation essential to Alzheimer's research.

Guided by community voices

OREC's 12-member Community Advisory Board helps shape outreach priorities, review educational materials and advise on language, accessibility, and community concerns ensuring ADRC activities reflect community needs and values.

UC Davis OREC also shares its expertise nationally by leading monthly training for recruitment coordinators at 18 collaborating universities. Training covers culturally responsive recruitment and retention, motivational interviewing, community and media partnerships, digital engagement, participant education and more.

By combining personal relationships, community-based education, participant support, and innovative digital outreach, OREC is helping ensure that future Alzheimer's research discoveries are informed by, and benefit, the full diversity of the communities UC Davis serves.

Study participants are the heart of our research

The UC Davis Alzheimer's Disease Research Center held an open house in fall 2025 to share the latest discoveries, various research outcomes and express gratitude to participants, their families, and their support networks for the time and effort they have contributed to Alzheimer's research.

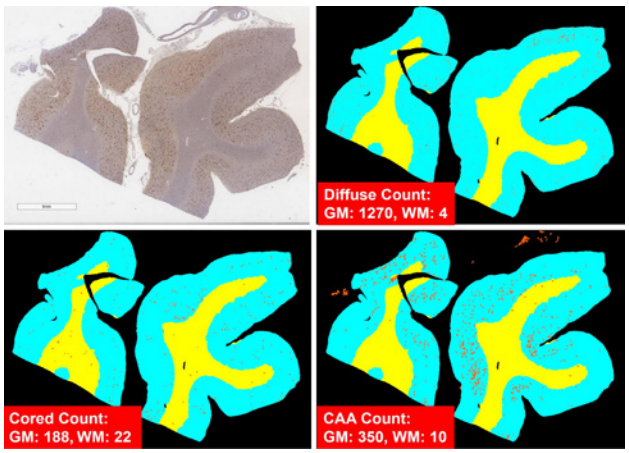


PHILANTHROPY POWERS DISCOVERY

Decoding Dementia

The Susan and Charles Berghoff Foundation supports UC Davis researchers using AI to transform how scientists study brain disease

The path to a world without dementia starts with a brain tissue sample. Researchers at UC Davis are developing freely available AI-driven tools to help researchers worldwide analyze vast digital archives of brain tissue scans — work that cannot be done at scale by humans alone — to better understand dementia and improve diagnosis and care.



An example output of the AI-driven pathology quantification pipeline. Given a stained whole-slide image of human brain tissue, the AI model automatically segments the grey matter (cyan) and white matter (yellow), detects plaques (orange), and reports the counts in each region.

The multi-year initiative, AggieBrain: AI for Next-Generation Neuropathology, is led by Brittany Dugger, Ph.D., associate professor in the Department of Pathology and Laboratory Medicine and leader of the Neuropathology Core at the UC Davis Alzheimer's Disease Research Center, and Chen-Nee Chuah, Ph.D., Child Family professor in Engineering and co-director of the UC Davis AI Center in Engineering.

AggieBrain is supported by a $420,500 gift from the Susan and Charles Berghoff Foundation, with major support from Darrin Mollett and UC Davis alumnus William "Bill" Ballhaus. The foundation was inspired by the late Sue Berghoff, who turned her dementia diagnosis into a catalyst for advocacy and philanthropy.

Tackling a complex challenge

Diagnosing specific forms of dementia remains challenging because definitive confirmation typically requires brain tissue examination after death. Dementia is a broad term for a brain disorder associated with different neurodegenerative diseases such as Alzheimer's, Lewy body and vascular dementia and frontotemporal degeneration. Some individuals have more than one type of dementia.

Currently, neuropathologists like Dugger manually review dozens of brain tissue slides per case, a labor-intensive process that involves identifying core pathological features like lesions and segmenting brain regions. Yet, current methods often miss microscopic details that distinguish different types of dementia.

AggieBrain uses machine learning to automate and scale this process, identifying pathological features in

minutes while capturing details that may be missed through traditional methods.

A path to accelerate and scale dementia research

AggieBrain builds on Chuah and Dugger's ongoing collaborations that have received funding from the UC Noyce Initiative, the Chan Zuckerberg Initiative and the National Institutes of Health.

For example, they are collaborating on the UC Davis segment of the Brain Digital Slide Archive (BDSA) — an NIH initiative involving more than 10 U.S. research institutions. Co-led by Dugger, the BDSA aims to provide infrastructure for sharing digital slide images of the human brain across participating universities to facilitate data analysis.

Personal experience driving change

The Susan and Charles Berghoff Foundation has also supported research initiatives and scholarships at Stanford University, San Jose State University and several community colleges.

College of Engineering alumnus Ballhaus is the eldest son of Sue Berghoff and a respected aerospace engineer and technology leader. His wife, Darrin Mollett, shares a tragic family legacy: She also lost a parent, her father, to dementia.

"Providing an accessible framework and tools for researchers to share deep knowledge and large data sets from brain banks is critical to solving the dementia challenge," Ballhaus said.

Dugger and Chuah are also inspired by personal experiences with loved ones affected by dementia.

In addition to advancing dementia research, AggieBrain can unlock opportunities to train next-generation AI models to advance understanding of a range of neurodegenerative diseases — laying the groundwork for breakthroughs in diagnosis and treatment.

GET INVOLVED

We invite you to join us in advancing the science of healthy brain aging for all. For more information on how to make a gift to the Alzheimer's Disease Research Center, scan the QR code or contact Jennifer Navarro at jmhnavarro@health.ucdavis.edu or 916-871-6991.

The Alzheimer's Disease Research Center appreciates the generous and ongoing support of our donors. Together we are advancing the science of healthy brain aging for all.

We believe that patients and families affected by Alzheimer's and dementia need access to the best care possible now, along with interdisciplinary and innovative research that will lead to new understandings about healthy brain aging, modifiable risk factors, treatment options, and perhaps one day, a cure for those devastating diseases.

Your donations allow us to undertake new and innovative research and offer engaging community outreach and education initiatives for caregivers and the public.

We are grateful to our donors who have established endowment funds over the years. Your generosity ensures lasting support for Alzheimer's and dementia research.

- Victor and Genevieve Orsi Endowed Chair in Alzheimer's Research
- Mary Oakley Foundation Endowed Faculty Fellowship in Neurodegeneration
- Preserving Memories Endowed Fund

Current research studies



Exploring the Experience of Ambiguous Loss Among Spousal Caregivers of Persons with Dementias



A Study of Senicapoc in Alzheimer's Disease



Exploring Technology to Enhance Independence & Connection in Older Adults with Memory Problems



Care Receiving and Caregiving Preferences of South Asians and White Older Adults



Greater Sacramento Women's Brain Health (GROW) Study



Improve Medication Safety for People Living with Dementia



Are you healthy & 65 years or older? Join a study to help us learn more about Alzheimer's Disease!

Interested in participating in a study? Scan the QR code to learn more about these studies.

Other ways to participate

We run a number of clinical research studies that explore cognitive and functional change and caregiving as well as clinical trials of new therapeutic agents. Learn more: https://health.ucdavis.edu/neurology/services-specialties/alzheimers/

Who we are looking for:

- Adults aged 55 or older interested in participating in research related to aging and memory
- Caregivers of older adults with memory impairment or dementia

Participation in research is not a requirement to be evaluated at the California Alzheimer's Disease Center of Excellence, which provides care to patients.

Join the research registry

Based on the information you provide, our team will help match you with a potential study that may interest you.

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