

SHILEY-MARCOS ALZHEIMER'S DISEASE RESEARCH CENTER

CURRENTS

UPDATES: RESEARCH AND RESOURCES

Ms. Joyce Carlson

By Vidushi Sharma

"You know, to tell you the truth, it was a little boring. I thought it would be exciting, and a little bit scary like a rollercoaster...it was peaceful!" Many people might think that this description of paragliding is an unusual description coming from a person in their golden years. Joyce Carlson, on the other hand, says the opposite. Ms. Carlson has participated in 11 studies at the Shiley-Marcos Alzheimer's Research Center in the last decade and plans on doing more when she gets the opportunity. She used some of her earnings from this study to paraglide and intends to use future compensation for skydiving, though she's unsure if it'll meet her thrill expectations. Intrigued by her adventurous spirit, we invited Ms. Carlson to share more about her life story.

Joyce Carlson is fascinated by people and culture and has a strong desire to engage in activities that enable her to develop her knowledge and understanding in more profound ways. Before she retired, Ms. Carlson worked most of her years at the VA in general medicine and 3 years in neurology. Her experiences in that role provided insight into the numerous challenges associated with brain-affecting diseases, highlighting their profound impact on both the diagnosed individual and their loved ones. She highlighted the progress that has been made since her time working in the field but pointed out the ongoing need for

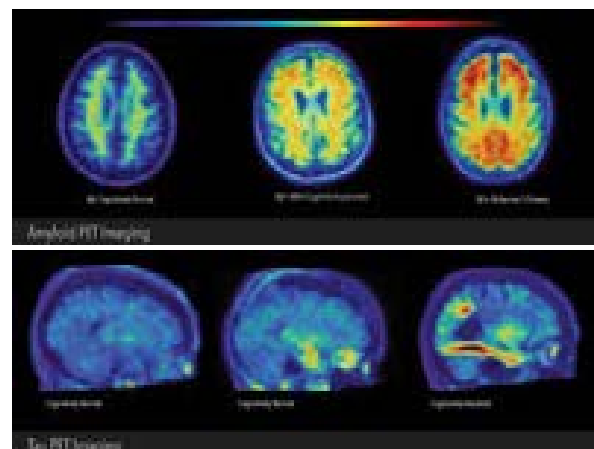
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The Importance of Neuroimaging in Alzheimer's Disease

By Socorro Trujillo, MPH

Neuroimaging is the use of noninvasive study procedures that provide visualization of the brain structure and brain function. Neuroimaging examinations are essential for the improvement of diagnostic investigation of dementia. Neuroimaging is used to measure specific brain activity, detect abnormal accumulations of certain proteins, and visualize gray matter, white matter, and cerebrospinal fluid. Some of the neuroimaging procedures that are being used at the UC San Diego Shiley Marcos Alzheimer's Disease Research Center are Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI).

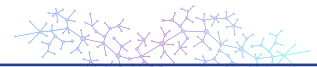
At the UC San Diego Shiley Marcos Alzheimer's Disease Research Center, advanced neuroimaging procedures, such as Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI), are actively employed in ongoing studies like the Alzheimer's Disease Neuroimaging Initiative (ADNI), Diverse Vascular Cognitive Impairment and Dementia (DVCID), Clarity in AD/DRD Research Through Imaging (CLARITI), and Standardized Centralized Alzheimer's



Images obtained by PET scans.

and Related Dementias Neuroimaging (SCAN). Each study has a unique protocol and set of required research procedures to gather the data necessary to answer the research question. For any given study, you may be asked to undergo any or all neuroimaging assessments. These important procedures enable researchers to have objective data that provides information about structural and/or biochemical changes in the living brain tissue. Combined with annual cognitive assessment and clinical interviews, researchers can detect the presence of neuropathology before symptoms appear, obtain a more accurate diagnosis, and assess the impact of various interventions designed to arrest neuropathological hallmarks of neurodegenerative diseases.

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Ms. Joyce Carlson continued

better treatments and care options. As she grows older, the number of neighbors in her senior residence and loved ones directly impacted by Alzheimer's disease and related dementias (ADRD) is increasing. Some of these experiences may have contributed to her commitment to volunteering for projects that generate knowledge and advance science, particularly in clinical studies focused on ADRD.

While Ms. Carlson's nursing career was meaningful, her passion for exploration and learning about human culture and history may have been a career path she would have pursued had that been more widely available to women growing up in her era. As an adjunct to her nursing profession, Ms. Carlson found many ways to explore her interest in human culture. Ms. Carlson ushered at music and theater events 4-5 nights a week for about thirty years. Even though she doesn't do it anymore, she still enjoys going to as many music events, including the UCSD gospel choir. In addition to music and theater, her thirst for cultural stimulation and ongoing knowledge is satisfied through ArtPower and attending talks at UCSD, particularly those that involve lectures from women in science. She is a strong supporter of the Women in Science programs at Salk and has volunteered there for many years. Her love for human culture, social activism, and art is balanced by her interests in nature-based hobbies including birdwatching and snorkeling. Her legs are covered with brown discoloration from the attack of Portuguese man o' war jellyfish in the barrier reef. These interests have stimulated her to pursue travel whenever possible and to afford that opportunity to her loved ones, so she can nurture that pursuit of knowledge and understanding in future generations.

Until very recently, Ms. Carlson and her husband traveled to many countries to volunteer. These experiences enabled her to marry her craving for adventure

and knowledge with her strong desire to give back and make a meaningful contribution. Some specific adventures she shared with us included a two-week trip to Tanzania in 2005 where she volunteered to help the UC Davis archeology crew. There, she got to see and help archeologists work, immerse herself in the local culture, and surrounding nature and animals. Her husband also went to several different universities in New Zealand and Australia during his sabbatical. It was great as he'd work for 3 weeks, Ms. Carlson would snoop all around, then they would travel/explore for a couple of weeks, and then move on to the next place. She also went on a trip to Costa Rica, where she went zip lining, which she says is much more exciting than paragliding. Costa Rica was only one of the 150 countries they visited, many as volunteers. This motivated Ms. Carlson to take 17 of her kids and grandchildren to Costa Rica for a week. Even though travel has become more difficult due to changes in her husband's cognition, Ms. Carlson tries to volunteer as much as possible locally, and she remains committed to aiding scientists in expanding knowledge about questions and problems impacting mankind.

Ms. Carlson is an incredibly inspirational person. Her family members are just some of the people she has inspired. Her grandson was so inspired that he wrote a deeply touching school essay about her. She has also been featured in a few local news articles including one titled "No wimp, no fear for Del Mar grandma",

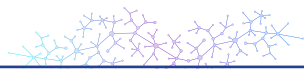


Ms. Joyce Carlson and her husband in Tanzania in 2005

which showcased her riding in IMSA driver Tom Kendall's Chevrolet GTP race car, where she got to ride two laps at speeds up to 160 mph. That experience was more 'her speed' than some of the more peaceful and scenic adventures of late (like paragliding).

Not only has Ms. Carlson inspired her family members and the people in her community, but she has also inspired me. As a female in high school with my sights set on pursuing a medical career, a piece of advice Ms. Carlson gave me will stay with me. She said, "You are so lucky that you can do things that you wanna do, and do 'em. And back when I did it, most of us (being women) ended up being nurses and teachers and working and doing all the big-shot work, but all the men got the credit for it. That doesn't

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The Importance of Neuroimaging in Alzheimer's Disease continued

Positron emission tomography (PET)

Positron emission tomography (PET) uses a small safe amount of a radioactive substance, called a tracer, to measure specific brain activity or to detect abnormal accumulations of Tau and amyloid protein. PET is frequently used in dementia research but less frequently in clinical settings. Amyloid and tau PET scans are used to determine which individuals may be at greatest risk for developing Alzheimer's disease, to identify clinical trial participants, and to assess the impact of experimental drugs designed to affect amyloid or tau pathways.

Different types of PET scans measure different proteins in the brain.

Fluorodeoxyglucose (FDG) PET scans measure glucose (energy) used in the brain. Studies show that people with dementia often have abnormal patterns of decreased glucose use in specific areas of the brain. An FDG PET scan can show a pattern that may support a diagnosis of a specific cause of dementia.

Amyloid PET scans measure abnormal deposits of a protein called beta-amyloid. Higher levels of beta-amyloid are consistent with the presence of amyloid plaques, a hallmark of Alzheimer's disease.

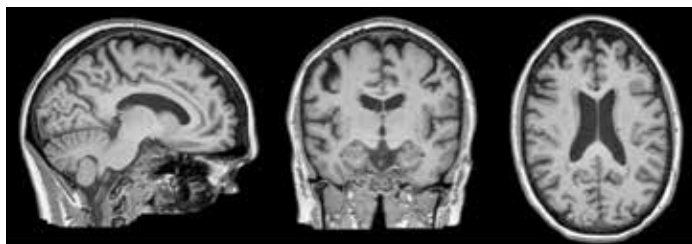
Tau PET scans detect abnormal accumulations of a protein, tau, which forms tangles in nerve cells in Alzheimer's disease and many other dementias.

Magnetic Resonance Imaging (MRI)

Magnetic Resonance Imaging (MRI) is a noninvasive procedure that allows us to look inside the brain, without exposing patients to radioactivity. MRI is an

advanced medical technique that uses a powerful magnet, radio waves, antenna, and a computer to produce detailed images of brain structure from different angles. This safe, painless procedure can reveal tumors, strokes, and atrophy (or shrinkage) in particular parts of the brain. In addition to providing pictures of brain structure, some specialized MRI scans provide pictures of the brain chemistry (MR spectroscopy) and brain function (functional MRI). Volumetric MRI (vMRI) scans enable researchers to give special attention to certain regions and structures within the brain that are known to be important in memory formation and retention. Persons can be compared with themselves over time, or with others in various diagnostic groups which can be helpful in reaching an accurate diagnosis (important for Alzheimer's disease and other neurodegenerative dementias) and better understand what changes are occurring in these specific brain regions. However, because of the large magnet, persons with metallic implants, such as pacemakers or cochlear implants are not able to undergo an MRI scan.

MRI is mostly used to distinguish normal tissue from pathologic tissue, for example, in ruling out the presence of a stroke, tumor, or bleed. However, such uses of MRI vastly underestimate its power. In fact, the resolution of modern MR technology is so high that the entire brain can be reconstructed digitally within sub-millimeter accuracy. We can analyze this image of the brain with exquisite detail and take advantage of automated



Images obtained by MRI

computer software to make calculations about the brain's structure and function. Research suggests that the ability to monitor how the brain actively changes as it ages is one of the most powerful tools in predicting whether a person will develop Alzheimer's disease. We hope to significantly impact the clinical approach to Alzheimer's by allowing physicians to identify individuals at risk, detect the disease in its earliest stages, and monitor the success of treatments.

Neuroimaging techniques such as PET and MRI are indispensable tools in the ongoing battle against dementia. The intricate details they provide about brain structure and function are invaluable for early diagnosis, assessing disease progression, and monitoring the impact of interventions. As we continue to unlock the secrets of the brain through cutting-edge research, these neuroimaging methods bring us closer to a future where we can effectively diagnose, treat, and eventually prevent neurodegenerative dementias across diverse populations.

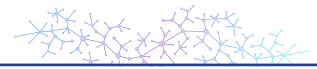
Please consider participating in biomarker studies that use neuroimaging techniques as a supplement to participation in longitudinal studies. This will optimize the value of your participation by supplying researchers with valuable insights about the biochemical and structural changes happening in your living brain.

Ms. Joyce Carlson continued

have to be it now and explore what you wanna do, and do what you're interested in". When she was growing up, women

were not encouraged to pursue paths outside of traditional gender roles. She is progressive and excited that women now have equal opportunities to men. She has shown me the opportunities I now

have, and how whenever I have the opportunity, I should go for it, because the obstacles that she had in her time can't stop me now.



Team Wagner x The Youth Movement Against Alzheimer's (YMAA) at UC San Diego

By Weiwei Liang

The Youth Movement Against Alzheimer's (YMAA) powered by HFC (formerly Hilarity for Charity) is a UCSD student-led non-profit organization that promotes understanding of Alzheimer's disease and related disorders (ADRD) among the youth and helps alleviate the pain of those affected by the disease. In their most recent general member meeting, YMAA invited Janna Wagner and her husband Larry Wagner (Team Wagner) to share their experiences living with and fighting against AD, which Janna playfully calls her "Buddy AL" (Short for Alzheimer's). One of her favorite authors, Sarah Young, has said, "You can give persistent problems nicknames, helping you approach them with familiarity rather than with dread." Janna first became connected with YMAA through their Connecting All Ages program, where a senior with ADRD is paired with a UCSD student calling each other once a week as phone-pal buddies. Before and during Janna's diagnosis of AD, she wrote the book "Quadruplets, a Love Story," available on Amazon. She was an excellent musician who played the flute, an ambitious tennis athlete, a high school math teacher for 20

years, and more. It all started when she experienced a traumatic brain injury more than a decade ago while playing tennis, and a few years later, she started experiencing some gradual cognitive impairment symptoms such as memory loss and Alexia without Agraphia (Word blindness). Traumatic Brain Injury (TBI) that results from an impact to the head can threaten brain health directly and indirectly. Direct effects can include unconsciousness, inability to recall the traumatic event, depression, confusion, difficulty learning and remembering new information, trouble speaking coherently, unsteadiness, lack of coordination and problems with vision or hearing. Certain types of TBI may increase the risk of developing Alzheimer's or another form of dementia. Since then, Janna and Larry have been working diligently together to arrest and possibly even recover her reading skills by using mobile word apps, exercising frequently by fast-walking, playing tennis, and also going on a low-carb and sugar-free diet. They shared their daily activities with YMAA, such as playing tennis and the flute, completing word puzzles, playing music for the homeless population of San Diego, and even working on a new book,



Janna Wagner and YMAA at UC San Diego

"My buddy, AL"! These activities have all been helping her relieve her symptoms of AD tremendously, as well as gaining joy in the effort and an all-important self-confidence. Janna also shared with us the emotions that someone experiencing "her Buddy AL" may go through, such as feeling isolated in their own world, left out, and the angst one can feel when interacting with others. She determined that her buddy AL is not something that will seize her character, rather she has been putting together activities and interactions she and others may utilize in their efforts to thrive while facing the many challenges that this disease brings ...not succumbing to it. In Janna's words, she wishes to continue to promote growth and understanding of AD ...that her story of hope - this "little bit of good news" will catch fire and reach many others living with AD.

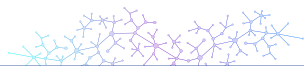
If you would like to get in touch with Janna, please contact her at jannawagner2@gmail.com.

Memories at the Museums Program Updates!

The SMADRC has collaborated with local Balboa Park to offer Memories at the Museums (MATM) for nearly 20 years. The collaboration provides SMADRC staff to train museum docents, so they can give tours to persons experiencing cognitive decline and their care partners with the expressed purpose of facilitating interaction, soliciting reminiscence, and enhancing quality of life through meaningful engagement. The partnering museums generously offer free tours monthly to a group of SMADRC registrants. During the pandemic, the program moved to virtual tours via Zoom and in 2024, the first in-person tours were resurrected. The decision to retain some Zoom-based tours was based on a desire to optimize accessibility for those unable to travel outside the home or those logging in from other states and even countries. The partnership has now expanded to include a 5th museum. The San Diego Automotive Museum offered its first in person tour on 3/21/24. The schedule is posted on the flyer and website. Free registration is required before each tour and is available via our EventBrite page or by contacting Tracey Truscott at 858-822-4800 or ttruscott@ucsd.edu.



Villa Musica continues to be a highly valued SMADRC community partner. The partnership has enabled us to offer Musical Biographies at no cost to persons with cognitive impairment and a care partner since 2017.



Small RNA Changes in Plasma Have Potential for Early Diagnosis of Alzheimer's Disease Years Before Symptom Onset

Small, easily accessible particles in human blood may hold the potential to predict Alzheimer's Disease years before symptoms appear

Alzheimer's Disease (AD) affects millions globally and is not only devastating to the person that suffers from AD; the substantial physical, mental, societal, and financial toll AD inflicts extends to their loved ones and caregivers. The disease unfolds in stages, starting with mild cognitive impairment (MCI) that sometimes goes unnoticed, progressing into AD with notable deficits in memory and cognition, and culminating in a devastating loss of identity, ability for self-care and social interaction, and eventual death.

A team of scientists from the Translational Genomics Research Institute (TGen, part of City of Hope), in collaboration with physicians at the Shiley-Marcos Alzheimer's Disease Research Center (University of California, San Diego) have been exploring blood-based biomarkers that can help doctors understand which patients will develop AD, and clues as to the disease trajectory.

To accomplish this, the research group examined the contents of extracellular vesicles (EVs) from the plasma of over a hundred patients: a healthy control group alongside patients afflicted with AD or MCI. *"EVs are tiny particles released by our cells. We find them in all human biofluids,*

and they carry molecules that give us a clue about the health and disease status of the tissue they came from," explained senior author Kendall Van Keuren-Jensen, Ph.D., Professor in the Neurogenomics Division and Deputy Director of Scientific Resources at TGen.

As described in *Cells*, the team used sequencing technology to analyze the spectrum of small RNA molecules that make up the EV cargo. *"We compared the RNA contents in EVs from our AD, MCI, and control participants, and found hundreds of different RNA transcripts,"* said study co-author and TGen Computational Scientist Eric Alsop, Ph.D. *"We took advantage of those different transcripts to create machine learning models that can distinguish between our disease groups with high accuracy,"* Alsop added.

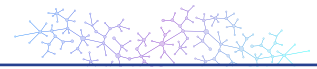
Neurodegenerative conditions like AD can begin decades before symptoms appear; by the time patients receive a diagnosis, substantial damage to the brain has occurred. This extended development period, if accurately identified, provides an opportunity for the patients to try disease modifying drugs, or make lifestyle changes. The researchers were keen to investigate whether changes in plasma EVs could be used to predict disease development; they took advantage of their cohort's well-curated and detailed clinical information to identify a subset

of participants that developed the illness years after sample collection.

"Remarkably, we discovered that many of the changes we see in the EVs of our established AD patients are present in pre-symptomatic people who received a diagnosis five to fifteen years later," said study co-author and TGen Neurogenomics Division Staff Scientist Joanna Palade, Ph.D. *"Our models were able to predict disease development in roughly 80% of the participants, even a decade before symptom onset."*

This is one of the first studies to show changes in the RNA molecules of plasma EVs that precede neurodegeneration. It provides evidence that some of the hidden pathology taking place early in the disease is reflected in plasma EVs, where it can be accessed in a minimally-invasive manner and used for biomarker development. *"Being able to accurately anticipate and monitor who will develop the disease and in what time frame is immensely valuable for the physicians seeing these patients in the clinic,"* said Timothy Whitsett, Ph.D., TGen Senior Director of Institutional Research Initiatives and study co-author.

Research funding for this study comes from the Michael J. Fox Foundation (MJFF-017466) and the National Institutes of Health (UH3 TR000891, P30AG062429).



STAFF UPDATES

WELCOME!

BEVERLY CASTILLO graduated from UC San Diego with a BS in Physiology and Neuroscience (Class of 2020). Her career in clinical research began in 2017 as a lab assistant in the Functional Neuroscience Lab at UCSD, where she became the study coordinator in 2021. During her time there, she studied the effects of EEG-neurofeedback on working memory within schizophrenia disorders and mild cognitive impairment. Her involvement in these clinical trials furthered her interest in neuropsychology, neurodegenerative disease, and an overall effort towards improving participants' quality of life. Currently at the SMADRC, she is a research coordinator for the longitudinal study with a primary role on the center's brain autopsy program.



BRITNEY ESCOBEDO, BS, graduated with a Bachelor's degree in Psychology from UC San Diego (2024). Her journey in the field of clinical psychology started as a lab assistant in Dr. Tamar Gollan's Laboratory of Aging Bilingualism. In this role, Britney contributed to various experiments at different stages, with diverse protocols, and gained insights into bilingual cognitive language switching costs. Her time in Dr. Gollan's lab allowed her to develop an interest in neuropsychology research and neurodegenerative diseases. Britney serves as a bilingual psychometrist, administering and rating neuropsychological batteries, and plans on continuing her education by pursuing a Ph.D. in Clinical Psychology.



SAVANNAH HARGRAVE graduated with her bachelors in Biology from Southern Utah University. She is beginning her pursuits in clinical research here, at the Shiley-Marcos Alzheimer's Disease Research Center. She spent her undergraduate years dedicated to science communication and education efforts and hopes to continue to develop these skills as she advances her knowledge and exposure to the neurodegenerative disease research brain autopsy program.



TANYA OCHOA-CIPES, MPH, graduated from SDSU with a B.S. in Public Health and a Master of Public Health concentration in Management and Policy. As a first-generation college graduate her family's healthcare disparities fueled her passion for addressing systemic inequities.



Her research at SDSU focused on enhancing the training protocols for bilingual research coordinators to promote inclusivity in health research, particularly targeting Low English Proficiency (LEP) individuals and minority groups.

Previously, Tanya worked for the County of San Diego focusing on quality improvement and the county's 2023 Strategic Plan. As a Community Health Promotion Specialist at the Public Health Services Epidemiology and Immunizations department, she created culturally appropriate disease prevention information for the Spanish-speaking population.

Tanya aims to utilize her expertise in DEIA and health literacy to promote equitable healthcare access for diverse communities.

YOU CAN MAKE A DIFFERENCE!

Your gift, large or small, will help us battle Alzheimer's disease and related dementias through extensive research studies, clinical trials, and patient care. You can support research that has the potential to affect the lives of individuals around the world; create funding for programs that support the families of those with Alzheimer's and related dementias; assist graduate students, residents and fellows as they study the disease; and provide funds for the center's greatest needs.

Visit the giving page of our website: adrc.ucsd.edu or scan this QR code to access it directly!



For gifts directed to a specific purpose, any questions, or to learn more on how you can support the Shiley-Marcos Alzheimer's Disease Research Center, please contact: **Emily Little, SMADRC Program Administrator and Program Director, Email: e2little@ucsd.edu**

A NEW EXPERIMENTAL GENE THERAPY CLINICAL TRIAL

A new experimental gene therapy clinical trial is now enrolling patients with mild Alzheimer's disease and Mild Cognitive Impairment (MCI) at UCSD.

Doctors are testing whether a brain protein called BDNF, or "Brain Derived Neurotrophic Factor", will be able to prevent cell loss in the brain, activate the function of remaining cells, and build new connections ("synapses") between brain cells. In animal studies, BDNF did all of these things successfully.

Furthermore, BDNF gene therapy improved memory in Alzheimer's mice, aged rats, and aged monkeys. This is one of only a few potential Alzheimer's treatments to be tested in monkeys and to show beneficial effects on memory.

The study doctors are now enrolling patients into the clinical trial. There will be a total of 12 patients treated in this study, and all of them will receive the active drug. This is called a Phase 1 clinical trial. Two patients already underwent treatment starting one year ago, and the treatment has been safe.

Gene therapy refers to using a harmless virus to introduce a new gene into a cell. Gene therapy has now been approved by the FDA to treat three other neurological disorders: spinal muscular atrophy, muscular dystrophy and metachromatic leukodystrophy. It has also been approved for non-brain diseases, including hemophilia, thalassemia, a form of blindness, and cancer.

In this clinical trial, a harmless virus called AAV2 will deliver the BDNF gene into cells of the brain. AAV2-BDNF injection into the brain involves a one-time surgical procedure that will raise BDNF levels in the brain continuously for many years. It is not expected that re-treatment will be necessary. There will be no need to take a daily medicine: BDNF will automatically be produced in the brain for several years.

This is the second gene therapy trial to be conducted at UCSD. The study doctors are Mark Tuszynski, MD, PhD, and Gabriel Leger, MD, of UCSD Neurology. Dr. Tuszynski

How BDNF Gene Therapy May Work in Alzheimer's Disease

1. BDNF gene delivery infused into entorhinal cortex of AD patients



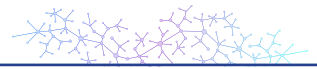
2. BDNF protein is produced at this site (●) and is transported to the hippocampus (●)

3. BDNF protein protects brain cells, promotes connections between cells and improves memory.

led the first human gene therapy trial in the adult brain 20 years ago. In that trial, his team injected a brain growth factor called NGF ("Nerve Growth Factor") into 40 people with mild Alzheimer's disease. The NGF gene therapy was safe, and the doctors found that dying cells in the Alzheimer's brain could respond to the growth factor with new growth. This was an exciting and important discovery. But the doctors found that too little of the growth factor was injected into the targeted brain region to improve memory or slow decline.

In the new BDNF gene therapy clinical trial, the doctors are using newly developed MRI technology to carefully monitor injections into the brain. They are ensuring that the correct brain regions receive the right amount of the BDNF gene therapy virus. They developed the injection technique in partnership with neurosurgeons over several years, and have safely treated two patients with BDNF to date.

The clinical trial is free, and travel costs are reimbursed. Ten more patients with mild Alzheimer's disease or Mild Cognitive Impairment (MCI) will be enrolled. If you are interested, please contact the trials unit team: clinicaltrialsadrc@health.ucsd.edu or 858-246-1267.



ENROLLING STUDIES

Cognitive Aging Longitudinal Study

PI: James Brewer, M.D., Ph.D. and Douglas Galasko, M.D.

CONTACT: (858) 822-4800 / participate@health.ucsd.edu

TIME INVOLVED: Annual visit until the end of life

DESCRIPTION: The purpose of this study is to learn how the brain changes as we age. This is an observational study that collects behavioral, medical, and cognitive data and assesses neurological functioning. It does not involve an intervention. This is done annually from the time of enrollment to death. Information about strategies for healthy brain aging is provided, as is feedback about one's annual performance

on cognitive testing. We continue to obtain blood and cerebrospinal fluid (CSF) samples to compare changes detected in blood and CSF to changes in cognition and brain structure.

REQUIREMENTS: Age 65 and older if normal cognition or diagnosis of MCI or early dementia due to Alzheimer's, FTD, or DLB; study partner required. Participation in biomarker procedures, including lumbar puncture (LP), magnetic resonance imaging (MRI), and PET imaging, as well as brain autopsy, at the end of life, optimize the value of the annual data collected.

Diverse Vascular Cognitive Impairment and Dementia (DVCID)

PI: James Brewer, MD, PhD

CONTACT: Lilly Pacheco, lpacheco@ucsd.edu

TIME INVOLVED: Annual appointment for 3 yrs added to longitudinal visit; annual MRI scan for 3 yrs

DESCRIPTION: The purpose of this study is to better understand how vascular health and abnormal white matter signals in brain affect people's thinking. Results to improve understanding of how poor vascular health causes white matter hyperintensities (WMH) and vascular cognitive

impairment and dementia (VCID). Involves completing 3 physical, neurological, and cognitive exams, blood draws, and brain MRIs over 3 years. Participants co-enroll in the longitudinal study and data collected at the annual visits apply to both studies. Additional requirements include the serial brain MRIs and a few questionnaires.

REQUIREMENTS: Between the ages of 65 and 90, noted a decline in your memory or thinking over the last three years, and are of African American, Hispanic/Latino, or European ancestry; no dementia

Alzheimer's Disease Neuroimaging Initiative 4 (ADNI-4)

PI: James Brewer, MD, PhD

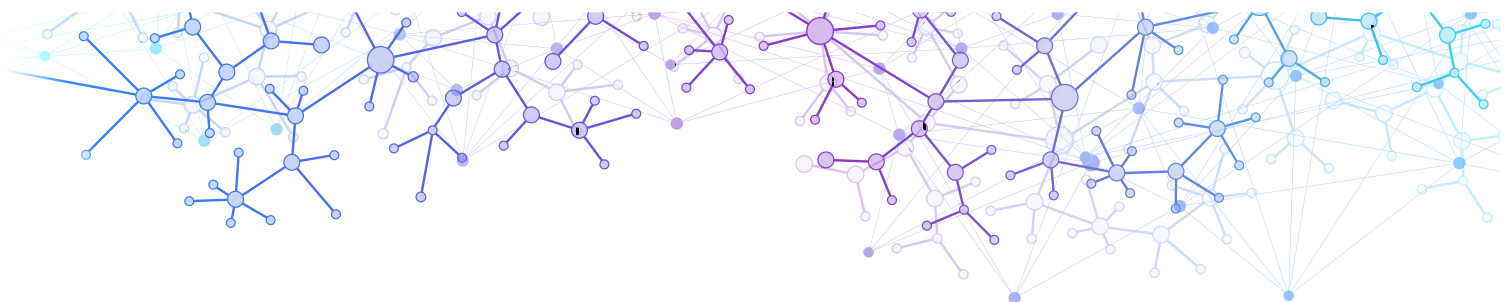
CONTACT: Jen Frascino, M.A. jfrascino@health.ucsd.edu

TIME INVOLVED: Minimum 5 years

DESCRIPTION: The Alzheimer's Disease Neuroimaging Initiative 4 (ADNI 4) is a 5-year study looking to recruit diverse participants. This is so our research better represents all people. This includes Black, Latino/Hispanic, Asian, Pacific Islander/Native Hawaiian, and American Indian/Alaska Native participants. The primary goal of ADNI 4 is to discover, optimize, standardize, and validate clinical trial measures and biomarkers used in ongoing Alzheimer's disease research.

ADNI plays a central role in improving treatment trials and is a non-randomized, natural history, non-treatment study. Clinical/cognitive, imaging (MRI and PET scans), biomarker, and genetic characteristics will be assessed across three cohorts: Normal controls (NC), Mild Cognitive Impairment (MCI), and mild Alzheimer's disease (AD). In-person visits will occur annually for MCI and AD subjects and every two years for NC subjects.

REQUIREMENTS: Age 55-90; normal cognition or a diagnosis of MCI or mild AD; a study partner; overall good general health. Subjects are required to undergo blood draws, cognitive testing, MRI and PET scans.





PET Neuroimaging Protocols

DESCRIPTION: The Shiley-Marcos Alzheimer's Disease Research Center (SMADRC) has new resources to obtain amyloid and tau PET images of participants enrolled in our Longitudinal Study. As a member of the NIA ADRC network and an additional project named the 'Consortium for Clarity in ADRC Research Through Imaging' (CLARITI), we have funding to obtain biomarker characterization via PET radiotracers to complement the clinical data obtained during the annual

visit process. This will allow for additional image analysis and summary results to be available to researchers in hopes of accelerating scientific discovery in the ADRC network. Select participants enrolled in the Cognitive Aging Longitudinal Study will be invited to participate in these imaging protocols.

REQUIREMENTS: Must be enrolled in the ADRC cognitive aging longitudinal study; Must be PET willing and safe (no recent radiation therapy).

Syn-D Study

PI: David Coughlin, MD

CONTACT: (858) 246-1267 /
clinicaltrialsADRC@health.ucsd.edu

TIME INVOLVED: Two 2-hour visits 1 year apart

DESCRIPTION: The purpose of this study is to collect skin biopsies from participants for amnesic MCI or MCI from Lewy body disease to help develop and validate a new test to help diagnose certain types of dementia. Compensation is provided.

REQUIREMENTS: Ages between 50-85, not on blood thinners, have early AD or early Lewy body disease. Participants will have their medical and neurological history reviewed, complete some questionnaires and a physical and cognitive assessment and have 3 small skin punch biopsies performed (shoulder, thigh, and ankle). These punch biopsies do not require a stitch. Participants return in 1 year for a repeat assessment.

AVANIR AVP-786

PI: Gabriel Leger, MD

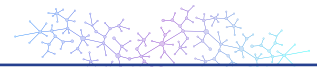
CONTACT: (858) 246-1303 /
clinicaltrialsADRC@health.ucsd.edu

TIME INVOLVED: 14 weeks

DESCRIPTION: This is a phase 3, randomized, double-blind, placebo-controlled study to assess the efficacy of AVP-786

for the treatment of agitation in patients with AD. A safe and effective treatment for agitation in AD is an unmet need. Study participant will take the drug orally every 12 hours. Compensation is provided.

REQUIREMENTS: Ages between 50-90; probable AD; agitation that interferes with daily routine



Who is bilingual and why does it matter?

By Anne Neveu, Dalia L. Garcia & Tamar H. Gollan

We often think that bilinguals should be able to speak both of their languages equally well. But in reality, this is actually quite rare. More often than not, bilinguals have one language that tends to be more proficient, and one that is relatively less proficient, in which abilities might vary across different forms of language (e.g. understanding well, speaking a bit less well and having more difficulty reading and writing).

Bilinguals sometimes know certain words and other linguistic structures only in one language but not in the other, and vice-versa. This means that when we test a bilingual's cognitive skills either for research purposes or in clinical settings, we need to evaluate both their languages, not just one, to get a fair and accurate representation of their abilities.

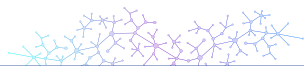
Bilinguals may often be asked to judge (or self-report) their language skills using a scale to indicate their proficiency level separately for speaking, reading, writing, and understanding. The scale can range from 1 (lowest ability/very little proficiency) to 7 (highest ability/as proficient as a native speaker). These reports do predict objectively measured proficiency at a group level, but their usefulness is quite limited for evaluation of individuals. For example, some bilinguals think they are equally proficient in their two languages but might perform much better in one of their languages, or even obtain higher scores in the language they thought is relatively less proficient overall. Even at low levels of proficiency, bilingualism can affect performance. For these reasons, we do not rely on a people's report of how good they are at each language, and we ask all our participants who might be bilingual to do some tests in both languages.

Language tests evaluate proficiency accurately and the same way across people. This ensures that we can compare results across different studies both here at the ADRC and in other parts of the country and the world, so that our knowledge about how linguistic diversity affects test performance builds up little by little. We can also get a more accurate representation of other cognitive abilities like memory and attention. For example, bilinguals might be asked to try to remember a list of words first in one language and then in the other. Having results of tests administered in both languages helps improve our understanding of how memory works in all people including even in people who speak just one language. Or if an item was missed in one language it could be because the word is not known, or because of a problem with memory. Having data in both languages helps with interpretation of test performance in the stronger language.

To summarize, being bilingual is a rich linguistic and cultural experience which needs to be considered thoroughly and accurately when conducting research or making a diagnosis. Self-reports of language skills, history of exposure to each language, and language tests used together are the tools that help us get this accurate report of a bilingual's cognitive status.



Dr Gollan and her team



Lorenza Fabre Vega and Dr. Paula Desplats

Donor Spotlight: Latattore Foundation

By Jocelyn Vargas

The Latattore Foundation was established in 2011 by Lorenza Fabre Vega's parents to help the community. Growing up, her parents always instilled the importance of helping those around them. As an immigrant family from Mexico, they realized that coming to the United States afforded them many opportunities and privileges that weren't available to everyone. She and her family wanted to make sure they could start something to help individuals in more difficult situations.

Lorenza's parents believed it was important for the whole family to have a voice in the creation of the foundation. While each family member had various ideas of what to focus on, they came together under the shared passion of helping those in need. They settled on three areas for intervention, which would become the 'pillars' of their foundation: arts, education, and health. Art can transcend language barriers, access to an education opens up opportunities in the future, and access to health makes a big difference in people's way of living. Together, these build the groundwork for the foundation's goals.

Lorenza shared that a personal family matter drove her to donate to the UC San Diego Shiley-Marcos Alzheimer's Disease Research Center (SMADRC). Her maternal grandmother has Alzheimer's,

which was a big learning moment for her family. She recalls how they held a dinner in Mexico where an expert on Alzheimer's disease sat with them and explained what to expect, which helped them better understand and feel more at ease. They wanted their gift to go towards helping the entire family living with Alzheimer's; towards a group focused on education and outreach and access. Lorenza's very own experience as a hospital social worker also played a big role. Her experience highlighted the importance of research and scientific aspects of treatments and how people could access them. This was a perfect bridge for them since they wanted to further support science and research.

She came across the UCSD SMADRC through extensive research about different facilities in the San Diego area and the type of care they provide. The UCSD SMADRC aligned with their values for different reasons. She emphasized the SMADRC's involvement in education and the community, which is big for them. UCSD SMADRC's care and focus on helping everyone in San Diego, not just in La Jolla, but especially in locations like Chula Vista, helped them realize that it was the perfect choice. It was clear that UCSD SMADRC's research is focused on helping everyone, not just one specific population. To them, this was the most important

thing: that care and resources are available to everyone.

The Latattore foundation aims to be involved in the institutions they donate to. Lorenza emphasizes that they don't want to be a foundation that simply writes a check and sends it out. Instead, they look for ways to be involved, whether it be getting involved in community events or sitting with families receiving care. They want to know firsthand what is working or what is missing to help find those missing pieces and provide support where it may be needed.

One of the Latattore Foundation's goals is to facilitate the Latino community's access to care. They aim to help them understand that care is there to support them and should not be something to fear. Lorenza ultimately wants the Latino community to know that there is a place where they can go for information and resources and that there is care and services available for Alzheimer's disease.

Thanks to support from the Latattore Foundation, the SMADRC has been able to provide improved access for diverse populations to participate in research. The UCSD SMADRC hopes to continue to provide resources and services to the Latino community not only in South Bay and La Jolla, but also beyond.

SHILEY-MARCOS ALZHEIMER'S DISEASE RESEARCH CENTER

CURRENTS

UPDATES IN RESEARCH AND RESOURCES

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The Shiley-Marcos Alzheimer's Disease Research Center provides an array of in-person and virtual support groups and activities designed to support well-being and quality of life for persons with memory disorders and their care partners.

Facilitated by trained professionals • No obligation to participate in research • No cost to participate

Virtual meetings are easy to access via zoom or phone • Pre-Registration is required: (858) 822-4800 or adrc.ucsd.edu

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Phone: (858) 822-4800
E-mail: participate@ucsd.edu

Seniors (65+) with or without memory concerns and those with a diagnosis, can join our research registry to be contacted about available opportunities.

