Our team is thrilled to have been selected by NACC and Gates Ventures for the AD/ADRD Digital Pilot Program. Our project will use wearable accelerometers to collect harmonized sleep and physical activity from ADRC participants and make this data available to researchers everywhere through NACC. When combined with clinical, cognitive, and biomarker data already available through NACC, we believe sleep and physical activity data will be a critical piece in understanding how real-life behavior relates to aging and disease trajectories. As increasing numbers of older adults track their own activity with devices like smart phones and fitness watches, there is a need to understand how information from these devices maps on to brain health outcomes, and we believe that this project is an important step towards this goal.

We started collecting actigraphy watch data in the ADRC in late 2021, so many of our ADRC participants will have already participated. What is exciting is that we will be expanding this project (which has been very successful at Stanford) to other ADRC sites, beginning with Vanderbilt University.

We are excited to announce we have received funding from UMass AITC through the A2 Collective Pilot Awards. We are developing AI algorithms to extract features from human movements in clinical gait tests (recorded through video) and then correlate those with changes in brain function and structure (recorded by MRIs). This process will identify the neural mechanisms of gait disturbances. For this purpose, we are using the data from Stanford ADRC.
Myelin Modulation of Neuronal Activity in Alzheimer’s Disease

Loss of white matter occurs during early stages of Alzheimer's disease and correlates with cognitive decline. White matter largely consists of myelin, a fatty substance that propagates electrical signals along nerve fibers. What contributes to myelin loss in AD, and how does myelin loss exacerbate the dysfunction of neural circuits involved in cognition and memory?

My research focuses on mechanisms of myelin health and dysfunction at the cellular level. My initial studies in the laboratory of Dr. Brad Zuchero identified an essential cellular pathway that builds new myelin during neurodevelopment, termed exocytosis. More recently, my experiments have shown that neuronal activity increases exocytosis in myelin-forming cells, suggesting a potential mechanism to enhance myelin formation in hopes of slowing white matter loss in disease. The experimental approaches I have developed in the Zuchero lab set the stage for investigating how this feedback between neuron and myelin-forming cells may be impaired in the context of AD.

In collaboration with the laboratory of Dr. Birgitt Schuele, I plan to use cell samples from ADRC donors to generate myelin-forming cells and neurons with AD gene variants using induced pluripotent stem cell (iPSC) technology. iPSCs provide a powerful tool to examine cellular perturbations conferred by the genetic background of individuals with AD. I will determine how specific AD-associated variants perturb the health and function of myelin-forming cells and their ability to modulate neuronal activity. Ultimately, my goal is to draw connections between perturbations in cell function and clinical prognosis to provide a cell-based approach to screen for biomarkers or therapeutics for AD.

A Comprehensive Examination of The Contribution of Alcohol Consumption to The Progression From Mild Cognitive Impairment to Dementia

The global population is aging and older adults (OA) are consuming alcohol at greater rates than previous generations. As we age, numerous biological changes occur, including decline in cognition, alterations in brain structure, and a diminished ability to process and eliminate alcohol, resulting in higher concentrations for longer periods of time, putting OA at greater risk for impairment. Although alcohol use is believed to exacerbate these naturally occurring biological changes with age, this relationship is not well understood. Therefore, to expand our knowledge of this relationship, this project aims to execute a comprehensive examination of the contribution of alcohol consumption on the progression to Alzheimer's disease and related dementias (ADRD) and the associated impact on cognitive performance and brain structure among OA with mild cognitive impairment (MCI). This examination will contribute to our understanding of ADRD and has clinical implications for our patients, as alcohol use is a modifiable behavior.
Neuroimaging Study for Older Adults

Our research group at Stanford Psychiatry is conducting a new study to examine changes in brain microstructure and function in older adults with or without memory problems. We are looking for individuals, ages 40 to 85, interested in participating in our research. We welcome eligible participants already enrolled in the Stanford Alzheimer’s Disease Research Center.

Participants will receive an honorarium of $100 for participation. Participants will have the opportunity to see their brain and access results of cognitive assessments. No radiation or injection is involved. The study will require approximately 4 hours of your time.

For more information, or to enroll, contact Kate or Daniel at study_aging@stanford.edu or at 650-724-2939.

For complaints, concerns, or participant’s rights, contact 1-866-680-2906.

Mind & Memory Changes Study (LB-SPARK)

The Lewy Body Scientific Partnership for Advancing Research and Knowledge aims to understand mind and memory changes in Parkinson’s disease. LB-SPARK is recruiting individuals with Parkinson’s disease, Dementia with Lewy bodies, and healthy volunteers.

This is a longitudinal study looking at Parkinson’s disease over time. You will be contacted once per year by phone or visit at Stanford. Study participation includes neurological exams, neuropsychology testing, a blood sample, gait & balance tests, collecting cerebrospinal fluid (optional), and collecting PET/MRI scans (optional).

Compensation: You will be given a parking and lunch voucher, $200 if you agree to a lumbar puncture collecting cerebrospinal fluid, and $100 for a PET/MRI scan.

For more information contact The Poston Lab Team at lbsparkstudy@stanford.edu
ADRC Young Investigator Research Spotlights

Dr. Ted Wilson is a member of the ADRC Biomarker Core and an Instructor in the Neurology Department at Stanford. His research team uses state-of-the-art equipment to measure key Alzheimer’s disease and Parkinson’s disease proteins in the blood and cerebral spinal fluid of ADRC participants. These insights are shared with researchers across the entire Stanford ADRC to accelerate their important research. His research group is now working to develop a new panel of simple blood tests that can help clinicians to accurately diagnose Alzheimer’s disease and Parkinson’s disease at their earliest stages and to better predict disease progression. His team is using these biomarkers to study the underlying causes of these diseases.

Using blood cells provided by ADRC participants, and in collaboration with Stanford ADRC colleague Dr. Birgitt Schuele, Dr. Wilson and his team study the effects of various genetic mutations on different cell types. The hypothesis is that by studying cells from healthy and resilient individuals, we may come to understand the biological and cellular changes that impart disease resilience. Dr. Wilson and his research team are supported by funding from the Stanford ADRC and the Phil and Penny Knight Initiative for Brain Resilience.

Dr. Carla Abdelnour is a Sue Berghoff Postdoctoral Fellow from Prof. Poston Lab. Dr. Abdelnour is interested in studying the connection between different neurodegenerative diseases. She has recently led a study in collaboration with the Stanford ADRC to study plasma biomarkers in Lewy body disease (LBD). Lewy body disease (LBD) is a brain disorder caused by an abnormal buildup of a protein called alpha-synuclein. However, 60-80% of people with LBD also have buildups of proteins associated with Alzheimer’s disease (AD), known as amyloid and tau. These “mixed” LBD/AD cases tend to progress more quickly and result in shorter lifespans. Biomarkers like PET brain imaging and cerebrospinal fluid analysis from spinal taps can detect amyloid and tau deposits. More accessible blood-based biomarkers, like plasma pTau181, are now being used to study these proteins.

In a recent study, led by Dr. Carla Abdelnour, we found that plasma pTau181 could be a useful screening tool for identifying AD-related proteins in people with LBD. High levels of plasma pTau181 were linked to worse cognitive and functional performance, and a faster decline in functional impairment in people with LBD who have cognitive impairment. Rapid increases in plasma pTau181 were also associated with faster declines in functional impairment and memory performance. Additionally, elevated plasma pTau181 levels in people with LBD without cognitive impairment were linked to an increased risk of developing cognitive impairment.

These findings indicate that plasma pTau181 might be a valuable tool for identifying LBD patients at risk of rapid disease progression, aiding in clinical decision-making and empowering patients and caregivers to plan ahead. Moreover, it highlights its applicability in clinical trials for patient selection, stratification, and treatment monitoring.

This research was possible thanks to the generous participation of patients and caregivers. We are grateful for their generosity as they are a key part of research. Science is a team effort, and together we aim to understand and eventually eliminate these complex and devastating diseases.
Dr. Christina Young is an Instructor and neuropsychologist in the Neurology Department at Stanford. She is interested in detecting the earliest cognitive changes due to Alzheimer's disease and related dementias. She works closely with the ADRC Imaging Core, directed by Dr. Elizabeth Mormino, and ADRC Clinical Core, led by Dr. Victor Henderson. Her work focuses on examining the relation between amyloid and tau PET imaging, which provide biomarker evidence for Alzheimer’s disease, and neuropsychological test results, which provide information about cognitive functioning.

Dr. Young is also interested in developing new measures of early cognitive change by examining things like computer- or smartphone-based testing, changes in speech, and how often people lose or misplace items. Her work is supported by funding from the National Institute of Health, the Alzheimer’s Association, and New Vision Research.

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**ADDITIONAL OPPORTUNITIES TO PARTICIPATE IN RESEARCH**

**Healthy Brain Aging Study / Stanford ADRC**

**Contact:** Veronica Ramirez at vramirez1@stanford.edu or (650) 721-2409

**Stanford ADRC Affiliated Studies**

**Study:** Alzheimer Gut Microbiome Project  
**Study status:** Open, enrollment ongoing  
**Contact:** Veronica Ramirez  
vramirez1@stanford.edu or (650) 721-2409

**Study:** Asian Cohort For Alzheimer’s Disease Study  
**Study status:** Open, enrollment ongoing  
**Contact:** Veronica Ramirez  
vramirez1@stanford.edu or (650) 721-2409

**Study:** Sleep and Physical Activity Study  
**Study status:** Open, enrollment ongoing  
**Contact:** Joseph Winer  
jwiner@stanford.edu

**Study:** Longitudinal Early-Onset Alzheimer’s Disease Study (LEADS)  
**Study status:** Open, enrollment ongoing  
**Contact:** Savneet Takhar  
sktakhar@stanford.edu or (650) 304-7428  
**Contact:** Stephanie Tran  
trans@stanford.edu or (650) 521-7287
<table>
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<tr>
<th>Study</th>
<th>Description</th>
<th>Study status</th>
<th>Contact</th>
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<tr>
<td><strong>Study</strong>: Speaker-listener coupling and brain dynamics during naturalistic verbal communication in Alzheimer’s disease</td>
<td>Open, enrollment ongoing</td>
<td>Delaney Ubellacker <a href="mailto:braindevelopment@stanford.edu">braindevelopment@stanford.edu</a></td>
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<tr>
<td><strong>Study</strong>: Neighborhoods Study</td>
<td>Open, enrollment ongoing</td>
<td>Nicole Caceres <a href="mailto:ncaceres@stanford.edu">ncaceres@stanford.edu</a> or (650) 736-2893</td>
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<tr>
<td><strong>Study</strong>: Neuroimaging Study for Older Adults</td>
<td>Open, enrollment ongoing</td>
<td>Khanh Nguyen <a href="mailto:khanhkn@stanford.edu">khanhkn@stanford.edu</a> or <a href="mailto:study_aging@stanford.edu">study_aging@stanford.edu</a></td>
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<tr>
<td><strong>Study</strong>: SPRING Study</td>
<td>Open, enrollment ongoing</td>
<td><a href="mailto:bronte-stewartlab@stanford.edu">bronte-stewartlab@stanford.edu</a></td>
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<tr>
<td><strong>Study</strong>: Tool to identify Parkinson’s disease and Dementia with Lewy Bodies using digital facial expression biomarkers</td>
<td>Open, enrollment ongoing</td>
<td>Alena Smith <a href="mailto:alenaa@stanford.edu">alenaa@stanford.edu</a> or (650) 269-0484</td>
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<td><strong>Study</strong>: Development of a cost-effective and neurobiologically valid VR assessment tool for early detection of AD</td>
<td>Open, enrollment ongoing</td>
<td>Samantha Reitmaier <a href="mailto:samreit@stanford.edu">samreit@stanford.edu</a> or (650) 724-2939 <a href="mailto:mcik_study@stanford.edu">mcik_study@stanford.edu</a></td>
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<tr>
<td><strong>Study</strong>: Iron as an imaging biomarker for inflammation in Alzheimer’s disease</td>
<td>Open, enrollment ongoing</td>
<td>Meghan Bell <a href="mailto:mbell11@stanford.edu">mbell11@stanford.edu</a> or (650) 736-1584</td>
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<td><strong>Study</strong>: Mind &amp; Memory Changes Study (LB-SPARK)</td>
<td>Open, enrollment ongoing</td>
<td>Poston Lab Recruitment Team <a href="mailto:lbsparkstudy@stanford.edu">lbsparkstudy@stanford.edu</a></td>
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<td>MAP Trial</td>
<td>Open, enrollment ongoing</td>
<td>Annie Zhou; <a href="mailto:anniez20@stanford.edu">anniez20@stanford.edu</a>; (650) 460-4151</td>
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<td>Bumetanide AD Trial</td>
<td>Open, enrollment ongoing</td>
<td>Mina Kmiecik; <a href="mailto:mina.kmiecik@stanford.edu">mina.kmiecik@stanford.edu</a>; (650) 387-1559</td>
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<tr>
<td>START Trial</td>
<td>Open, enrollment ongoing</td>
<td>Kaila Sevilla; <a href="mailto:kailas44@stanford.edu">kailas44@stanford.edu</a>; (650) 454-5458</td>
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<td>ARI-Bio Trial (Polaris-AD)</td>
<td>Open, enrollment ongoing</td>
<td>Kaila Sevilla; <a href="mailto:kailas44@stanford.edu">kailas44@stanford.edu</a>; (650) 454-5458</td>
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<td>APEX Study</td>
<td>Open, enrollment ongoing</td>
<td>Mina Kmiecik; <a href="mailto:mina.kmiecik@stanford.edu">mina.kmiecik@stanford.edu</a>; (650) 387-1559</td>
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<td>ALZ-NET Registry</td>
<td>Open, enrollment ongoing</td>
<td>Stephanie Tran; <a href="mailto:trans@stanford.edu">trans@stanford.edu</a>; (650) 521-7287</td>
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<tr>
<td>Neuro/PET study</td>
<td>Open, enrollment ongoing</td>
<td>Caroline Huang; <a href="mailto:chuang99@stanford.edu">chuang99@stanford.edu</a>; (650) 723-0341</td>
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More information can be found [HERE]