
Mesulam Center

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Mesulam Center for Cognitive Neurology
and Alzheimer's Disease



**Helping Students
Understand Aging
and Dementia** p. 20

Northwestern Medicine
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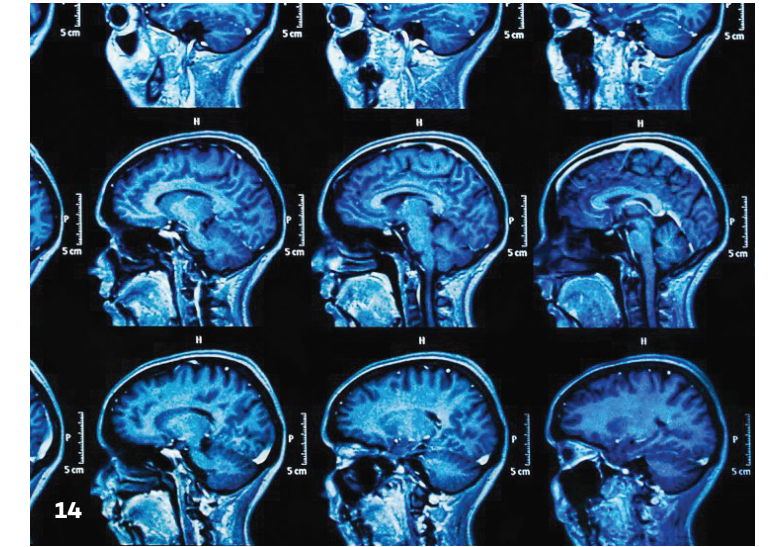
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ON THE COVER

Donte Garcia, PhD student at the Mesulam Center, points out brain regions to a local student during a recent Brain Scholars Program visit. See page 20 for more.



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“The education and training of our next generation of dementia researchers is a core vocation of the Mesulam Center.”

ROBERT VASSAR, PHD

Dear Friends and Colleagues:

It is my great pleasure to be addressing you in this newsletter as the new director of the Mesulam Center. In January 2023, I succeeded Dr. Marsel Mesulam, who ran the Center for 29 years. Dr. Mesulam is a giant in the field of dementia research and the discoverer of primary progressive aphasia (PPA), a type of dementia that impairs speech and language, and that is a prime research focus of our Center. I am deeply honored to be following in the footsteps of Dr. Mesulam, who continues his research in the Center, and I look forward to helping the Center achieve new heights in understanding the devastating dementias that we study and move toward treatments.

The past year has been filled with exciting new developments. On July 6, 2023, the Food and Drug Administration (FDA) granted traditional approval to Leqembi (the commercial name of the drug lecanemab), the first such approval of an Alzheimer’s disease (AD) drug in two decades. Unlike the controversial drug Aduhelm that was given FDA accelerated approval for AD two years ago, Leqembi successfully met the endpoints of its Phase 3 clinical trial. Similar to Aduhelm, Leqembi clears the brain of amyloid, a substance that accumulates in AD. But unlike Aduhelm, Leqembi definitively slowed the progression of AD, demonstrating a disease-modifying effect. Leqembi is being studied in further clinical trials, including at the Mesulam Center. More research is needed. In the meantime, new drugs that target different aspects of AD are being developed, including at the Mesulam Center. The goal is to mount a multi-pronged attack of this dreaded disorder with a combination of drugs, like the way we treat other diseases such as cancer, heart disease, diabetes, and AIDS.

Research at the Center has been particularly fruitful this past year. Dr. Tamar Gefen, assistant professor of Psychiatry, discovered that brain cells called neurons — which are responsible for memory and other brain functions — are larger and healthier in a part of the brain called the entorhinal cortex in elderly people with superior cognition, people we call SuperAgers. The entorhinal cortex is critical for memory function, so the larger neurons there may play a vital role for the SuperAgers, individuals over the age of 80 who have exceptional memory compared to their contemporaries and even to people 20-30 years their junior. Dr. Gefen’s findings provide important clues as to why the SuperAgers perform cognitively so well, which may lead to new approaches to treat AD.

Discovery of new disease biomarkers and diagnostic tests are also important missions of our Center. Current diagnostic tests for AD are expensive and invasive, involving either brain scans or spinal taps. But in a recent publication, Dr. Sandra Weintraub, professor of Psychiatry, and Center affiliate Dr. Thorsten Kahnt reported the results of a smell test that can distinguish individuals with AD and

mild cognitive impairment from those who are cognitively unimpaired. This and other biomarkers being developed in the Center promise to advance our ability to diagnose AD and other dementias in a safe and effective manner.

A motto of the Mesulam Center is “from cells to social work,” which truly captures the multi-disciplinary nature of our research. Social workers are central to the mission of our Center, not only as part of the Neurobehavior and Memory Clinic, but also in the retention of research participants through therapeutic encounters. Their efforts and programming not only provide much-needed support to families who are faced with many challenges, they also highlight remaining strengths and abilities in persons living with dementia.

The education and training of our next generation of dementia researchers is a core vocation of the Mesulam Center. The Mesulam Center is tackling the problem of diversifying the scientific community with a new initiative, the Brain Scholars Program, which provides training opportunities for students at all levels of education, with a focus on underrepresented groups.

I am pleased to welcome our new faculty to the Center: Drs. Molly Mather (psychiatry/clinical neuropsychology), Allison Lapins (neurology), Malik Nassan (psychiatry), Elena Barbieri (physical medicine and rehabilitation), and Pouya Jamshidi (pathology), who will be growing our clinical and research enterprises. They all were previous fellows in the Mesulam Center, and they enhance the multi-disciplinary nature of our Center. We are thrilled to be working with them, and I look forward to reporting their remarkable success stories to you in the years to come.

All of us at the Mesulam Center look forward to 2024. Feel free to contact me or any of my colleagues with comments or questions. Stay well and stay safe.

Warm regards,

Robert Vassar, PhD

Director, Mesulam Center for Cognitive Neurology and Alzheimer’s Disease
and Davee Professor of Alzheimer Research

Latest Research by Mesulam Center Faculty

Each year, Mesulam Center faculty and staff publish dozens of scientific papers on their cutting-edge research that seeks to better understand the neurodegenerative disorders that cause dementia. Here are several of these breakthrough studies that have been published in the past year.

“Differential vulnerability of the dentate gyrus to tauopathies in dementias”

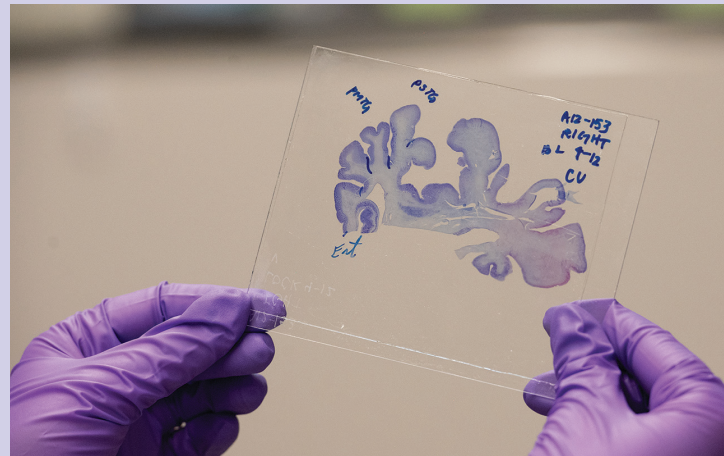
Acta Neuropathologica Communications, January 3, 2023

This study looked at the how the hippocampus, an important part of the brain for memory, is affected by tau protein in different brain diseases. Alzheimer’s disease is one such disease, but the study found that in persons living with Alzheimer’s, the distribution of tau in the hippocampus was similar whether the individual had memory issues or language problems. This suggests that tau impacts the brain in different ways in various diseases, which could affect memory and brain function differently.

Authors: **Allegra Kawles, Grace Minogue, Antonia Zouridakis, Rachel Keszycki, Nathan Gill, Caren Nassif, Christina Coventry, Hui Zhang, Emily Rogalski, Margaret E. Flanagan, Rudolph Castellani, Eileen H. Bigio, M. Marsel Mesulam, Changiz Geula, Tamar Gefen**

69

Total number of publications from Mesulam Center faculty and staff, August 2022 – August 2023



A Mesulam Center researcher investigates brain tissue.

“Baseline characterization of the ARMADA (Assessing Reliable Measurement in Alzheimer’s Disease) study cohorts”

Alzheimer’s & Dementia, May 11, 2023

The ARMADA study aimed to create a computerized test battery (NIH Toolbox) for evaluating memory, thinking, emotions, motor skills, and sensations in people with different cognitive abilities, from normal cognition to dementia. The study looked at individuals with normal memory, those with mild memory issues (not yet interfering with daily life), and those with dementia (experiencing memory and daily life problems). The results revealed that the NIH Toolbox effectively distinguished these groups,

showing that people with Alzheimer’s-type dementia had more memory and daily life changes, while those with mild memory problems showed cognitive difficulties not impacting daily activities, and those with normal memory performed best in all areas. The NIH Toolbox is widely used throughout the US and was developed here at Northwestern by Richard Gershon and Sandra Weintraub in the Department of Medical Social Sciences and the Department of Psychiatry. Learn more about the NIH Toolbox: nihtoolbox.org.

Authors: **Tatiana Karpouzian-Rogers**, Emily Ho, Miriam Novack, **Miriam Chinkers**, Katy Bedjeti, Cindy Nowinski, Bruno Giordani, Richard Gershon, **Sandra Weintraub**

“Frontotemporal Degeneration with Transactive Response DNA-Binding Protein Type C at the Anterior Temporal Lobe”

Annals of Neurology, May 15, 2023

Alzheimer’s disease typically starts by damaging the hippocampus, a brain area critical for memory. This is why memory loss is the hallmark of this disease. In contrast, a disease called TDP-C targets the tip of the temporal lobe for maximal destruction. Such patients lose the ability to understand common words such as “pear” or “elephant” while remaining functional in most customary daily activities. Research on this curious linkage between the temporal tip, word comprehension, and TDP-C opens new areas of research on the anatomy of selective neurodegeneration. The co-authors of this article have formed an international collaboration, Consortium-in-C, to dig deeper into these questions.

Authors: **Marek-Marsel Mesulam, Tamar Gefen, Margaret Flanagan, Rudolph Castellani, Pouya Jamshidi, Elena Barbieri, Jaiashre Sridhar, Allegra Kawles**

“Shades of Gray in Human White Matter”

The Journal of Comparative Neurology, June 27, 2023

The human brain is composed of gray and white matter. Gray matter is made up of neuronal cell bodies, while white matter consists of myelinated axons. Neurons within white matter were first examined in 1867 by Theodor Meynert through accidental discovery. Over a century later, the Mesulam Center continues to carry out an extensive and systematic analysis of these peculiar neurons in white matter, which is by definition supposed to be free of neurons.

Authors: **Antonia Zouridakis, Ivan Ayala, Grace Minogue, Allegra Kawles, Rachel Keszycki, Alyssa Macomber, Eileen H. Bigio, Changiz Geula, Marek-Marsel Mesulam, Tamar Gefen**



Research in the Mesulam Center wet labs have led to various breakthroughs in dementia research.

“The Gut Microbiome Regulates Astrocyte Reaction to Aβ Amyloidosis Through Microglial Dependent and Independent Mechanisms”

Molecular Neurodegeneration, July 6, 2023

Recent studies have shown that the gut microbiome (GMB) likely plays a role in Alzheimer’s disease (AD) and that persons living with Alzheimer’s have altered GMB compositions compared to healthy controls. The team investigated how the GMB may play a role in AD and found that the GMB regulates inflammatory activity in brain cells called astrocytes in mouse models of AD. Their findings suggest a suboptimal GMB, such as those found in persons living with Alzheimer’s, may trigger increased astrocyte inflammation and lead to AD progression, whereas a healthier GMB may protect against astrocyte inflammation and AD progression.

Authors: **Sidhanth Chandra, Antonio Di Meco, Hemraj B. Dodiya, Jelena Popovic, Leah K. Cuddy, Ian Q. Weigle, Xiaoqiong Zhang, Katherine Sadleir, Sangram S. Sisodia, Robert Vassar**

Read more about these and all of our recent research publications at brain.northwestern.edu/scientists-students/publications.html

Thank you, Goodbye, and Good Luck to Emily Rogalski



Congratulations to Emily Rogalski, PhD, who transitioned to an important professorship at the University of Chicago on September 1, 2023. Emily came to the CNADC (now the Mesulam Center) as a Northwestern University Interdepartmental Neuroscience (NUIN) graduate student and completed a fellowship at Rush University. At the end of her fellowship, I was fortunate enough to recruit her to the CNADC faculty. Her multiple achievements led to a tenured professorship and to her designation as the inaugural recipient of the Perkins Family Professorship.

Emily made pivotal contributions to the Northwestern SuperAging and primary progressive aphasia (PPA) programs. She transformed the SuperAging theme into a solid research enterprise that attracted international attention. Under her leadership, the term “SuperAging” was added to the National Institutes of Health lexicon and became a priority funding area for the National Institute on Aging. In PPA programs, her research focused on molecular imaging and innovative web-based treatments. Emily also served as the founding leader of the Northwestern Alzheimer’s Disease Research Center Imaging Core and is recognized as a leader in dementia imaging.

Her contributions have left indelible marks on the Mesulam Center. I wish her success.

Marsel Mesulam, MD

Founding Director Emeritus, Mesulam Center for Cognitive Neurology and Alzheimer’s Disease

Ruth Dunbar Davee Professor in Neuroscience and Neurology, Northwestern University

Grant Spotlights



Borna Bonakdarpour, MD, FAAN, assistant professor of Neurology, plays piano at a recent Music in Medicine event.

GRANT SPOTLIGHT: MUSIC IN MEDICINE

We've all found ourselves unconsciously bobbing our heads or tapping our feet to music playing in the background. So, it's hardly a stretch to understand why **Borna Bonakdarpour, MD, FAAN**, and the Northwestern Music and Medicine Program received a 3-year grant from the National Endowment for the Arts to study the emotional and neurophysiological effects of Clinically Designed Improvisatory Music (CDIM) on individuals with Alzheimer's disease.

With CDIM, participants lie down while a live music practitioner plays a viola within what is considered safe and comfortable octaves. This music-related intervention



differs from most because it focuses on brain functions that are not inherently related to memory.

Researchers have noted that the resulting brain waves slow from beta to alpha waves, reflecting a more meditative state. Because a more relaxed brain is less distracted thereby has better working memory and efficiency, perhaps one day this could lead to interventions that improve memory as well.

Interested in learning more? Visit bornacogneurology.com.

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Grants received by the Mesulam Center
August 2022 – August 2023

\$4.26M

Grant funding received by the Mesulam Center
August 2022 – August 2023

GRANT SPOTLIGHT: ADNI-4

The Alzheimer's Disease Neuroimaging Initiative (ADNI) is currently in its fourth iteration of tracing biomarkers related to the onset and progression of Alzheimer's disease. Participants are enrolled at research locations across the country, including at the Mesulam Center, where **Ian Grant, MD**, is the principal investigator.

On a nationwide level, ADNI-4 aims to enroll a more diverse cohort so providers can be comfortable applying their research broadly. Diversity among clinical study participants often opens the door to questions that researchers, like Grant, may not have otherwise known to ask. "There are things that we don't know that we don't know. Things can come to light that perhaps wouldn't even have been a question or weren't even on our radar," he said.



A human brain is displayed at the Mesulam Center Brain Bank.

The Mesulam Center was designated a hub site for the project, receiving more funding from the ADNI grant to explicitly increase diverse recruitment. Grant believes that the Center is well-suited for this designation because its clinical core already closely resembles the general Chicago population. Additionally, the hospital is located centrally within downtown Chicago, and the Center partners with Lyft to ensure research participants have transport options to reach the clinic. Any increase in diversity achieved by recruitment helps to offset the lack of diversity that other sites of the ADNI study may experience.

Center Faculty Share Knowledge and Expertise on Local, National, and International Stages

As the Mesulam Center's work continues to grow, Center faculty continue to take on leadership positions in Chicago and around the world.

LOCAL

- **Elena Barbieri, PhD**, was promoted to research assistant professor at the Mesulam Center in fall 2023.
- **Barbieri** was awarded the 2023 Toffler Scholar Award at Northwestern University from the Karen Toffler Charitable Trust, an award that supports promising young medical researchers, physicians, and scientists who are at a pivotal point in their careers.
- **Borna Bonakdarpour, MD**, assistant professor of Neurology, was named the deputy director of the Behavioral Neurology and Neuropsychiatry Fellowship Program at Northwestern.
- In February 2023, **Rudy Castellani, MD**, was named director of the Neuropathology Core at the Mesulam Center.
- **Maureen Daly, PhD**, assistant professor of Psychiatry and Behavioral Sciences and a board-certified neuropsychologist in the Mesulam Center, assumed the associate director position for the MA and PhD programs in Clinical Psychology in the Feinberg School of Medicine in December 2022.
- **Tamar Gefen, PhD**, was appointed as clinical core co-leader of the Northwestern Alzheimer's Disease Research Center in November 2022.
- Mesulam Center postdoctoral fellows **Molly Mather, PhD** (Neuropsychology), **Malik Nassan, MD** (Behavioral Neurology/Neuropsychiatry), and **Allison Lapins, MD** (Behavioral Neurology/Neuropsychiatry), accepted assistant professor faculty positions at the Mesulam Center in summer 2023.
- **Sandra Weintraub, PhD**, professor of Psychiatry and Behavioral Sciences, and associate director of the Northwestern Alzheimer's Disease Research Center, was appointed to the Illinois Supreme Court Commission on Elder Law in March 2023, joining **Darby Morhardt, PhD, LCSW**, who was appointed to the Commission in April 2022. Weintraub and Morhardt served as keynote speakers at the Commission's first listening session in April 2023.

NATIONAL

- After receiving a 3-year grant from the National Endowment of the Arts (NEA), **Bonakdarpour** was named a member of the NEA and National Institutes of Health's Sound Health Network.
- **Bonakdarpour** was named a fellow of the American Neurological Association (FANA).
- **Marsel Mesulam, MD**, founding director emeritus of the Mesulam Center, was the 2023 recipient of the Distinguished Lifetime Contribution to Neuropsychology from the National Academy of Neuropsychology in June 2023.
- **Darby Morhardt, PhD, LCSW** was elected to the National Institute on Aging Alzheimer's Disease Research Center ORE Core Steering Committee in July 2023. This is a three-year appointment, ending in fall 2026.

INTERNATIONAL

- In spring 2023, **Mesulam** was recognized by Research.com in their 2023 Ranking of Best Scientists in Neuroscience list. He was ranked #35 in the world and #25 in the United States. He has also been recognized with the Neuroscience Leader Award for 2023.

"When I was a student at the Center over a decade ago, the motto was (and still is), "from cell to social work." It reflects the need for synergy and collaboration across multiple disciplines in order to achieve true discovery in dementia research. I now get see my own students carrying on that same message of discovery through cross-collaboration."

TAMAR GEFEN, PHD

Meet the Mesulam Center's New Director



Robert Vassar takes the helm, envisioning a bright future for Alzheimer's research

IN JANUARY 2023, ROBERT VASSAR, PHD, became the director of the Mesulam Center after Marsel Mesulam, MD, stepped down from the position following 29 years of leadership.

Vassar, a professor with Northwestern University since 2001, is currently the Davee Professor of Alzheimer Research and Professor of Neurology and of Cell and Developmental Biology, the scientific director of Behavioral Neurology in the Department of Neurology, and the director of the National Institutes of Health-funded Northwestern Alzheimer's Disease Research Center.

Vassar's journey to this position began in 1983, when his mother was diagnosed with Alzheimer's disease. Witnessing her decline motivated him to dedicate his career to understanding and finding a cure for the disease.

His mother's diagnosis pushed him to pursue a PhD in molecular genetics and cell biology, which he completed in 1992. He then went on

to complete his postdoc at Columbia University, studying the molecular biology of smell in the lab of Rachard Axel. Axel went on to receive a Nobel Prize for discoveries based on the work they did together.

Under Marsel Mesulam's guidance, the Center gained recognition for its research on the heterogeneity of aging and dementia. Vassar acknowledged Mesulam's accomplishments, particularly his identification of primary progressive aphasia and his extensive contributions in clinical neurology. Vassar's background brings a complementary yet unique perspective to the Center's research.

Vassar himself has made significant contributions to Alzheimer's research, including the discovery of the enzyme BACE, a key player in the formation of amyloid

plaques. While clinical trials faced challenges, he remained determined to explore lower doses of BACE inhibitors, striking a balance between efficacy and side effects.

Looking ahead, Vassar envisions a future in which Alzheimer's disease is approached through precision medicine. Recognizing the complexity of the disorder, he emphasizes the need for individualized treatments based on a person's unique genetic and environmental factors. Drawing inspiration from other fields such as AIDS and heart disease, he envisions a toolkit of drugs targeting different aspects of the disease process.

"I think the future is very bright. My experience has proven to me that with persistence, you will make progress," he said. "That's a message to all the young scientists out there and for

everyone really, including patients and their families. We eventually get to answers. It may take a long time, and we may take some detours from time to time, but that's just the nature of science. And it's a very exciting journey."

To those affected by Alzheimer's, Vassar offers solace and hope. He empathizes with their struggles and urges them to stay socially and intellectually active. "Know that we, the researchers in the field, are working hard day and night all over the world to try to find treatments for this devastating disease," he said.

With Vassar at the helm, the Mesulam Center is embarking on a new chapter. Guided by his expertise and fueled by his personal dedication, the Center continues our quest to solve the mysteries of Alzheimer's disease.

"Our research participants in our studies at the Mesulam Center are the real heroes of the story. They are the ones that are altruistically giving of themselves," Vassar said. "Without them, there would be no progress in research in not only the dementia field, but everywhere in medicine. They are the real heroes."



A NEW CHAPTER FOR THE MESULAM CENTER

Top: Robert Vassar, PhD, director of the Mesulam Center, in the Vassar Lab at Northwestern University.

Left: Vassar and Sandra Weintraub, PhD, professor of Psychiatry and Behavioral Sciences and associate director of the Northwestern Alzheimer's Disease Research Center in the Mesulam Center.

"Know that we, the researchers in the field, are working hard day and night all over the world to try to find treatments for this devastating disease."

ROBERT VASSAR, PHD

Celebrating Marsel Mesulam

A titan of cognitive neurology hands over the reins

On January 1, 2023, Marsel Mesulam, MD, stepped down as director of the Mesulam Center, with Robert Vassar, PhD, taking over the role. This transition marks 29 years of leadership by Mesulam, who established the Center in 1994.

With numerous accolades, Mesulam has created a powerhouse of research. Under his guidance, the Center has brought in millions in grant funding, trained numerous scientists, and established itself as an international leader in the field of successful brain aging, Alzheimer's, and related dementia research.

Though his contributions to the field have been many, Mesulam considers one of the most memorable to be a fortuitous and trivial modification in a method that he was developing to trace the cortical connections within monkey brains. He distinctly remembers that the idea came to him while he was sitting in his dentist's chair. He realized that a traditional part of the method – using aqueous solutions to dissolve a lipophilic, or fat soluble, chemical – was leading to inconsistent concentration measurements and findings. Through a simple switch to alcohol solutions, which can dissolve lipophilic molecules, he made a discovery that became a citation classic.

Connecting brain tissue with clinical history

Mesulam considers the establishment of the dementia and aging Brain Bank as one of his most important achievements. The strength of the Northwestern Brain Bank is the presence of detailed clinical information on all specimens, and the emphasis on a spectrum of dementia-related diseases, not just Alzheimer's. In contrast to many other brain banks, the Center stores tissues from both the right and left side of the brain, leading to discoveries on the asymmetric vulnerability of the brain to different diseases.

The Brain Bank illustrates the unique systems-level perspective Mesulam took in setting up the Center, where scientists and physicians from different departments focus on connecting behavior with anatomy through a multidisciplinary perspective.

"Ultimately, our concern is for the whole patient," Mesulam said. "The interface between the person and disease defines the nature of the symptoms. We need to link the two so we can help the patient and also use the rich clinical and Brain Bank material to better understand how the brain works. So that's how I hope to see the Center grow and not lose its roots in the clinical phenomena and systems level neurobiology."

Defining primary progressive aphasia

In addition to Alzheimer's, where forgetfulness and age-related cognitive problems are typical, Center scientists study unusually successful aging in a group of participants who are 80 or older, for whom Mesulam coined the term "SuperAgers." Investigations on other dementias like primary progressive aphasia (PPA), a progressive language disorder which Mesulam identified and named in 1982, allow the Center to have a comprehensive approach to patient care, research, and teaching.

Prior to the identification of PPA, families were often frustrated because they were treated like other Alzheimer's patients, even though the diseases are very different. As the clinical definition became clearer, interventions and treatments became more relevant. PPA became a model for studying language and led to new discoveries on the representation of words in the brain. In right handers, PPA almost always affects only the left side of the brain. This phenomenon allows scientists to explore the principles of selective vulnerability, or how diseases know what to target. "We turned a rare disease into a paradigm," Mesulam said.

Even as he transitions out of the director role, Mesulam's work at the Center is hardly finished. "I'm probably busier now than I was before," he said. Though he has stepped down as Center director, Mesulam continues to lead various research and clinical activities and serves as chief of the Behavioral Neurology Division at the Department of Neurology and medical director of the Neurobehavior Clinic at Northwestern Medicine.

And to young scientists, Mesulam reminds them to treat each patient with the utmost respect, but also to benefit from each interaction as an opportunity to learn more about brain function. "Treat your patients by safe best practices but be daring in your thinking about the underlying science," he said.



"We turned a rare disease into a paradigm."

MARSEL MESULAM, MD

Timeline of Marsel Mesulam's Professional Journey

1945: Born in Istanbul, Turkey to Mose and Fani Mesulam

1972: Received MD from Harvard Medical School

1978: Founded the Behavioral Neurology Unit (BNU) at Beth Israel Hospital, Boston

1985: Published *Principles of Behavioral Neurology* book

1990: Named President of Boston Society for Neurology and Psychiatry

1996: Application to establish an NIH-funded Alzheimer's Disease Center is successful on first submission

2018: CNADC is officially renamed as the Mesulam Center for Cognitive Neurology and Alzheimer's Disease.

1968: Received Bachelor of Arts from Harvard University

1976: Postdoctoral fellowship at Harvard University

1982: Identified primary progressive aphasia (PPA) as a distinct syndrome

1986: Became professor at Harvard Medical School, Boston

1994: Named Ruth and Evelyn Dunbar Professor of Neurology and Psychiatry at Northwestern University. Established the Behavioral Neurology training programs and Neurobehavior and Memory Clinic.

1998: Opened Northwestern University Brain Bank

2023: Stepped down as director of the Mesulam Center



WORKING TOGETHER TO FIND A TREATMENT

AJ Olsen, Mesulam Center research study coordinator, meets with Carole Book, Mesulam Center research participant, during an annual visit.

Participating in Research to Help Others and Herself

With an extensive family history of Alzheimer's disease, Kim hopes to reduce her risk of developing the disease.

At the Mesulam Center, our studies lead to a better understanding of and future treatments for dementia and Alzheimer's disease. We could not do this important work without the help of our fantastic research participants.

Kim came to us as a participant in our AHEAD study, which explores investigational treatments that could potentially deter the earliest brain changes related to Alzheimer's in people who have a higher risk of developing the disease later in life.

Studies have shown that changes caused by Alzheimer's occur in the brain many years before a person shows symptoms of the disease. This study is meant to help researchers explore those early changes and to determine if an investigational drug reduces the risk of developing the disease.

Kim has an extensive family history of Alzheimer's disease. Her paternal grandmother, father, his four siblings, and two of Kim's cousins have developed the disease.

"My dad's mom [was diagnosed with Alzheimer's] in her seventies, but she didn't die until she was 92," Kim said. "I don't want to outlive my brain."

She also has a genetic predisposition and intermediate amyloid levels in her blood. With Kim's family history, genetics, and current amyloid levels, she is the perfect candidate for a study that focused on prevention.

"If this works, it lets me be involved in my grandchildren's lives," she said. "Even if it could only delay it for five years. Every day that I can avoid [the disease] is a gift."

A recently retired medical technologist, Kim chose to enroll in the AHEAD study after she had done her own research, found information about the study, and ran the idea past her old coworkers. She began her infusions in January 2023 and completed her seventh infusion in early July.

"I have family that does not support this," she said. "They ask why I would let people put something in my body that I don't know what it is? But to me, that was a no-brainer."

TOTAL ACTIVE PARTICIPANTS:

448

10+ years of participation 94

5-10 years of participation 143

2-5 years of participation 136

<2 years of participation 75

INTERESTED IN PARTICIPATING IN RESEARCH?

In addition to the AHEAD study, the Mesulam Center is currently enrolling for many other research studies, including those on SuperAging and PPA.

We are looking for:

- Individuals who are cognitively healthy and over 55
- Individuals living with mild memory problems, sometimes called mild cognitive impairment
- Individuals who have been diagnosed with mild dementia (including Alzheimer's disease)

Our research efforts lead to a better understanding of and future treatments for age-related cognitive decline and the diseases that cause it. Most of our research takes place at our Center located in downtown Chicago.

Learn more at brain.northwestern.edu/join

Kim's hope is that her participation in research will inspire her grandchildren to trust scientific research. "I'm doing what I can to protect myself," she said.

Perhaps one of the biggest advantages of this study is not the potential treatment, but the community and foresight it offers. Since enrolling, Kim has had the support necessary to speak to discuss decisions that should be made if she were to begin facing cognitive deficits.

"I can take away as much burden as possible from my loved ones."

Understanding New Alzheimer's Medications

People with Alzheimer's must consider the benefits, risks, and costs of new anti-amyloid drugs

The Mesulam Center has recently begun administering the new Alzheimer's drug lecanemab, an anti-amyloid medication that received full FDA approval earlier this year but that has been slightly controversial in practice.

People with Alzheimer's disease and their families might wonder if this medication is right for them, especially since their mechanisms of action and potential side effects are quite different than previous drugs.

"We seem to be having some kind of breakthrough where we finally maybe understand what's going on in this disease and what we need to target," said Allison Lapins, MD, a Northwestern physician overseeing the lecanemab treatment. "But the question is, do we know enough right now for it to be safe and worthwhile for patients?"

Older drugs targeted neurotransmitters and aimed to improve symptoms

For decades, the only medical treatments for Alzheimer's disease have been donepezil, galantamine, rivastigmine,

and memantine. The first three are common cholinesterase inhibitors, which prevent the neurotransmitter acetylcholine from being broken down.

Acetylcholine is a chemical that neurons use to communicate with one another. In Alzheimer's, the cholinergic, or acetylcholine-producing, neurons die. By blocking the enzyme that breaks down acetylcholine, these drugs help compensate to improve communication between cells, leading to modest improvements in memory and attention. Some investigators also believe that these interventions slow progression of symptoms for at least five years after starting the medication.

The Center's very own Marsel Mesulam, MD, made one of the anatomic discoveries that led to the development of cholinesterase inhibitors, which have been the preferred treatment for patients with Alzheimer's disease the last 30 years.

"The loss of acetylcholine in the Alzheimer brain had been discovered by British investigators in the 1970s, but the reasons were unknown," Mesulam explained. "Our experiments proved that the source of acetylcholine was at the base of the forebrain. The discovery of destruction of this site very early in Alzheimer's

explained why acetylcholine is lost and helped to justify trials with cholinesterase inhibitors."

But "in the nearly 50 years since then, not much has changed in our ability to make a big dent in treating Alzheimer's disease," Mesulam said.

Newer drugs target amyloid

Now, new drugs are taking a different angle. While previous drugs predominantly address the symptoms of disease, the new drugs work to target and remove amyloid, an aggregated protein that, in people with Alzheimer's disease, builds up in the brain. When it is found deposited in the brain, it is a classic marker of Alzheimer's disease. Scientists believe that buildup of the tau protein in the brain happens afterward, though the connection to amyloid is uncertain. After years of both levels increasing, the brain's neuron cells begin to die. That is when the disease process becomes visible on

an MRI, and patients begin experiencing symptoms.

Newer amyloid-targeting medications like lecanemab are infusion therapies delivered intravenously (through IV) to remove amyloid in the brain. Doctors can administer the drugs when amyloid is building up, before symptoms or structural changes have begun to significantly progress. In doing so, they can use these drugs to potentially slow the progress of Alzheimer's disease. There are ongoing clinical trials to see if removing amyloid, even before a person has symptoms, could possibly delay the onset of Alzheimer's, though it will likely be several years before we have an answer to this question.

Lapins, the physician overseeing the lecanemab treatment, explains that these medications "clinically slow down disease progression, which in a clinical trial was measured by a standardized

EXPLORING NEW TREATMENTS

Allison Lapins, MD, assistant professor at the Mesulam Center, and Robert Vassar, PhD, director of the Mesulam Center, discuss lecanemab treatment options prior to a patient visit.



dementia rating scale" that accounts for a person's ability to function independently.

There have been numerous trials aimed at creating a clinically effective anti-amyloid medication, and many of them had failed. Lecanemab is the first of these drugs to receive full FDA approval, and a similar drug, donanemab, is expected to receive full approval sometime this winter. The difference in these medications is the kind of amyloid they target, their dosages, and the frequency of infusion.

New drugs not right for everyone

Though these drugs could potentially slow the progression of the disease in some patients, individuals must consider the risks and side effects.

"This discovery may be spelling trouble for those of us who may want to be more conservative and feel that the gain may not be worth the trouble," Mesulam said. "The fly in the ointment is that the change in disease progression speed is small, and no symptomatic improvement is to be expected. The risk is high. And the medication is cumbersome to administer."

Lapins counsels those interested in receiving these medications to consider their values, goals of care, and desire to take risks. For

lecanemab, patients must come into the clinic for an infusion every other week and they must undergo multiple MRI screenings to monitor for side effects. These conditions could eventually change. Donanemab could allow for infusions only once a month, and in the future, it's possible that drugs could be administered through subcutaneous injections by the patient or that infusions could be given at home.

But nearly one in five people who take the drugs have brain swelling or bleeding seen on an MRI scan. Though this does not usually cause any symptoms, the medical team monitors patients closely to catch it if it happens. This risk is increased with people who have had strokes, brain tumors, or anything that alters the

structure of their brain. Also, lecanemab should only be used in those without significant genetic predisposition to these side effects, specifically those with two copies of the ApoE4 gene. There are many questions left to answer.

The future of Alzheimer's treatment seems comparable to that of existing cancer treatments. "I think a magic bullet is out of the question," Mesulam said. "One medication is not going to do the trick. We have to be prepared to have a cocktail, similar to diseases like cancer." Lapins says medications might follow a similar path, with an intense induction phase and then a maintenance phase that is easier.



“Every community has made this a little bit different for themselves based on what’s important to them.”

**SUSAN FRICK, MSW, LSW,
DEMENTIA FRIENDLY
ILLINOIS LEAD**

Shining a Light on Dementia Friendly Washington Heights

Mesulam team worked with community partners to achieve certification

In the summer of 2022, Washington Heights, a neighborhood on the far south side of Chicago, was certified by Dementia Friendly America. This certification means that the national organization recognizes this community to be both safe

and engaging for persons living with dementia and their families.

The task force to achieve this certification was led by Darby Morhardt, PhD, LCSW, research professor and social worker at the Mesulam Center, and Karen Graham, PhD, manager of community relations at the Rush Alzheimer’s Disease Center (RADC). They both served as leaders for the

initiative until February 2023, when leadership was handed off to Phyllis Tyler and Harriet Thomas, two community leaders of Washington Heights.

Washington Heights offers many resources for people living with dementia and their families. It has a quarterly arts program for people living with dementia, a monthly caregiver support group, an annual caregiver town hall, multiple

informational resources available at the library, and librarians who are trained to navigate the needs of a person who has dementia.

Achieving communities like Washington Heights will be increasingly important, since rates of dementia are projected to increase from 1% to 2.5% and will continue to rise as the Baby Boomer generation ages.

Susan Frick, MSW, LSW, one of the Illinois state leads for the Dementia Friendly initiative, explains that “these initiatives show people how important it is to stay connected to somebody with dementia.”

Washington Heights isn’t the only neighborhood in Chicago to earn this designation — Austin, Hyde Park, and South Loop have also received certification. “Every community has made this a little bit different for themselves based on what’s important to them,” Frick said.

A space to stay active and socialize

Washington Heights’ certification, in a neighborhood with a population that is more than 95% Black, is a step towards ameliorating the overwhelming health disparities that characterize

Chicago. “Dementia is an ailment that impacts African Americans in a 2:1 ratio,” wrote community partner Melvin Thompson in his letter of support for the initiative. Thompson is also a caregiver for his mother, who lives with dementia.

By building safe space within the community, everyone contributes to allowing those impacted by dementia to feel understood and accepted. This has numerous positive benefits for the person’s health. It allows them to remain active since the main hubs are often within close geographical

A COMMUNITY OF SUPPORT

Clockwise from above left: Phyllis Timpo (third from left), Mesulam Center senior community engagement coordinator, and Maureen Daly, PhD, assistant professor of psychiatry and behavioral sciences, with community members at a recent Dementia Friends informational session.

Members of the Mesulam Center pose with community members at a recent Dementia Friends information session.

Dementia Friendly Washington Heights leaders Phyllis Tyler and Harriet Thomas pose at a recent event.



distance. It also preserves their ability and desire to socialize, which often has positive effects on one's cognitive abilities.

As a co-leader of this new initiative, Tyler mentions the importance of having Black participants represented in clinical research, though many Black Americans have reason to distrust the scientific and healthcare community. In a community led effort like this one, bonds between healthcare providers and Black patients can be improved as persons living with dementia and their caregivers are empowered by the dementia friendly community.

Community is key

Tyler, who grew up in Washington Heights, finds that the camaraderie between neighbors is one of the most memorable characteristics of her community. She remembers how the entire community, including her parents (for whom she later became

a caregiver), came together to build a baseball field when she was a child. In recounting the memory, Tyler noted that the large proportion of aging Washington Heights residents — including her old elementary school teachers, friends, and community leaders — makes this initiative even more necessary. With the tangible support of the neighborhood, it is clear that a deeply rooted love for one another has helped Washington Heights find its success.

Morhardt and Graham found it especially pressing that they turn the leadership reigns over to key community stakeholders, and Tyler has an incredible vision for the future of dementia-friendly Washington Heights. She hopes to involve the Chicago Transit Authority in adapting transportation routes and facilities to accommodate persons living with dementia.

There is also an ongoing effort to have caregivers be more involved during medical care. She'd also like to have more events where caregivers and individuals of the "pen-and-paper" generation can learn to use technology, like iPads, to connect with one another.

"In Washington Heights, our goal is to open up the community," Tyler said.

CREATING AN ACCOMODATING SPACE

Dementia Friendly Washington Heights' journey began after the Carter G. Woodson Regional Library received a grant to offer dementia friendly programming.

THE NORTHWESTERN MEDICINE NEUROBEHAVIOR AND MEMORY CLINIC IS HERE TO HELP

Designed to meet the needs of those who experience memory loss or other symptoms of dementia and their families, the Northwestern Medicine Neurobehavior and Memory Clinic offers a comprehensive array of diagnostic, therapeutic, and innovative care that treats the whole patient and their family.

The dedicated clinical team includes behavioral neurologists, neuropsychologists, neuropsychiatrists, and clinical social workers from the Northwestern Medical Group.

Treatment plans include:

- Evaluation of memory and other thinking abilities using specialized tests.
- Psychiatric evaluation and treatment for associated mood and behavior disorders.
- Assessment and follow-up care by behavioral neurologists dedicated to treating those with dementia.
- Disease education, counseling, and referrals to community support services.
- Opportunities to participate in cutting-edge research on Alzheimer's dementia, frontotemporal dementia, and primary progressive aphasia.

For more information or to make an appointment, please call 312.695.9627 or visit nm.org/memoryclinic

HOW TO HELP COMMUNITIES BECOME MORE DEMENTIA FRIENDLY

Join the Dementia Friendly America Movement

Anyone interested in helping make their community more dementia friendly can visit the Dementia Friendly America website to learn how to get involved: dfamerica.org.

Become a Dementia Friend

Dementia Friends USA works to change the way people think, act, and talk about dementia. A Dementia Friend is someone who, through viewing a series of online videos or attending a live interactive session, learns about what it's like to live with dementia and then turns that understanding into action. Learn more at dementiafriendsusa.org.

New Faculty Profile: Pouya Jamshidi, MD



POUYA JAMSHIDI, MD, joined the Mesulam Center in August 2023 as the assistant director of the Neuropathology Core. He was born and raised in Iran, where he was trained as an orchestra conductor. He started his journey in medicine when he came to the United States in 2002. He began his medical education at the University of California, San Diego and earned his medical degree at Weill Cornell Medical College. He then pursued a specialty in anatomic pathology at University of Chicago—NorthShore. Subsequently, he completed his neuropathology fellowship here at the Feinberg School of Medicine.

"I see a robust parallel between my role as a pathologist and what I did as an orchestra conductor. You carry enormous responsibility to understand and interpret the music, create the space for the orchestra to display their talent," Jamshidi said. "I don't make the music as an orchestra conductor, but my interpretation guides what the musicians play."

His job as a neuropathologist is to assess the brains donated by Mesulam Center research participants to find an accurate pathological diagnosis by examining the brain macro and microscopically.

"What's unique about the Mesulam Center is that we have informative clinical correlations with the pathologic diagnoses," he said. "Though I examine the brains after an autopsy, my medical colleagues have detailed annotations of the clinical presentation. We have multidisciplinary sessions that really put the whole story of the patient together. In a lot of these cases, the patient's family has suffered with the patient. Often, a pathologic diagnosis helps in bringing closure to the family."

Jamshidi notes that a number of neurological diseases have overlapping clinical and pathologic features. His interest is in helping define and delineate between them so that more accurate diagnoses can help lead to more treatment options.

Jamshidi is very excited to work at the Mesulam Center

because he finds that the team's philosophy mirrors his own reasons for entering the profession. He began wanting to do the best he could for every single patient, regardless of where they come from. Even persons who lose their cognitive abilities, he reminds us, have longstanding relationships and connections. Jamshidi appreciates the Mesulam Center's deepening commitment to outreach and patient care.

"There are imperative diagnostic considerations and nuances embedded in neuropathology, especially when evaluating neuro-degenerative diseases. It's truly a labor of love to diagnose accurately," he said. "These are individuals who have already passed away, so this is our last chance to do justice by them."

"In a lot of these cases, the patient's family has suffered with the patient. Often, a pathologic diagnosis helps in bringing closure to the family."

POUYA JAMSHIDI, MD

Brain Scholars Program Helps Students Understand Aging and Dementia

Program brings students to the lab to learn about the brain and body

THE NEXT GENERATION OF RESEARCH

Since the program's inception, 135 Chicago-area students have visited the Mesulam Center to learn more about our work, meet faculty staff, and contribute to ongoing research studies.



At St. John De La Salle Catholic Academy on the Far South Side of Chicago, middle school students quiz each other on the different parts of the brain using a stuffed toy and play memory games that often get used in medical clinics.

They have gained an appreciation and an imagination for neurology as part of the Brain Scholars Program, a new initiative at the Mesulam Center that brings students to Northwestern labs to learn and see research in action.

“The Brain Scholars Program is committed to providing meaningful, positive, scientific and professional experiences related to brain health sciences, including aging and dementia, for students from underrepresented groups at all levels,” said Changiz Geula, PhD, professor of neuroscience at the Mesulam Center and leader of the Brain Scholars Program.

The program seeks to encourage students to pursue education and professional careers in brain health sciences, including clinical and research efforts related to brain aging and dementia.

“Kids learn so much better when you create enriching experiences for them,” says Damani McClellan, vice principal of the academy. “[I hear them] talk about what part of the brain controls executive functioning. These are high-level conversations that our students are capable of having if they’re exposed to them.”

Melvin Thompson, a champion of community-based participatory research and collaborator of Northwestern’s Mesulam Center for Cognitive Neurology and Alzheimer’s Disease, serves as a community engagement consultant for the Brain Scholars program. Through his growing body of community-academic experiences, Thompson recognized that regardless of which school or organization he worked with, the leaders he interacted with rarely reflected the diversity of their community. However, the patient population for ailments like Alzheimer’s disease often overrepresents the Black community in a 2:1 ratio.

“Our students are wanted and needed in the field. To help our students envision themselves as scientists is ultimately the goal of the program,” McClellan said.

Helping students envision themselves as scientists

So far, staff from the Mesulam Center has visited the students at their school once and brought them to Northwestern three times.

A typical meeting for the Brain Scholars includes a whole day of programming at Northwestern. At the lab, students are shown how to take cognitive tests, like the Stroop Test (a test used to see how well our brains can stop distractions), and are taught how these tests get used in a cognitive neurology clinic. Next, the scholars tour the lab space and use microscopes to see the brain tissue that is used for experimentation and research. They begin to recognize some of the visible differences between “healthy” brains and those that have been impacted by Alzheimer’s.

Later, the scholars enjoy pizza for lunch, then watch as a neurologist shows them how to test their reflexes and explains how the body responds to various stimuli.

“To enhance the impact of the Brain Scholars Program, internships were established for students to engage more directly in research and learn about foundational concepts in brain health and science,” Geula said. “Over the past summer, four middle school students (which included one sixth grader) and three high school students spent approximately six weeks as interns at the Mesulam Center, interacting with Center staff and faculty, learning how to conduct basic science and clinical research, and delving deep into scientific concepts and findings.”

Through the program, students can envision themselves working alongside academics at a prestigious institution to find solutions to the illnesses that are prevalent in their communities, and they have a high likelihood of bringing personal insight to the cause. On the other hand, researchers are also often reinvigorated by the spark that the students bring.

“We forget what it’s like being young,” says Paige Barenthin, the program assistant for the Brain Scholars program. “They question the things that we take for granted and cause us to question it as well.”

THE BRAIN SCHOLARS PROGRAM: A COMMUNITY-ACADEMIC EXPERIENCE

135

Students hosted at the Mesulam Center in 2023

60

High school students

75

Junior high students

7

Students (3 high school and 4 middle school) participated in the summer 2023 internship

4

Visits to Northwestern labs since program inception

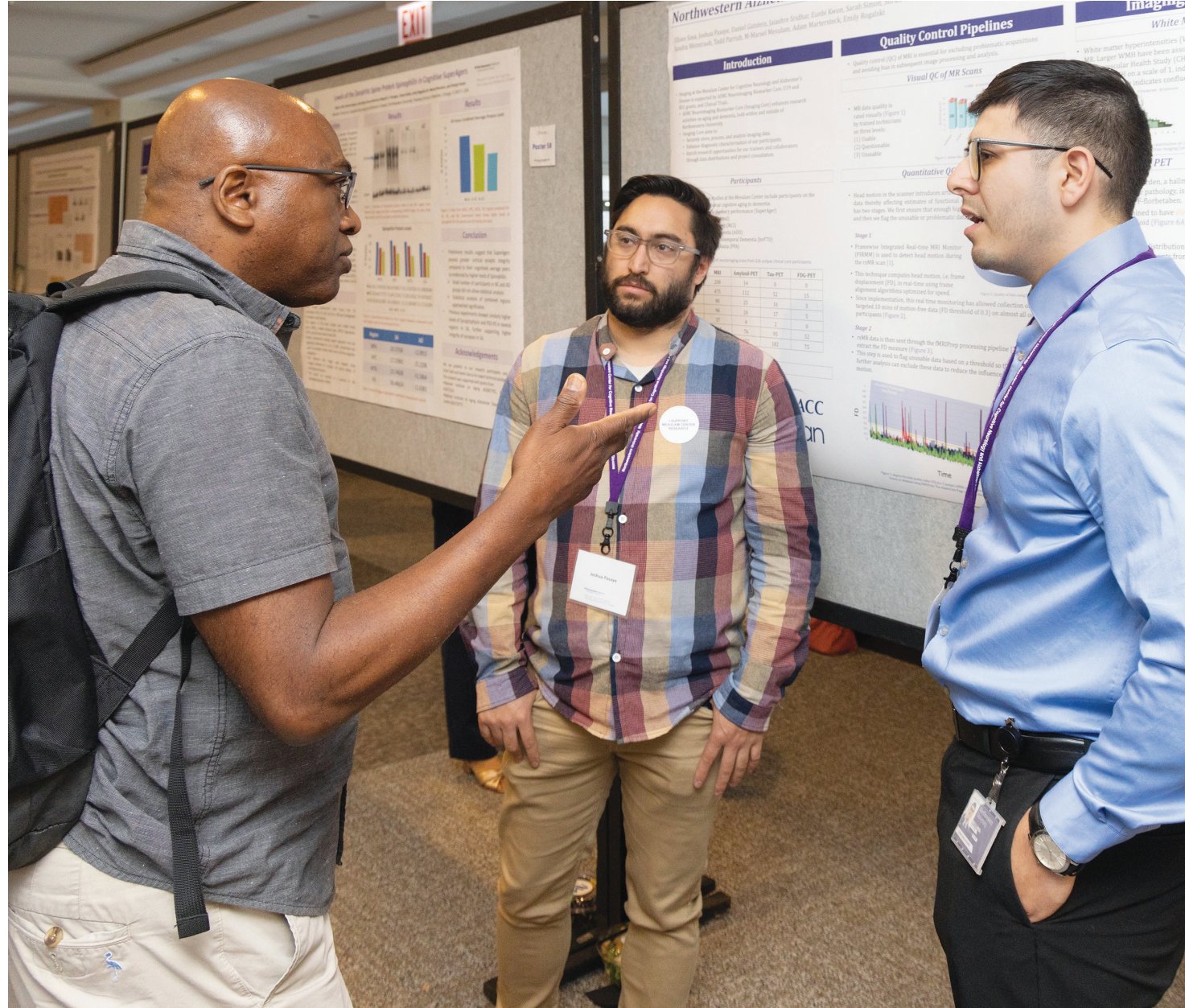
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Visit to a local school

35

Mesulam Center faculty and staff who interacted with students





Celebrating Advances in Alzheimer's Research and Clinical Care

Annual Alzheimer Day event in May brought together the Mesulam Center community

Patients and families gathered with faculty, students, and trainees on May 11 for the 29th annual Alzheimer Day, an annual event that showcases dementia and aging research conducted throughout Northwestern and brings those discoveries to the community.

Robert Vassar, PhD, the Davee Professor of Alzheimer Research and professor of Neurology and of Cell and Developmental Biology, director of the Mesulam Center, and scientific director of Behavioral Neurology in the Department of Neurology, welcomed participants to the event and provided an update on center activities.

"The current year has witnessed exceptional growth and progress," Vassar said, noting several new grants awarded to Center investigators to continue research into primary progressive aphasia and "SuperAgers," adults over 80 who exhibit superior memory and brain function.

Additionally, the Center recently launched the Brain Scholars program, a partnership with schools on Chicago's South and West Sides designed to encourage and train aspiring young scientists from underrepresented groups.

Ivan Ayala, scientist in the lab of Changiz Geula, PhD, won this year's Marie and Carl Duncan Prize in Memory Disorders for his research into SuperAgers. Grace Minogue and Antonia Zouridakis,

investigators in the laboratory of Tamar Gefen, '15 PhD, were honored for their outstanding research posters, as was Erfan Taefi, also a scientist in the Geula laboratory.

The keynote Mendelson Lecture was delivered by William Jagust, MD, professor of Neuroscience and of Public Health at the University of California, Berkeley. Jagust shared an overview of current research into the link between the protein tau, amyloid beta peptides in the brain, and the progression of Alzheimer's disease.

Following the lecture, community members had the chance to pose questions to a panel of local and Northwestern experts on community-academic partnerships in brain health research.

29TH ANNUAL ALZHEIMER DAY BY THE NUMBERS:

598

Attendees (In-Person: 437, Virtual: 161)

93

Patients or caregivers for patients at the Northwestern Neurobehavior and Memory Clinic

55

Active Mesulam Center research participants

83

Research posters presented

26

Community partners showcased at Resource Fair

LEARNING FROM EACH OTHER

Clockwise from above left: John Disterhoft, PhD, Ernest J. and Hattie H. Magerstadt Memorial Research Professor of Physiology, recognizes Grace Minogue, PhD student at the Mesulam Center, for her research poster.

Alzheimer Day attendees connect during the morning session.

Mesulam Center research staff members Josh Pesaye and Ulises Sosa discuss their research.

Tonya Roberson, PhD, MPH, DTR, president of the Far South Chicago Coalition, and Darby Morhardt, PhD, LCSW, research professor at the Mesulam Center, during the Quality of Life Symposium.



SAVE THE DATE

30th Annual Alzheimer Day

Friday, May 3, 2024
9:00 AM - 2:30 PM

Feinberg Pavilion Conference Center
Chicago, Illinois

Featuring Mendelson Lecture
by Gil Rabinovici, MD, director of the
University of California, San Francisco
Alzheimer's Disease Research Center

Read the most up-to-date event
information and view videos from
abstracts from this year's event at
brain.northwestern.edu/RSVP



LOOKING TOWARDS A BRIGHTER FUTURE

Clockwise from above left:
Phyllis Timpo and Emily
Rogalski, PhD, during the
Quality of Life Symposium.

William Jagust, MD, professor
of Neuroscience and Public
Health at University of
California, Berkley, delivers
the annual Mendelson lecture.

A poster session presenter
discusses her research findings
during the poster session.

Robert Vassar, PhD, director
of the Mesulam Center, delivers
a State of the Center address.

“At our core, we believe research is a powerful way to understand the world,” said Jen Brown, MPH, co-founder and co-director of the Alliance for Research in Chicagoland Communities (ARCC) at Feinberg. “It shapes the narratives, it’s the stories of who we are and how we live... Community research partnerships can be a way of shifting decision-making power to those who are most impacted by inequities and address some of the issues raised here today.”

A research poster session closed out the event, showcasing topics ranging from racial inequities in Alzheimer’s care to the latest scientific advances in understanding the brain.

Faculty Profile: Elena Barbieri, PhD



ELENA BARBIERI, PHD, research assistant professor at the Mesulam Center, has built an entire academic career studying how language works in the brain and the different variants of how people might lose their ability to use it.

Her main research focus is primary progressive aphasia (PPA), which impacts one’s ability to communicate with words, whether reading them, using correct grammar, or any of the other ways we interact with language.

She discovered her fascination with aphasia during an undergraduate class at the University of Milano-Bicocca, where she met her eventual PhD supervisor Claudio Luzzatti, who illustrated “how complex language is, how specific it is to humans, and how difficult it is to study because we can’t really do invasive studies,” she said.

Afterwards, she did an internship at the Aphasia Rehabilitation Center in Italy, her home country, under

the leadership of aphasia pioneer Anna Basso. Her work there was the impetus of her PhD because “it was especially striking to see that the patients’ intellect was completely intact, but they couldn’t really return to work because their language was so impaired.”

Having been in the field for several years, Barbieri recognizes that PPA research has historically focused on separating the different disease patterns based on clinical subtype. But now, researchers, including herself, have found that PPA can be caused by different brain pathologies as well. This pushes her to focus on using PPA as a model to better learn how language works in the brain and better understand the disease using structural and functional neuroimaging.

She is most proud of her research that highlights the importance of using speech therapy to achieve neuroplasticity in people who develop aphasia because of a stroke. This changes the landscape of treatments for aphasia, because often, pharmacological treatment is only available if the aphasia looks pathologically similar to Alzheimer’s disease.

Staff Profile: Beata Samelko, MS



BEATA SAMELKO, MS joined the Mesulam Center as a senior research administrator two years ago and was recently promoted to manager of research administration. In this role, she manages the Mesulam Center’s faculty portfolios, reviewing spending on Center grants and ensuring that projects are executed according to the necessary compliances. She also monitors the Center’s research efficiency through supplied data and reporting.

Before arriving at the Mesulam Center, Samelko graduated from Benedictine University in 2005 and went on to have a prolific research career at Rush University Medical Center for over 14 years. The pride and joy of her time at Rush was establishing a research clinic in Lusaka, Zambia. She worked within the community there to help train their personnel and establish protocols that were up to par with National Institutes of Health standards.

“I ran experiments, worked with animals, processed samples, induced disease, and then treated that disease,” she said. “Coming into this role, I understand the other side. When writing grant proposals, I feel very confident in helping faculty to define and justify their budget because I know what is required to run a project. I also know inside-and-out how a project works, from the Institutional Review Board processes to writing the protocols. Now that helps me to navigate through all the regulatory documents.”

Samelko says she is grateful to be part of the Mesulam team, which feels like family. But even aside from that, we do so much great science here and I know we can do more,” she said. “I’m here to help so that the faculty, staff, and fellows can focus on execution and writing while I help manage their portfolios. I’m hoping that we keep expanding to find cures for dementia and Alzheimer’s.”

“Working at the Mesulam Center is a fulfilling experience because of our mission to find cures for dementia and Alzheimer’s.”

BEATA SAMELKO, MS

Conference Presentations

In addition to the work and research that Mesulam Center faculty do in Chicago, faculty members also present at conferences locally and internationally, showcasing the research of the Mesulam Center on the world stage.

Elena Barbieri, PhD, delivered a talk titled “The neural bases of sentence production from the perspective of Primary Progressive Aphasia (PPA)” at the Academy of Aphasia Conference in Philadelphia in October 2022.

Barbieri also gave an invited virtual talk titled “Neuroimaging investigations of recovery from sentence processing deficits in aphasia” as part of the C-STAR (Center for the Study of Aphasia Recovery) seminar series in January 2023.

Borna Bonakdarpour, MD, FAAN, led several sessions at the 2023 American Academy of Neurology (AAN) Annual Meeting in Boston, MA in April 2023.

Bonakdarpour was also a member of the virtual AAN NeuroPanel, “Speech and Language,” in January 2023.

Bonakdarpour presented two abstracts at the Alzheimer’s Association International Conference in Amsterdam in July 2023 and one abstract at the International Conference on Frontotemporal Dementias in Paris in November 2022.

Molly Mather, PhD, and several members of the Mesulam Center presented posters at the annual meeting of the International Neuropsychological Society in San Diego in February 2023.

Marsel Mesulam, MD, presented a plenary session titled “The Aphasic Dementia of Alzheimer’s Disease” at the Alzheimer’s Association International Conference (AAIC) 2023, which took place in Amsterdam in July 2023. Several members of the Mesulam Center, including **Robert Vassar, PhD**, **Emily Rogalski, PhD**, **Adam Martersteck, PhD**, and **Joshua Cahan, MD**, also presented research.

Mesulam also delivered the keynote address, “Behavioral Neuroanatomy of the Anterior Temporal Lobe” at the 2023 IAmBrain Worldwide Conference in London, England in April 2023.



Darby Morhardt, PhD, LCSW, joined other leading experts at the Association for Frontotemporal Degeneration’s Annual Education Conference on a panel addressing Understanding the Unique Needs of FTD Care Partners, May 2023 in St. Louis.

Morhardt, for the third consecutive year, served as faculty for the Alzheimer’s Association’s Interdisciplinary Summer Research Institute, Involving Individuals with Dementia in Research, August 2023.

Emily Rogalski, PhD, was a panelist at Imaging Core Session of the 2023 Spring ADRC Meeting in Washington, D.C. in May 2023.

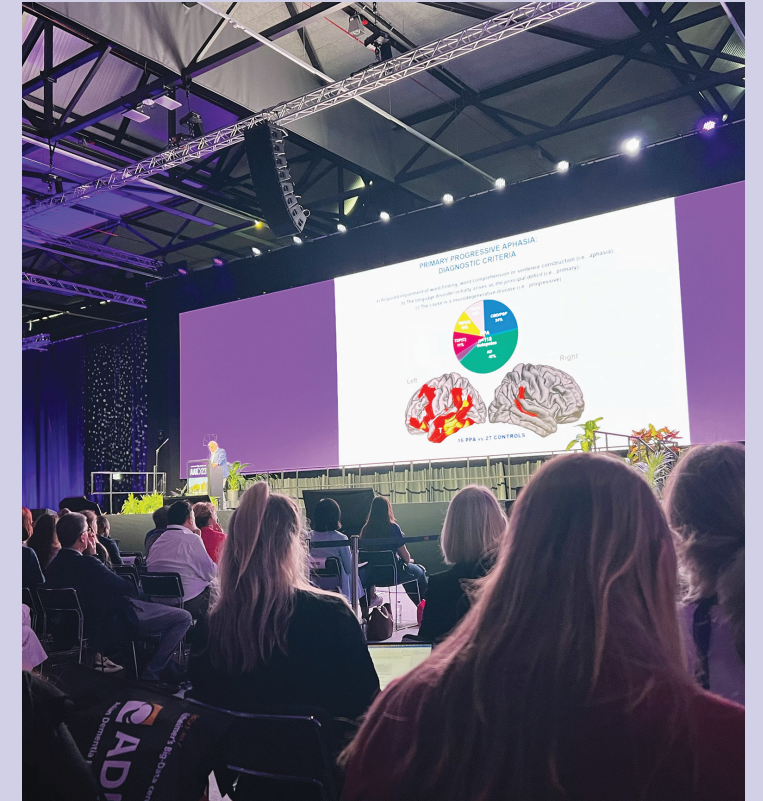
Rogalski was a panelist on “The Future of Alzheimer’s in an Era of Treatment” panel at the Alzheimer’s Association’s inaugural Release the Silence Conference in April 2023 in Chicago.

Phyllis Timpo was also a member of the planning committee.

Members of the Mesulam Center attended the annual International Society for Frontotemporal Dementias in Lille, France in November 2022. At the event, **Marsel Mesulam, MD**, **Emily Rogalski, PhD**, and **Sandra Weintraub, PhD**, delivered talks, and members of the center presented posters.

Robert Vassar, PhD, presented at the International Society for Molecular Neurodegeneration 2022 Conference (ISMND 2022) in Athens, Greece in October 2022.

Vassar presented a session titled “BACE Inhibition for Alzheimer’s Disease” at the 2023 Alzheimer’s and Parkinson’s Disease (AD/PD) Conference in Gothenburg, Sweden in March 2023.



JOIN US AT THE MESULAM CENTER

Whether virtual or in-person, we offer a variety of events, including conferences, seminars, and support groups for our community.

Events include: Alzheimer Day, Alzheimer’s Disease Seminar Series, Miller Family Quality of Life programming, monthly support groups, and a variety of community engagement events, in partnership with various community partners.

Learn more at brain.northwestern.edu/about/events

CONNECTING WITH THE GLOBAL RESEARCH COMMUNITY

Marsel Mesulam, founding director emeritus of the Mesulam Center, delivers a plenary session at AAIC 2023 in Amsterdam.

The event was attended by over 11,000 people from 106 countries.

Grants

Mesulam Center investigators received over \$4.25 million major grants that advance the field of Alzheimer's disease and related dementias. Notably, the Center received grant funding to support efforts of diversifying research participation and to study the neurophysical effects of music on individuals with Alzheimer's disease.

10

NEW GRANTS AUGUST 2022 – AUGUST 2023

Borna Bonakdarpour, MD, FAAN: To support a mixed methods study that will examine the effectiveness of a clinically designed improvisational music program on anxiety among older adults with mild to moderate Alzheimer's disease.

Borna Bonakdarpour: Improvised Music for Alzheimer's Disease Care Partner Burden

Tamar Gefen, PhD: Vulnerability Profiles of Comorbid Alzheimer and TDP-43 Proteinopathies in Amnesic Dementia

Tamar Gefen: KTCT foundation

Ian Grant, MD: AHEAD Plasma Extension (APEX)

Ian Grant: Alzheimer's Disease Neuroimaging Initiative (ADNI4)

Ian Grant: A phase 1 randomized double-blind placebo-controlled safety, tolerability, pharmacokinetics, pharmacodynamics, and preliminary efficacy study of oral verdiperstat (BHV-3241) in patients with semantic variant primary progressive aphasia due to frontotemporal lobar degeneration with tdp-43 pathology

Ian Grant: A phase 2A Randomized Double-Blind Placebo-Controlled Trial to Evaluate the Efficacy and Safety of varoglutamstat (PQ912) in patients with early Alzheimer's Disease with a Stage Gate to Phase 2B



Darby Morhardt, PhD, LCSW: Preparation for End-of-Life Decision Making in Mild Alzheimer's Disease

Emily Rogalski, PhD: Communication Bridge: Optimizing an evidence-based intervention for individuals with primary progressive aphasia

ADVANCING ALZHEIMER'S RESEARCH

Top: Brain specimens stored in the Mesulam Center Brain Bank.

Bottom: Tamar Gefen, PhD, assistant professor of psychiatry and behavioral science, studies brain tissue in the Mesulam Center wet lab.

Stay up to Date

Follow us on your social media channels to have the latest updates on Alzheimer's disease and related dementia research at your fingertips. We also share the human stories of people behind the research, testimonials from our research participants, and invitations to our unique educational events and conferences. Check us out!

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 X.com/NUMesulamCenter

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Mesulam Center News is published annually for research participants and friends of the Mesulam Center.

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SuperAgers, such as Shelia Nicholes and William Scott, are helping us to understand factors that may maximize healthspan and potentially avoid Alzheimer's disease pathology. Learn more about the experiences of our research participants on page 13.

