The Alzheimer's Disease and Dementia Research Center Funds Research Across the State of Utah

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Human development and family studies graduate student Josey Batura works with a research participant on improving cognitive functioning.

The Alzheimer's Disease and Dementia Research Center (ADRC), a state-funded center at Utah State University housed within the Emma Eccles Jones College of Education and Human Services, has recently awarded 10 catalyst grants for research related to Alzheimer's disease and dementia. The center is committed to research and support for the rapidly growing number of adults in Utah who are diagnosed with Alzheimer's disease and other forms of dementia and those who care for them. As part of its mission, the ADRC annually funds Alzheimer's and dementia research across the state through catalyst grants.

"This year we had more proposals than ever submitted to the ADRC's pilot Research Catalyst grant program. We selected very high-quality projects. These include funding researchers who are adapting work in closely related fields into the study of Alzheimer's as well as to researchers with years of dementia research who can now accelerate some of their projects," says Elizabeth Fauth, director of the ADRC.

To receive a grant from the ADRC, reviewers assess the grant proposals, which encompass a variety of research approaches and scientific disciplines. The ADRC prioritizes smaller-to-midsize grants so funds can be spread among many pilot projects. For 2025, grants were awarded to researchers at Utah State University, Brigham Young University, and the University of Utah. A sample of these projects are described here.

Dave Bolton and Chris Dakin, professors of kinesiology at USU

Utah State University: Identifying Early Cognition Markers During Walking

David Bolton and Chris Dakin, associate professors in Kinesiology and Health Sciences at Utah State University, are collaborating on an ADRC-funded project that aims to identify early markers of cognition during walking to better understand an individual's risk of falling due to cognitive impairment later in life.

"Movement isn't just physical. It relies on healthy cognitive function," explains Dakin. "As the brain degenerates in conditions like Alzheimer's and other forms of dementia, even basic motor skills become compromised."

In the first phase of the study, the team will build a device that briefly disrupts a person's walking rhythm to observe how individuals compensate for the sudden loss of balance. In the next phase, they will measure brain activity in young adults to determine whether distinct patterns of activity in the brain predict a successful balance recovery. By forcing the brain and body to compensate for an unexpected disturbance, the study creates a kind of "stress test" that may uncover subtle deficits in cognitive capacity before they evolve into more serious issues.

The ADRC funding is enabling the researchers to hire an engineer to assemble a perturbation system and translate the findings. It will also facilitate the recruitment of a PhD student who will lead the research, supported by senior scientists and clinical collaborators.

"It is our hope that the work funded by this catalyst grant will lay the groundwork for future research that examines the underlying mechanisms of increased fall risk with age and provides a potential early signal of cognitive decline," says Bolton. "Our ultimate goal is to help older adults stay healthier and more independent for longer, thanks to earlier detection and targeted interventions."

Perry Ridge, professor of biology at BYU

Brigham Young University: Identifying Rare Alzheimer's Disease Variants Using Family Data
Perry Ridge, professor of biology at Brigham Young University, will identify families with high rates of Alzheimer's disease and use data about distantly related cousins to identify genetic variants that increase the risk of Alzheimer's disease. The research is personal to Ridge, who has had two grandparents suffer from the effects of Alzheimer's disease.

"Despite years of effort and dozens of identified genetics factors that influence Alzheimer's disease, we still don't have effective treatments, and approximately half of Alzheimer's risk that is due to genetics is unknown," Ridge explains. "We are attempting to find genetic mutations that are rare and likely to be causative or protective. These variants could be leveraged in the future to develop therapeutics."

The study will rely on data from the Utah Population Database (UPDB), which has extended family pedigrees for many of the families represented in the Cache County Memory Study (CCMS). The two databases are a treasure trove of information for researchers of age-related studies. The UPDB is a population-based resource that includes the computerized genealogy of the Utah pioneers and their descendants linked to health records and death certificates for over 3 million individuals. The CCMS consists of approximately 5,000 subjects from Cache Valley with cognitive data collected over a 15-year span.

For the study, Ridge and his team will identify large Cache County families (multiple generations that include 2nd, 3rd, and 4th cousins) that have more Alzheimer's cases than is typical in Cache County families. They will then look for mutations that explain the higher rate of Alzheimer's

in these families by comparing the genomic mutations in pairs of distantly related cousins.

"People with Alzheimer's disease and their families suffer tremendously. Ultimately, I want to alleviate that suffering," says Ridge. "In the short term, we may be able to explain why Alzheimer's disease is common in a particular family. In the long term, our work may provide insights that facilitate the development of treatments." Ultimately, Ridge hopes to use the compiled data for a study funded by the National Institute on Aging.

Nick Frost, professor of neurology at U of U

University of Utah: Identifying Factors Contributing to the Continued Deterioration in Patients Following Amyloid Removal
Nick Frost, an assistant professor in neurology at the University of Utah and a board-certified neurologist who works with patients with memory and cognition disorders, will use the ADRC grant to identify factors contributing to the continued deterioration in patients following amyloid removal.

Frost explains that, because Alzheimer's disease is associated with the accumulation of amyloid and tau proteins in the brain, the FDA approval of Lecanemab and Donanemab has revolutionized the care of patients with Alzheimer's disease by removing amyloid.

"Although it is clear that the removal of amyloid with these drugs slows cognitive decline, the progression of these diseases does not stop completely," he says. "My clinic specializes in identifying patients who would benefit from amyloid-removing medications and thus it is of utmost importance that we be able to provide the most accurate diagnosis possible."

As part of the clinical evaluation, Frost's team will collect cerebrospinal fluid from patients before and after receiving Lecanemab. They will then examine whether proteins other than amyloid, like tau and alpha-synuclein, show any changes during the course of medication.

"Our primary goal is to ultimately increase diagnostic accuracy; but understanding how other proteins that are associated with different neurodegenerative processes are affected by amyloid removal may help to guide our therapy in patients with AD," explains Frost. The team's preliminary data will be used to apply for a fully funded study from the National Institutes of Health.