

Nun Study Team Member Introductions & Research Updates

Jan. 1, 2024

Introduction:

In 1986, a dedicated group of sisters, fueled by their passion for education, embarked on a noble mission. Little did they know that this journey would gracefully unfold into a profound story. Their dedication to teaching would eventually shine a light of hope on the enigmatic nature of Alzheimer's disease and related dementias. In 2021, Dr. Margaret (Maggie) E. Flanagan, MD, assumed the directorship of the study, marking a pivotal moment in the Nun Study's narrative. She not only embraced the leadership role but also undertook the monumental task of relocating the invaluable materials of the Nun Study from Chicago, Illinois, to San Antonio, Texas, bringing with her a wealth of knowledge and the legacy of the extraordinary participants. Since February of 2023, the Nun Study samples and archives have been safely stored at The University of Texas Health Science Center San Antonio (UTHSCSA) in the Biggs Institute for Alzheimer's and Neurodegenerative Diseases. Here, Dr. Flanagan hopes to reestablish the Nun Study's significance in research, continuing the efforts that began 36 years ago.

Meet the Flanagan Lab Nun Study Team:

Since the move, five new members have joined the Flanagan Lab.

Angelique Gonzalez, a San Antonio native, was the first to join in May of 2023. With a Bachelor of Science in Biology from the University of Texas at San Antonio (UTSA), Angelique was eager to enter the field of academia as a research assistant. Her family history of Alzheimer's disease piqued her interest in studying the brain leading her to Dr. Flanagan and the Nun Study. She is now pursuing a certification in histotechnology to better serve the project and the lab.

William Cole Corbett was the second to join the lab in June. Cole graduated with a Master of Science in Biotechnology in 2021 from UTSA. With his previous lab experience in organic chemistry, biochemistry, and clinical toxicology testing, Cole wanted to enter a field where he could be at the forefront of discovery. Cole is also pursuing a certification in histotechnology and plans on continuing his career in research.

Julie (Jules) Parker-Garza, M.Ed., MSHA, MLS(AMT), MLT(ASCP), joined the lab in July. A shared employee of the Biggs BioBank and the Biggs Brain Bank, Jules left her career in a clinical laboratory to start a new path in research! Jules handles managerial duties for the brain bank and the biorepository (our special storage facility for biological samples from clinical trials) and has been instrumental in providing the team with the tools we need to properly store and categorize nun study materials.

Shahroo Etemad-Moghadam, DDS, MS, became the lead lab manager in August. Previously a professor at Tehran University of Medical Sciences, Shahroo led her own lab focusing on oral pathology and dental diseases. With her background in oral pathology, Shahroo is ready to explore dental records from the Nun Study and provide a unique perspective on the topic.

Mohammed Albneif, a MD neurosurgeon from Syria, was the 4th to join the lab in September as a traveling scientist. Mohammed shifted his focus from neurosurgery to neuropathology. Mohammed hopes to match into a U.S. neuropathology residency program.

Sahana Babu, our latest member, is a pre-med student from UTSA majoring in Neuroscience who is part of the UTSA top scholars' program. She is currently working on digitizing the archives of the Nun Study for further research use. Sahana's interest in pathology was sparked by her mother and further strengthened by her mentorship at UTHSCSA. Although she has not been with the Nun Study for long, she enjoys working with the team and learning about different aspects of biomedical research.

About the Nun Study materials:

The Nun Study materials can be categorized into two vital aspects: biological samples and biographical/medical archives. The collection of biological samples includes whole brains meticulously processed and fixed in formalin,

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a solution that preserves the brain tissues. Additionally, paraffin-embedded brain blocks are crafted, essentially creating solid blocks of tissue and wax that can be cut into thin slices for examination. Cut slides of tissue, both stained and unstained, provide microscopic insights into the intricate structures, with staining highlighting specific features. Frozen brains from recent donations complement these preserved specimens, offering an alternative method of preservation that retains certain molecular characteristics. Alongside, RNA samples capture genetic information, which is crucial in unraveling Alzheimer's mysteries. A subset of blood samples that were collected during life are also available. By contrast, the biographical/medical archives consist of medical records, cognitive assessments, historical documents, audio recordings, journals, and more chronicling the lives of the participating sisters. These invaluable records trace their journeys from early life through the progression of disease. Recognizing the significance of these archives, ongoing efforts aim to increase their accessibility for research. Initiatives for digitization are in progress, seeking to make this wealth of information accessible to researchers and students worldwide. By making the sisters' valuable contribution more accessible, we are paving the way for even more groundbreaking discoveries in the field of Alzheimer's research. All Nun Study materials are currently stored carefully and safely in the lab or The University of Texas Health Science Center San Antonio's Dolph Briscoe, Jr. Library. All biological samples are stored in locked rooms that can only be accessed by lab personnel in the Flanagan Laboratory. The biographical/medical archives are stored in a secure room inside the campus library. Access to these records can only be achieved upon request and all who access the room are escorted by library staff. Additionally, the laboratory inventory management system "FreezerWorks" has been used to carefully inventory, barcode, and track all banked samples for the Nun Study. The Nun Study has its own secure "instance" within FreezerWorks where comprehensive details about each of the stored samples are safely stored. This information is only accessed by the designated "honest brokers" of the Nun Study per IRB protocol under Dr. Flanagan's supervision.

Up Next:

In our next newsletter, we very much look forward to sharing some exciting details on our new funded Nun Study grants and Nun Study publications from 2022-2023! With each passing day, we inch closer to our goal of making the Nun Study's profound impact accessible to the broader scientific community, fostering collaboration, and pushing the boundaries of research. With the sisters' donations, the lab's dedication to discovery, and the support of the San Antonio community, we navigate uncharted territories and hope to eradicate Alzheimer's disease.

Special Thanks:

As 2024 begins, the lab would like to thank the Robert L. Bailey Family for their generous donation of \$75,000. This invaluable gift will play a pivotal role in advancing the Nun Study Digitization effort, unlocking the potential to share the wealth of information stored in the Nun Study archives with researchers around the world.



The Flanagan Lab Nun Study Team and Brain Room

Contact email:
flanaganm1@uthscsa.edu

Website: coming soon

