UMIAMI

2023

EVELYN F. MCKNIGHT BRAIN INSTITUTE

PROGRESS REPORT

Dedicated to the Memory of
Ralph L. Sacco, MD, MS, FAHA, FAAN


16
YEARS
OF SCIENCE

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LETTERS FROM LEADERSHIP

Dear Trustees:

As I reflect on 2023, it's been a difficult year and marks a milestone for our EMBI with the passing of Ralph. Ralph was the founding Executive Director, driving force, and visionary for the University of Miami EMBI. I am honored to continue his legacy and the path he charted. I am also very grateful for your strong support and endorsement of my leadership role as EMBI Director.

I am proud of my 5th year of leadership of our EMBI which continues achieving the objectives in all areas of our strategic plan goals: research, education, collaborations, and community outreach. We innovate and continue to extend our collaborations within our Institution, with other EMBIs, and with scientific and local communities. As I shared in my September letter, we were delighted to appoint **Dr. Bonnie Levin, PhD** and **Dr. Ihtsham Ul Haq, MD** as Associate Directors to help us advance our mission. Both Dr. Levin and Dr. Haq have unique but complementary clinical, educational, and research expertise and experiences in age-related cognitive and neurological disorders. Dr. Levin is an accomplished neuropsychologist who has been a strong leader of the University of Miami EMBI since its inception. Dr. Haq is an accomplished neurologist and a movement disorders specialist, who brings clinical expertise and research innovation in neuroscience and aging brain neuroimaging through the Cornfeld Neuroimaging Center utilizing novel technologies and machine learning and AI.

Our EMBI team is effective, collaborative, productive, and continuously strives to improve and advance our mission. We openly communicate and share our EMBI activities and achievements at multiple forums, from our weekly administrative and research meetings to monthly seminars and journal clubs, clinical and research training programs, national scientific meetings, and community outreach through social media and educational events. As in a matured organization our formal Scientific Advisory Board continues to meet formally twice a year, but also convenes at Dean's team science research meetings, and the Clinical Translational Science Institute collaborative neuroscience activities.

We have advanced almost all our four strategic goals in 2023: (1) Continue development of our scientific programs directly related to our EMBI and the McKnight Brain Research Foundation mission. Through new NIH grants we have expanded our research and scientific programs; (2) Continue clinical translational education and mentorship. Drs. Nicole Sur, Christian Agudelo, and Michael Kleiman are advancing this goal together with Taylor Ariko, our PhD student in medical bioengineering, who develops machine learning algorithms for the assessment of neuroimaging and cognitive phenotypes; (3) Promote communications and collaborations. We continue to advance our EMBI branding and participate in several collaborative inter-institutional projects; and (4) Develop community outreach. We have been on the frontiers of social media and in-person outreach in our community as well as the leaders in virtual education events. We plan to extend community outreach as a major focus in 2024. I am also extremely proud of our exemplary EMBI research administration and engagement team, Susan Fox-Rosellini, Stacy Merritt, and Marti Flothmann, who continue improving our research programs, grant awards, website and social media, and extending our community outreach across south Florida.

As a member of the Academy of Science, Engineering and Medicine in Florida (ASEMFL), I continue collaborations across the State of Florida and my engagement in discussions about research and global challenges our society faces. In 2023, I participated in the Florida Department of Health strategic meetings and advocacy for improving health for all Floridians. I was also a panelist in the 2nd American Academy of Neurology (AAN) Brain Health Summit in Washington, DC in September of 2023.

This year was again full of achievements, our programs have successfully continued and thrived, and our team members were encouraging and supportive of all our EMBI members, collaborators, study participants, trainees and the community we serve. In our report and in this letter, we highlight our achievements, from training and research grants submitted and received, to educational and training activities, success of our EMBI scholars and other EMBI trainees, community outreach and numerous established collaborations and new initiatives within our institution, with other EMBIs, and across institutions nationwide. Notably, I received the 2023 Dean's Excellence in Mentorship award and received NCATS funding for the new UM Clinical Translational Science Institute (CTSI) K12 program as a K12 PI, and NIH funding for T32 training grant in Sleep, Aging and Behavioral Medicine as MPI. I continue to serve as Training Director for two large NIH networks StrokeNet and NeuroNEXT, and both received NIH funding in 2023 through competitive renewals. We have just been notified that NIH will fund the PRIDE (Programs to Increase Diversity among Individuals Engaged in Health-related Research) Institute to be run by UM. I will serve as MPI of PRIDE. I have also submitted three grants to NIH as MPI and several collaborative NIH grants, which are pending review or NIH Council decisions. Our EMBI members also received several large R and P type grants, training grants, and our trainees received K and K-like awards as outlined in the report.

In 2024, I am committed to continue guiding the execution of our strategic plan, advancing our scientific and education mission, and expanding our training and mentorship activities together with our Associate Directors. In addition, I will continue advancing the Research Educational Core for the 1FL ADRC AlzSTARS (Alzheimer's Disease Science Training to Advance Research Success) program, which now has 10 trainees.

One of our major objectives in 2024 will be to renew our 1FL ADRC and its Research Education Core, that I will lead as PI in this new competitive submission. I am also committed to securing a T32 grant for postdoctoral trainees interested in cognitive disorders, as none exists for post doctorate trainees in the state of Florida. In our collaborative and successfully NIA awarded project, Precision Aging Network (PAN) led by Dr. Carol Barnes, I continue as co-lead for the PAN-P2 clinical project with Dr. Lee Ryan and as lead of the PAN-P2 Neurosonology Core for all PAN sites at Emory, Johns Hopkins, and University of Arizona. In 2024, we will advance the understanding of the cerebral white matter hyperintensities often found on brain MRIs in aging individuals. In collaboration with UC Davis, I serve as site PI on the NIH U19 Diverse VCID: White Matter Lesion Etiology of Dementia in Diverse Populations, which recruitment will start in January of 2024. As a site PI, I also joined 2 large national groups to advance

utilization of electronic health records and linkage with biospecimens to understand the mechanisms and the trajectories of age-related cognitive decline. In collaboration with Columbia University and University of Chicago, we submitted U19-Multimorbidity 3-City Alzheimer's Disease EHR Study: M3AD Study. We received a fundable score and are awaiting the NIH Council decision. Another U19- PCOG-90 (Characterizing and predicting superior cognitive performance in persons ages 90 and older using PCORnet electronic health records, omics and meta-omics, and big data analytics) that utilizes the network of 33 PCORI sites will be resubmitted in April of 2024.

To further advance our strategic programmatic development, we will continue to develop collaborations with other Centers and Institutes at UM as well as other EMBIs. This includes strong collaborations with the Cognitive Division and Comprehensive Center for Brain Health led by Dr. Galvin, who was appointed the new Director of our Cognitive Division. Our collaborations will continue with the Center for Neurocognitive Sciences and Aging (Drs. Loewenstein, Curiel, Crocco), Hussman Institute for Human Genomics (Drs. Pericak-Vance, Blanton, Wang), and Clinical Translational Science Institute (CTSI) and Neuroscience program. I will continue to be a senior leader of CFAR (Center For AIDS Research) Scientific Working Group on Aging in HIV and serve on the CFAR Steering Committee.

Finally, our EMBI is delving into several new and exciting research areas including, Neighborhood Greenness and Cognitive Performance, for which I serve as a MPI, Sleep in Neurocognitive Aging and Alzheimer's Research (SANAR) led by Dr. Alberto Ramos, the novel investigations of environmental toxins (PFAS) in cognitive decline with Dr. Hannah Gardener, and epigenetic and other omics of age-related cognitive trajectories in the Family study as well as in the Northern Manhattan Study with Drs. Wang and Blanton. In collaboration with NHLBI, investigators of the Hispanic Community Health Study-Study of Latinos (HCHS-SOL), we will start the novel project Study of Latinos-Investigation of Neurocognitive Aging-Alzheimer's Disease that received funding in 2023 across 4 sites including New York, Chicago, San Diego and Miami, and a new funded NIH grant Ecological Momentary Assessment of a Psychosocio-neuro-immune Mechanism for Atherosclerotic CVD Risk in Persons living with HIV to investigate atherosclerosis and vagal tone in the HIV population. We also made plans to develop several new grants in 2024 on the role of intracranial arteriopathy in cognitive function with Columbia University and another grant with the HCHS-SOL investigators. Our work on advocacy and policy to improve systems of hospital care continues through the Florida State funded programs and Florida Stroke Registry. We also plan to engage in a large statewide collaboration on prevention of cognitive decline and dementia that will recruit multiple resources and community partners, clinicians, scientists, policy makers, and other stakeholders across Florida to create a statewide Taskforce to create strategies and plans to advance prevention, treatment, equitable care, and efficient resource utilization for those affected with cognitive disorders, and to promote brain health across the lifespan for the fast growing and diverse population of Florida.

Our plans for 2024 are ambitious but achievable with our extended leadership, multiple collaborations, and strong partnerships. We will continue to work with our Scientific Advisory Board to create a charge for the newly established Executive Committee and the plans for a new era of our EMBI. I am looking forward to another exciting and productive year for our EMBI.

Warmest regards,

Tatjana Rundek

Tatjana Rundek, MD, PhD
Director, University of Miami EMBI
Evelyn F. McKnight Chair for Learning and Memory in Aging

Dear Trustees:

My relationship with the Evelyn F. McKnight Brain Institute (EMBI) at the University of Miami (UM) dates back to its inception, with Dr. Ralph Sacco as the Executive Director. Since that time, I have been deeply immersed in its progress and growth, presenting frequently at EMBI meetings, working collaboratively with other McKnight colleagues and fostering its educational mission. At this time, I am devoting time and effort to helping our current Director, Dr. Tatiana Rundek, carry out the Miami EMBI vision and mission. I served on the committee to write the 2020-2025 strategic plan with Dr. Rundek and colleagues and we meet regularly to discuss how to best achieve these goals and to plan the next steps toward meeting the proposed objectives. Each year, my rotating Post-Doctoral Fellows are fully integrated with EMBI by attending and presenting at journal clubs, research seminars and Inter-Institutional meetings as well as EMBI grant submissions and manuscript publications. I have served as a leader of the Cognitive Core for the McKnight Brain Aging Registry (MBAR) and co-chaired the Cognitive Aging and Memory Intervention Core for the past 7 years. The collaborations with EMBI have been fulfilling and deeply meaningful as they continue to inform my work as the Director of the Cognitive Core in shaping my research goals. I welcome the opportunity to deepen my relationship with EMBI by becoming an Associate Director and to work with Dr. Agudelo, Dr. Haq and Dr. Rundek towards achieving a truly collaborative EMBI partnership in 2024.

I am the Schoninger/Goldberg Professor of Neurology and Director of the Division of Neuropsychology and Cognitive Neuroscience in the Department of Neurology at the UM Miller School of Medicine. I am a neuropsychologist whose research examines neurocognitive and affective changes associated with neurodegenerative disease and the normative aging process. My work focuses on the intersection of physical, behavioral and sensory changes that take place over the life course, and identifying markers of atypical aging associated with cognitive decline. I explore trajectories of cognitive aging, the underlying neural circuitry and other biological markers associated with increased risk of cognitive decline. My data has direct application toward developing timely early interventions for those carrying one or more risk factors as well as for those individuals who strive to age in place and engage in practices that promote healthy aging.

I have received federal and state funding to examine the role of vascular and metabolic risk factors as predictors of cognition and how differential markers of physical frailty, emotional dysregulation and sensory change increase the risk of cognitive decline. Some of my projects include: examining which components of the metabolic syndrome predict cognition, identifying imaging and clinical correlates of white matter changes associated with the aging process and linking structural and metabolic markers underlying different symptom profiles in neurodegenerative disease, defining profiles of risk and resilience in aging, examining the basis of impaired decision making among the elderly, and operationalizing brain fog in long Covid.

Schoninger Neuropsychology Program
The Alexandria and Bernard Schoninger Neuropsychology Program was established in 2009 as part of EMBI. I was awarded the Alexandra and Bernard Schoninger Endowed Professorship which afforded me the opportunity to establish a program that provides comprehensive testing for individuals experiencing memory loss. One of the major aims is to collect data on cardiometabolic risk factors in order to characterize cognitive change associated with the aging process and to define the earliest markers that signal cognitive decline. Each patient who is evaluated will also be a participant in a research registry sponsored by EMBI. The McKnight Registry has served as an invaluable resource for numerous publications and pilot data for grant applications that support EMBI's objectives.

Education and Mentorship
In 1989, I initiated the UM Neurology Advanced Training Practicum. At the same time, the Neuropsychology Post-doctoral Fellowship program was initiated. Currently, there are four Post-doctoral Fellows, six upper level graduate PhD practicum students and two volunteer undergraduate assistants. Over the past 34 years, I have mentored hundreds of students, interns, residents and fellows. Additionally, I lead weekly neuropsychology rounds which are attended by undergraduate and graduate students, Post-doctoral Fellows, neurology residents and faculty, and trainees from other departments including Psychiatry, Public Health and the Sylvester Cancer Center.

I have been teaching the 'Foundations of Neuropsychology' course at the UM Coral Gables Campus since 1989. It remains to date, the only graduate doctoral level course in Neuropsychology offered at UM. This course attracts graduate students from all of the clinical tracks (child, adult and behavioral medicine). My work is highly collaborative. I actively collaborate with faculty in other departments, including Radiology, Neurosurgery, Psychiatry, Pediatrics, Medicine, Ophthalmology and Epidemiology and Public Health. As an acknowledgment of my extensive mentoring experience with graduate students, Post-doctoral Fellows and residents, I recently received the Women in Academic Medicine (WIAM) award for Excellence in Mentoring at the University of Miami Miller School of Medicine.

Community Outreach
I am involved in community outreach across Florida. Most recently, my pilot study was funded to examine the epidemic of scamming among vulnerable elders. I developed a training intervention to decrease susceptibility to deception. This pilot study has been successfully launched in English and Spanish and is designed to reach the most vulnerable in the Miami community. In addition, I am MPI on a Consortium Project funded by the FL-DOH with University of Florida and University of Central Florida. It is a state-wide study to examine the cognitive and imaging markers of scam susceptibility.

Our Division of Neuropsychology and Cognitive Neuroscience has forged strong community ties with the Latino Center on Aging. Drs. Annelly Bure, Marina Sarno and Katalina Fernández McInerney are regular speakers at community gatherings and on radio talk shows that address a wide range of topics on brain health. Drs. Sonya Kaur and McInerney provide community education via the EMBI community outreach program. Dr. Mitchell Slough provides education to younger audiences about brain health and preventative measures.

Future Goals

In 2024, I plan to expand the Schoninger Neuropsychology Program in several directions, all of which, are in line with the EMBI strategic plan. First, I plan to expand our McKnight Registry, a database that houses patient data such as demographics, neuropsychological assessment scores, MRIs, medical diagnoses, medications and other valuable data, by including a neurologic, vestibular, kinesthesia and sensory assessment. This multi-disciplinary database will serve as a resource for other researchers in the field of aging and foster interdepartmental collaboration. It will also provide critical pilot data needed for federal and state funding for future research.

Second, the Post-doctoral Fellow and practicum training sites will be expanded to incorporate individualized research training. Each Post-doctoral Fellow will be mentored in developing their specific research interests working closely under supervision with a faculty member based in the Division of Neuropsychology and Cognitive Neuroscience.

Third, grant applications will be prioritized to foster inter-departmental collaborations within UM as well as with other McKnight Institutes. I will continue my role as cognitive core director for the UM McKnight Brain Aging Registry (MBAR), a collaborative project involving all 4 McKnight Institutes. I have worked on the MBAR project since its inception and led the cognitive work group in developing the neuropsychological test battery. In 2024, I will work towards taking the project to the next step by leading the effort to apply for federal grant funding. I will also work directly with Dr. Rundek on the NOMAS database with plans to apply for funding to operationalize specific Covid outcomes including brain fog.

Fourth, I will build on existing community partnerships and expand my division's community involvement efforts. Several presentations are planned to establish more ties with individuals residing in the community and foster relationships with community leaders who can promote the importance of brain and aging research and development that is integral to the MBRF's objectives.

I truly look forward to my new role as Associate Director and am honored to work with the esteemed group of researchers, scientists and clinicians who make up our Evelyn F. McKnight Brain Institute at the University of Miami. I am grateful to the McKnight Brain Research Foundation for giving us the opportunity to continue our impactful work into 2024.

Sincerely,

Bonnie Levin

Bonnie E. Levin, PhD
Schoninger/Goldberg Professor of Neurology
Chief, Division of Neuropsychology and Cognitive Neuroscience
Associate Director, Evelyn F. McKnight Brain Institute

Dear Trustees:

I am deeply honored to have been invited by Dr. Rundek to serve as the Associate Director of EMBI, alongside Dr. Levin. Dr. Rundek has kindly asked me to share a few words about my background and vision for the EMBI.

My journey into neuroscience began with a unique background from Columbia University, where I earned dual degrees in Bioengineering and Philosophy. This blend of precision and inquiry has been the foundation of my approach to understanding the brain. It naturally attracted me to Neurology. During my residency I felt pulled toward different aspects of processing and decision making – both movement and cognitive neurology seemed equally appealing. In the end, the opportunity to directly intervene in circuit processing via DBS led me to choose a Movement Disorders Fellowship, but I never gave up my interest in cognition. I was fortunate to do my training at UF at just the right moment, as the program was just starting to make waves and there was both ample support and an opportunity to explore. I was able to participate in one of the first trials of deep brain stimulation (DBS) for psychiatric disease, as well as some foundational work in target selection, all the time deepening my understanding of the circuitry underlying higher order cognitive processing.

My time spent specializing in movement disorders was a profound learning experience. DBS is inherently a collaborative and interdisciplinary process, requiring evaluation and clearance by Neurology, Neuropsychology, Psychiatry and Neurosurgery. With every one of the several hundred cases I've participated in, I gained invaluable insights into the necessity of an interdisciplinary approach to neurodegenerative diseases and the necessity of a patient-centric approach. This steered my research towards a more empathetic and comprehensive understanding of these conditions and to look for opportunities for collaboration. Upon completing my Fellowship at UF, I joined the faculty of Wake Forest University.

At Wake Forest (WF), I was fortunate to have a dedicated mentor in Dr. Allison Brashear, now Dean at UB, who knew my interest in both cognition and taking on more research. She suggested I join the Wake Forest Alzheimer's Disease Research Center (ADRC). This proved transformative. During our weekly consensus conferences, I indulged my love of phenotyping while turning it into something more applied. I saw how the basal ganglia circuitry I'd been tuning for movement was both relevant to, and understudied by, researchers working on AD and aging. Another milestone on this journey was studying ATP1A3 disease (formerly RDP). This project (of which Dr. Brashear has been the longstanding PI) now encompassing four academic institutions, and has led to the largest database on adult ATP1A3 disease. It is a testament to the power of collaborative research and the insights that can be gained from careful characterization.

Gradually I transitioned to more leadership-based roles, first within the ADRC at WF then as Co-I of our successful NeuroNext application. All the while I continued building my involvement in the American Academy of Neurology (AAN). This ultimately culminated in the tremendous and fortunate opportunity to lead the Movement Disorders Division in 2020 at UM, for which I'll always be grateful to Dr. Sacco for.

I have realized a key theme in my career is the interconnection between various brain pathologies and their impact on cognition, and equally so, the interconnection between various disciplines in Neurology and Neuroscience. The parallels and intersections between Vascular, Parkinson's and Alzheimer's diseases, has further affirmed the importance of a unified approach to studying neurodegenerative disorders. As we delve into the complexities of aging and brain health, the role of interdisciplinary collaborations becomes increasingly apparent. My goal for the EMBI is to foster these. There are several I'm already excited about. We're leveraging our imaging cohorts (EMBI, ADRC, DBS) to look at how a variety of vascular factors impact cognitive change through automated brain imaging analyses. I'm very grateful for the generosity of the Cornfeld family in making this possible. The Bascom Palmer Eye Institute is also working with us on ocular biomarkers of aging. We are additionally working with Dr. Joseph Signorelli's exercise physiology lab at the UM Coral Gables campus on the effects of exercise on muscle and movement and with Dr. Dalton Dietrich and the Miami Project to Cure Paralysis to look at the impact of this. I feel privileged to be collaborating with Dr. Galvin on his phenotyping efforts in synucleinopathies and am excited to have this data to inform our work. I think using careful characterization and natural history to derive the biomarkers we need for effective treatments will be critical to advancing our understanding of aging.

Leadership to me, is about fostering an environment of growth and innovation. It's therefore critical to cultivate the next generation of neuroscientists and physicians. Our receiving accolades like the Edmund J. Safra Award from the Michael J. Fox Foundation is a humbling reminder of the impact one can have through dedicated leadership. In closing, my vision for the Evelyn F. McKnight Brain Institute is one of integration and collaboration. Drawing from my diverse experiences and the collective expertise of this esteemed community, I am excited to do my part to take us forward.

Sincerely,

Ihtsham Ul Haq, MD
Cornfeld-Hurowitz Endowed Chair in Movement Disorders
Chief, Division of Movement Disorders
Associate Director, Evelyn F. McKnight Brain Institute

Dear Trustees:

As we approach the end of another remarkable year, we are delighted to report the activities of the education program in the Evelyn F. McKnight Brain institute (EMBI) at the University of Miami (UM). In June, 2023, I transitioned to a new position as Executive Director of the Brain Endowment Bank (BEB) at the UM Department of Neurology. It has been a great honor to serve as the EMBI Education Director since 2014. I will continue to be an active member of EMBI and am eager to collaborate with the EMBI team members in aging related research and educational activities.

During my transition period, I introduced Dr. Christian Agudelo, the former McKnight Neurocognitive Scholar, to the educational programs at EMBI and mentored his transition into leadership. In July, I stepped down to fulfill my new position as Director of the BEB and Dr. Agudelo assumed the role of Education Director. His McKnight scholarship prepared him to seamlessly take over leadership of EMBI educational programs, while bringing a fresh perspective to the educational activities. Both Dr. Agudelo and I collaborated on this letter that details our scientific education and community education and outreach in 2023.

Scientific Education

This year, we continued the general education format from the previous year, and strengthened our commitment by incorporating Dr. Agudelo into the education program. As a former UM medical school resident and fellow, he is familiar with the program, the residents and other trainees at UM. His experience has helped the new education program tailor its offerings to residents. Together with the chief residents and residency program director, he discussed how to meet their learning needs about the aging brain. This has resulted in the design and establishment of a compulsory cognitive neurology rotation for neurology residents. Dr. Agudelo is surveying residents about their experiences with this new program and other education offerings including journal clubs. The feedback received will be used to implement ongoing improvements to the program in 2024 and beyond.

There is a new collaboration between the UM Cognitive Division and EMBI that is unique from other neurology programs. Led by Dr. Agudelo, we established a 2-week cognitive neurology rotation program for neurology residents as a core and compulsory feature of the neurology residency. This rotation was thoughtfully designed to serve both as an opportunity for residents to learn cognitive neurology and engage in EMBI activities, and as a pipeline for neurologists interested in careers in cognitive research. This program has strengthened our collaboration with the Cognitive Division. It is structured to include clinical rotations in cognitive clinics under supervision of cognitive neurologists, a visit to the Comprehensive Center for Brain Health (CCBH) in Boca Raton, assigned readings about cognitive neurology, participation in EMBI activities, and career-development meetings with Drs. Rundek and Agudelo about brain aging, cognitive and brain health, and leveraging EMBI scholarships to establish careers as physician-scientists. Seven residents have rotated through the program

with high satisfactory responses on exit surveys. At least one resident has expressed strong interest in cognitive neurology and is interested in becoming an EMBI cognitive fellow and EMBI Scholar after completing her residency.

The EMBI Education Core hosted research seminars attended by staff, students, fellows and faculty. The EMBI Seminar Series highlighted novel research and treatments on the horizon to keep the academic and clinical community apprised of the latest science. These seminars (listed in the scientific education section of the report) were an integral part of EMBI this year, as they promoted conversation about the aging brain and the diverse and multidisciplinary research conducted across institutes, divisions and departments. This dialogue inspires collaborative research, grant submission and manuscript ideas. Additionally, trainee presenters received vital feedback on their research, presentations and communication skills, preparing them to present to broader and more rigorous audiences. This is in alignment with our mission to foster and develop careers in cognitive neuroscience for our future generation of researchers, scientists and clinicians. Details about EMBI trainees is included in the training section of the progress report. We will continue to provide seminars discussing the forefront of clinical and translational science in 2024.

Community Education and Outreach

We had a successful year educating the community through our outreach programs. We were awarded two new grants in 2023 to provide education on brain health in the community. This support allowed us to add to our robust community education efforts with new initiatives, such as the *Age Like a Pro* seminar series (detailed in the community education and outreach section of the report). The funding supported a series of 30-40 minute lectures for various local communities. These lectures educated community members about brain health topics that matched the interests and concerns of each community, and empowered communities to optimize their brain health through lifestyle modifications supported by science. Neurologists and neuropsychologists delivered engaging multimedia presentations that promoted interactive discussions and provided current information on diagnoses and treatments. These sessions were informative, relatable and enjoyed by attendees, who were mostly seniors. We have also implemented a system for evaluating the efficacy, value and impact of our outreach events by gauging the pre- and post-test knowledge of our audiences using standardized questionnaires provided in both traditional pen and paper and electronic format (Survey Monkey). In 2024, we will expand these efforts by providing monthly events at Miami-Dade public libraries as well as the Doral Community Center, which is our primary catchment for the Hispanic/Latin community. Quarterly programs will be arranged at Broward County libraries. We also plan to extend our educational outreach by partnering with YMCAs to educate younger generations about the importance of brain health, the value of health promoting behaviors, and the short- and long-term consequences of brain injuries common in this population, including sport-related brain trauma and accidents involving self-propelled and electronic vehicles, such as bicycles, scooters and skateboards.

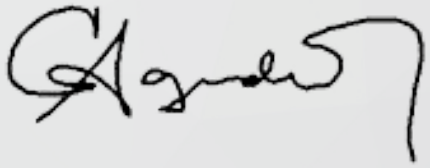
Presentation topics for our community outreach program include the following:

- Importance of Physical Activity
- Nutrition and Diet
- Importance of Sleep
- Reduce Stress through Mindfulness and Meditation
- Protect Against Scamming and Schemes
- Does Learning or Listening to Music Improve Brain Health?
- Frailty and Ways to Reduce Falls or Accidents
- Why Enroll in a Research Study? How to Help Science
- What's New in Brain Health? Learn the Facts
- Traumatic Brain Injury Across the Ages

In closing, I am grateful for the opportunity to be closely involved with the UM Evelyn F. McKnight Brain Institute. I am particularly grateful for the honor to have worked side by side with Dr. Sacco for many years before his passing. I am inspired by Dr. Rundek's vision and leadership as the new EMBI Director. I will continue to be an active and productive member of EMBI in 2024, and I am excited to extend my contributions to EMBI in my new role as Director of the Brain Bank. I am confident that under the capable leadership of Dr. Agudelo, the EMBI educational program will continue to grow and evolve in service of its mission. Dr. Agudelo and I would like to thank you for your encouragement and support, which allows our educational efforts to thrive.

Warmly,

Xiaoyan Sun, MD, PhD
Executive Director, Brain Endowment Bank



Christian Agudelo, MD
Education Director, Evelyn F. McKnight Brain Institute

MEMORIAL TO DR. RALPH L. SACCO'S LEGACY

MEMORIAL
TO DR. SACCO'S LEGACY

IN REMEMBRANCE OF
RALPH L. SACCO, MD, MS, FAHA, FAAN
1957-2023

We start out our 2023 annual progress report with a special remembrance of **Dr. Ralph L. Sacco** who lost the battle with glioblastoma and passed away January 17, 2023. He was 65.

Dr. Sacco was the heart and soul of the University of Miami Evelyn F. McKnight Brain Institute (EMBI). He served as the Executive Director of EMBI since 2008 and was dedicated to advancing its mission. First, it was a priority to establish an Institute by changing the name from the Center for Age-Related Memory Loss to the Evelyn F. McKnight Brain Institute and then, secure an EMBI endowed chair. He developed the EMBI structure, organized the team and led it through 2023. The organizational structure consisting of an Executive Director, Scientific Director and Education Director has been successful and productive in advancing EMBI's multi-disciplinary activities. Because of Dr. Sacco's strong contribution to EMBI leadership, the EMBI has thrived and grown to encompass what it is today. It's a **CITTI – Collaborative Integrative Translational Transdisciplinary Institute dedicated** to translating discoveries into interventions to reduce age-related memory loss and cognitive impairment, and to improve brain health in partnership with communities and stakeholders across the disciplines. Our EMBI specializes in forging clinical and research collaborations, and mentoring and training young investigators, scientists and clinicians to launch into high profile careers in cognitive neurology and neuroscience.

The University of Miami held a Celebration of Dr. Sacco's Life on March 30th, 2023. Many colleagues and friends shared special remembrances of Dr. Sacco's impactful life and career as a stroke neurologist, epidemiologist and worldwide brain health leader. Dr. Rundek, who worked with Dr. Sacco for over 2 decades, shared heartfelt and notable memories from their time together at Columbia University in New York and later in Miami. Dr. Sacco recorded a video that was shared at the celebration, expressing his passionate wishes to continue the trail of training of future generations of scientific leaders in neurology. He leaves a legacy to value and promote diversity and health equity for all trainees and all areas, and to instill the virtues of a career in vascular and cognitive neurology.

Dr. Sacco touched the lives of many, especially countless trainees who transitioned to clinician-researchers, helped to expand the number of stroke specialists and thereby, the message of the importance of heart and brain health, and prevention and treatment of vascular disorders and cognitive impairment. He was a stalwart on improving quality of stroke care for all and forging a path to address racial and ethnic health disparities.

EDUCATION/TRAINING

Dr. Sacco graduated from Cornell University with a BS in BioElectrical Engineering and graduated cum laude from Boston University School of Medicine. He received a master's in Epidemiology from Columbia University School of Public Health. He completed his neurology residency training and postdoctoral training in stroke and epidemiology at Columbia Presbyterian in New York. He became a world-wide renowned neurologist and researcher in the field of stroke, brain health and health equity.

CAREER

At Columbia University, he was a professor of neurology, Chief of the Stroke and Critical Care Division and associate chairman. In 2007, he became Chair of the Department of Neurology at University of Miami (UM) and soon became the EMBI Executive Director. He was also the Olemberg Family Chair in Neurological Disorders, Professor of Neurology, Public Health Sciences, Human Genetics and Neurosurgery as well as chief of the neurology service at Jackson Memorial. He was Director of the UM Clinical Translational Science Institute and Senior Associate Dean for Clinical and Translation Science.

HONORS/ACCOLADES

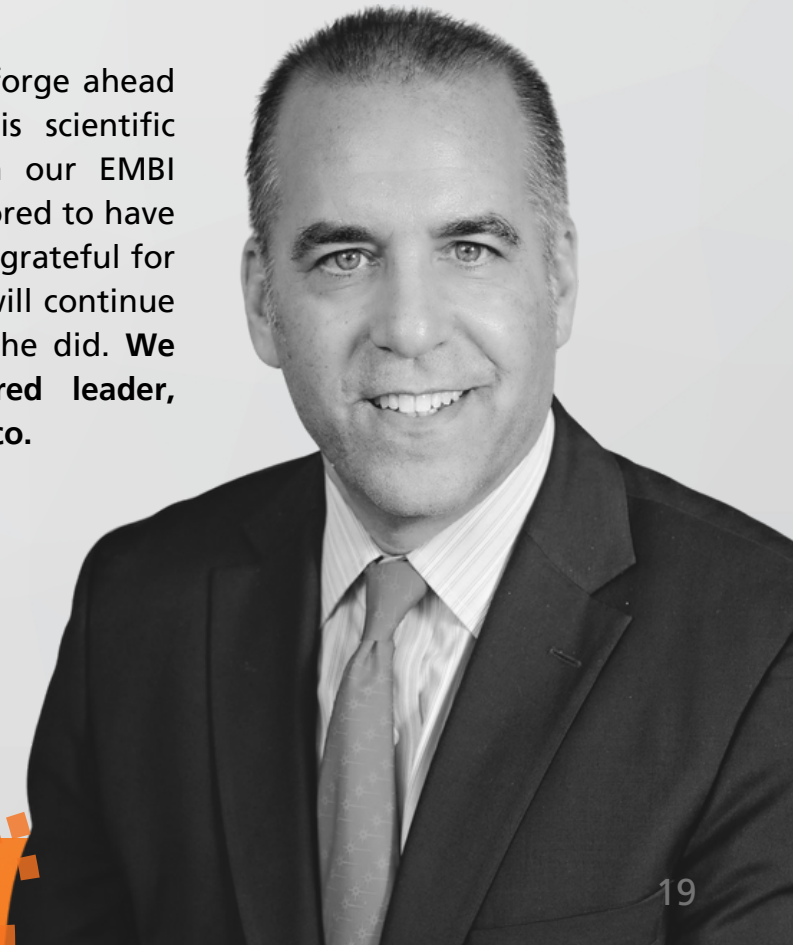
Dr. Sacco led an extraordinary life with a vast array of interests and past times as well as an impressive list of professional positions, awards and honors. He was the first neurologist to serve as President (2010-2011) of the American Heart Association (AHA), he was the 35th President (2017-2019) of the America Academy of Neurology (AAN) and the only neurologist to have held both of these positions. In an effort to increase understanding, prevention and treatment of brain disease, the AHA and the AAN launched a scholarship program supporting early career trainees focused on how to help people maintain a healthy brain over their lifetime. These scholarships are the first of their kind to be jointly funded by the AHA and AAN. The AAN changed the name of the Department Chair Summit to the Ralph L. Sacco Neurology Chair Summit. The NINDS announced it was mourning the death of Dr. Sacco lauding him as a renowned stroke neurologist who enriched NINDS as a grantee, mentor and member of the NINDS Advisory Council. In 2010, he was recognized with the NINDS Senator Jacob Javits Award in the Neurosciences for his work as an "exceptional, innovative stroke researcher." These prestigious honors are just some of many that exemplify his distinguished career and the indelible footprint he left.

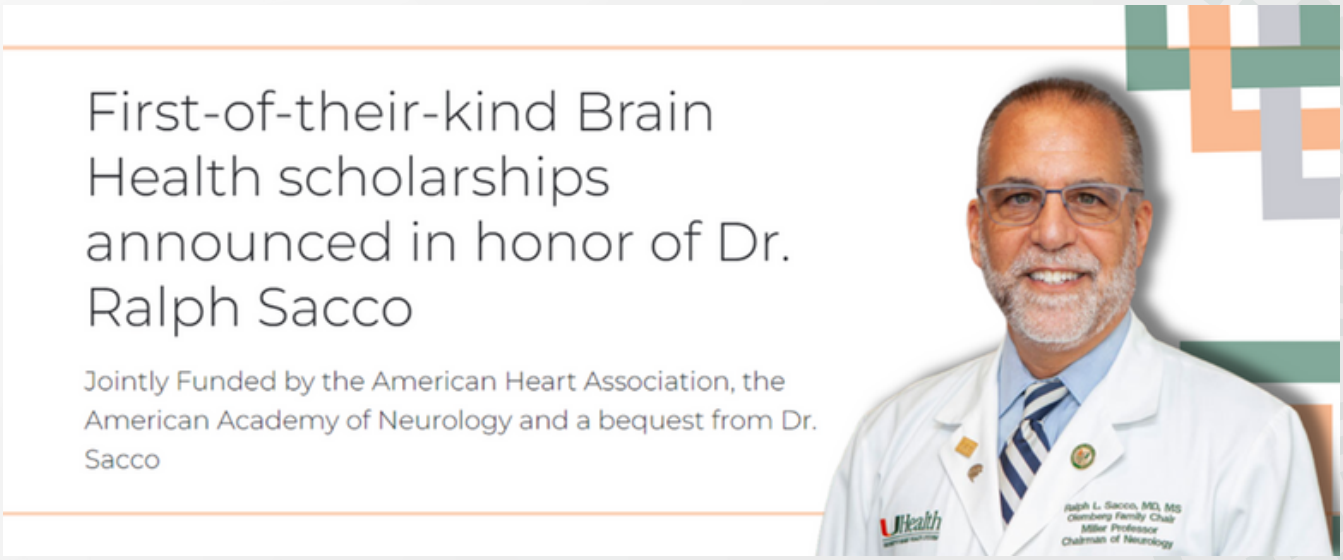
NOMAS
NORTHERN MANHATTAN STUDY

Dr. Sacco was the founder and principal investigator of the Northern Manhattan Study (NOMAS), the Florida Stroke Registry, and the UM Clinical Translational Science Institute (CTSI). He was the Editor in Chief of the AHA's journal *Stroke*. He received many prestigious awards including the AAN Wartenberg Lecture, AHA Feinberg Award of Excellence in Clinical Stroke, the WSO Global Stroke Leadership Award and AHA Gold Heart Award. He was a distinguished member of the Association of American Physicians and of the National Academy of Medicine.

While he had an untiring tremendous drive for excellence in his professional career, he found time to be creative outside medicine. He was passionate about interior design, architecture, art, boating, world traveling and loved to dance. However, he was always able to stay focused on his visions, published over 1,000 peer reviewed articles, obtained numerous NIH grants, and lectured around the world. While he is remembered as a preeminent expert in his field, and for his brilliance and impact on the local community and far beyond, he will always stand out in the hearts and minds as a supportive, warm, kind and dedicated person. Even during a battle with his illness in 2022, he attended the Inter-Institutional Meeting at University of Arizona, while many did not travel to the meeting because of the Covid scare.

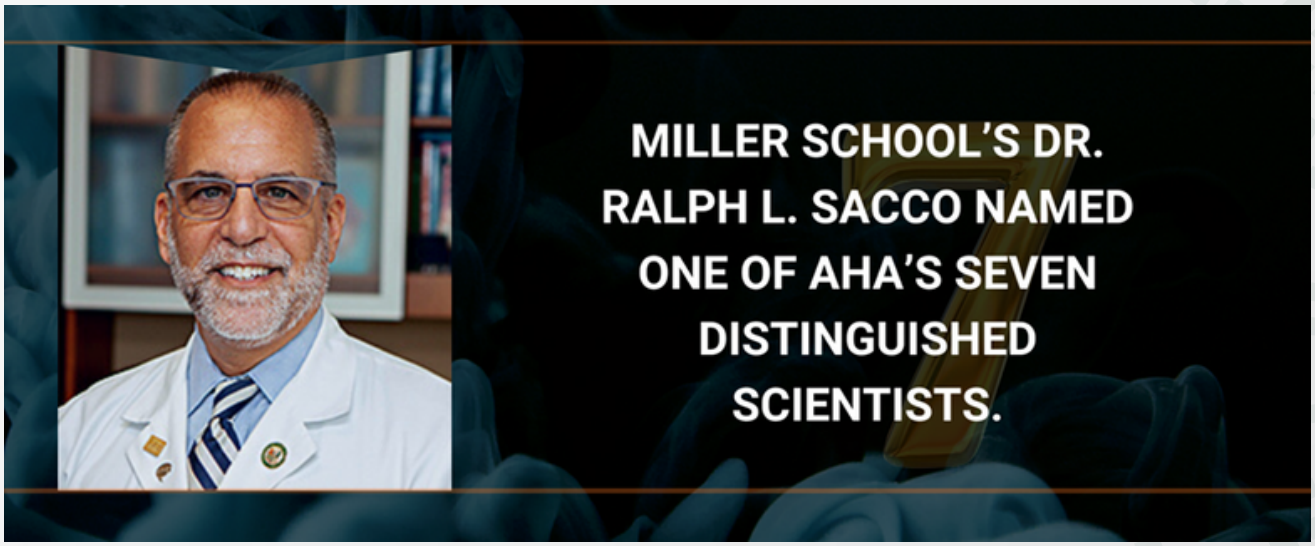
We miss Dr. Sacco dearly and daily. But, we forge ahead each day, paying tribute to his legacy, his scientific contributions and his requests to carry on our EMBI mission to promote brain health. We are honored to have known him and worked with him and we are grateful for the opportunity to lead by his example. We will continue our important work at EMBI with fervor as he did. **We dedicate this year's report to our revered leader, colleague, mentor and friend, Dr. Ralph L. Sacco.**





In an effort to increase understanding, prevention and treatment of brain disease, the American Heart Association (AHA) and the American Academy of Neurology (AAN) launched a scholarship program supporting early career trainees focused on how to help people maintain a healthy brain over their lifetime. These scholarships are the first of their kind to be jointly funded by the AAN and the AHA.

AAN President Orly Avitzur, MD, MBA, announced the renaming of the event to the Ralph L. Sacco Neurology Chair Summit.



University of Miami Miller School of Medicine's Dr. Ralph L. Sacco was named as one of the American Heart Association's seven distinguished scientists.

Dr. Ralph Sacco with AHA CEO Nancy Brown. (American Heart Association)

The 40th TS Srinivasan Oration Award, Bengaluru, India

Dr. Sacco's nomination and selection to be the inaugural speaker at the Edward J. Kenton Lecture during the 2020 International Stroke Conference: Pre-Conference Symposium III: HEADS-UP: Health Equity and Actionable Disparities in Stroke: Understanding and Problem-Solving.

BUSM Honors Ralph Sacco, '83, with 2019 Distinguished Alumni Award

Dr. Rundek receives the Evelyn F. McKnight Endowed Chair for Learning and Memory in Aging at this Ceremony in 2018 at the University of Miami.

University of Arizona Inter-Institutional Meeting

2022

INTRO
DUCTION

INTRODUCTION

We begin the report with a change of our Evelyn F. McKnight Brain Institute (EMBI) organizational structure. Our EMBI is now under the leadership of **Dr. Tatjana Rundek**. We have changed the organizational structure from the Executive Director and Scientific Director to Director and Associate Directors, similar to what exists in other EMBIs. Dr. Rundek assumes the role of Director and leads the Institute along with two Associate Directors, **Bonnie Levin, PhD** and **Ihtsham Haq, MD**. They were appointed to these roles in November of 2023.

Dr. Levin is the Director of the Division of Neuropsychology and Cognitive Neuroscience, Schoninger/Goldberg Professor of Neurology and Neuropsychology, and leads the Schoninger Neuropsychology Program. She has been an integral member of EMBI since its inception and her appointment as Co-Associate Director, is a natural transition. Her expertise and success with the neuropsychological training programs falls in line with our EMBI **MISSION** to train new generations of skilled clinical and translational scientists specializing in age-related memory loss, cognitive decline and promotion of brain health.

Dr. Haq is the Director of the Movement Disorders Division, the Cornfeld/Hurowitz Chair in Movement Disorders and Professor of Neurology. He will bring a new perspective on cognitive disorders and advance our understanding of the fundamental mechanisms of the brain's functioning and age-related neurodegenerative disorders. He will link our EMBI clinical research with the Cornfeld Neuroimaging Core and its machine learning/AI Core. This joint mission of neuroimaging, computational data science and cognitive aging is an important part of our new research structure and strongly aligns with the EMBI **VISION** to become a leading center for clinical and translational research into the causes, treatments and prevention of age-related cognitive disorders and promotion of brain health.

TRAINING, SCIENTIFIC EDUCATION AND COMMUNITY EDUCATION AND OUTREACH

TRAINING

This year, we'd like to place a special emphasis on the hard work and success of our junior faculty and trainees who will be our future leaders mentored by **Dr. Rundek** and EMBI faculty. As such, Dr. Rundek continues the legacy of her mentor Dr. Ralph Sacco to train and empower trainees and prepare them for successful research careers in neurology and to become future mentors and leaders. Dr. Rundek's passion for mentoring is conveyed by her successful funding of training grants and being awarded the 2023 **Dean's Excellence in Mentorship Award.**

Six training grants submitted by Dr. Tatjana Rundek and EMBI Collaborators

- In late 2023, two large NIH networks with Research Education Component – **StrokeNet** and **NeuroNEXT** received NIH funding through competitive renewals. Dr. Rundek will continue to serve as Training Director for both grants. Each program will recruit one scholar per year to receive the training award.

- **Dr. Jean-Louis's** and **Dr. Rundek's** competitive renewal of the NIH *Program to Increase Diversity in Behavioral Medicine and Sleep Disorders Research* ***(PRIDE)*** just received NIH funding. The PRIDE program is an intensive two-week, didactic and mentored research training program. It is aimed at preparing underrepresented minorities for successful careers as clinicians, educators and scientists in behavioral medicine and sleep disorders. Participants are junior-level faculty members and other scientists from a variety of backgrounds.

- The FL-DOH funded training grant *TRANSlational Fellowship Opportunity for Research on Multimorbidity in Alzheimer's Disease:* ***TRANSFORM-AD*** this year. EMBI's **Sonya Kaur, PhD** was selected scholar for this award as the best candidate from a large pool of interested applicants.

- **Dr. Rundek** and team resubmitted the T32 training grant to the NIA, *Cross-disciplinary research opportunity for training in AD/ADRD science-****CrossROADS***. It is a 2-year program for post-doctorate trainees, MDs and PhDs ,with the overall goal to increase the number of diverse AD/ADRD investigators-leaders in cross-disciplinary clinical and translational research, who can effectively and rapidly disseminate, implement and translate discoveries to practice and community, and address the special health

challenges and health disparities of the diverse AD/ADRD patients we serve, through team science and collaborations in partnerships with AD/ADRD community partners and diverse health care stakeholders. The application just received a fundable score of 32 and awaits the NIH Council meeting in January, 2024 for the final decision.

- **Dr. Rundek** and team's T32 training grant was funded by the NIH's National Heart, Blood and Lung Institute (NHBLI), *Promoting Academic Workforce Diversity in Translational Behavioral and Cardio-Metabolic Research-**PINNACLE***. It started in November of 2023 with the objective to train, mentor and sustain in research a network of 12 underrepresented minority post-doctorate trainees committed to developing independent academic careers in translational and behavioral cardiovascular health research. This T32 will have a strong impact in achieving the national mandate (Healthy People 2030) to increase diversity in the academic workforce, thus expanding capacity to implement translational models to improve health quality and equity.

- **Dr. Jean-Louis's** and **Dr. Rundek's** resubmission of the R25 *Congruent Mentorship to reacH Academic diveRsity iN nEuroScience reSearch **(HARNESS)*** grant, which is aimed at training diverse scholars in neuroscience research, also received a fundable score and awaits the NIH Council meeting in January 2024 for final decision.

WE HIGHLIGHT OUR FORMER TRAINEES WHERE ARE THEY NOW?

The Evelyn F. McKnight Brain Institute at the University of Miami (EMBI) has been dedicated to supporting and training the future generation of scientists and clinicians. In this section of the report, we are highlighting our former McKnight funded trainees over the years whose careers were made possible by the McKnight Bain Research Foundation (MBRF).

Christian Agudelo, MD (neurologist, sleep specialist) was our first Evelyn F. McKnight Neurocognitive Scholar from 2021-2022. He was a model scholar, actively working on grant applications, publishing and participating in education and community outreach efforts. He was promoted to Assistant Professor this year. He submitted an NIH Mentored Patient-Oriented Research Career Development (K23) Award application in 2023. Lastly, he was appointed the Evelyn F. McKnight Educational Director this year. Receiving the McKnight Scholarship helped propel his career to where it is now.

Lilah Besser, PhD, MSPH (epidemiologist and social scientist) is a research professor at the UM Comprehensive Center for Brain Health (CCBH) mentored by Drs. Galvin and Rundek and received funding from EMBI which jump started her career. Her current research centers on the intersections between neighborhoods and social environments, healthy aging and brain health. She has numerous publications and R grant funding supporting her research program on neighborhood social determinants of health including built and social environments and brain health/ADRD outcomes. She has multiple published studies demonstrating the detrimental impact of racial/ethnic segregation on cognition and brain imaging outcomes. This year, she was a 2023 Awardee of the NIH Office of Disease Prevention's Early Stage Investigator Lecture, published 9 papers and is first author on 4 of them. She gave 6 presentations in various venues and presented at 2 poster sessions at the 2023 AAIC.

Christian Camargo, MD (cognitive neurologist) completed his Fellowship in Cognitive and Behavioral Neurology at EMBI, 2017-2021. He then became part of the McKnight Brain Research Foundation's Communications Workgroup. In 2019, he was awarded the 2019 American Academy of Neurology/McKnight Brain Foundation Clinical Translational Research Scholarship. His funded project is 'Reducing the Effects of Ageing on Cognition with Therapeutic Intervention of an Oral Multi-Nutrient: The REACTION Pilot Trial Study Design'. The study was a success. The data is being analyzed and 2 peer reviewed papers have already been published. He is currently an Assistant Professor of Clinical Neurology at UM. MBRF funding has helped him to have protected research time and launched his career in cognitive neurology.

Michelle Caunca, MD, PhD was our first EMBI sponsored medical student funded from 2016-2018. She was enrolled in the UM dual MD/PhD program working on her 'Markers of Cognitive Decline' project. During that time, she received an NIH F30 and an Internal Pilot Study grant from the UM Scientific Awards Committee (SAC). The initial support from EMBI, made this possible. She is now finishing her neuro residency at the University of California, San Francisco and recently published a seminal paper on cognitive disparities and social determinants of health.

Sarah Getz, PhD (psychologist) was an instructor at the Comprehensive Center for Brain Health (CCBH). She has been working on her Neurocognitive Correlates of Scam Susceptibility in Age-Related Hearing Loss project funded by the McKnight Brain Research Foundation through the American Brain Foundation and the American Academy of Neurology. She has completed her Alzheimer's Association International Research Grant and recently left UM to pursue a career in a private setting.

Joyce Gomes-Osman, PT, PhD received a McKnight Pilot Award that funded her from 2017-2018 for her innovative study that investigated mechanisms underlying cognitive benefits after an 8-week exercise intervention in sedentary adults over age 55. She then leveraged the pilot data to obtain a Mentored Translational Research Scholars Program Award (KL2) from the UM CTSI) She is currently the Vice President of Interventional Therapy at Linus Health, leading research in brain aging, brain health and quality of life. She holds an adjunct Associate Professor appointment in our Department of Neurology.

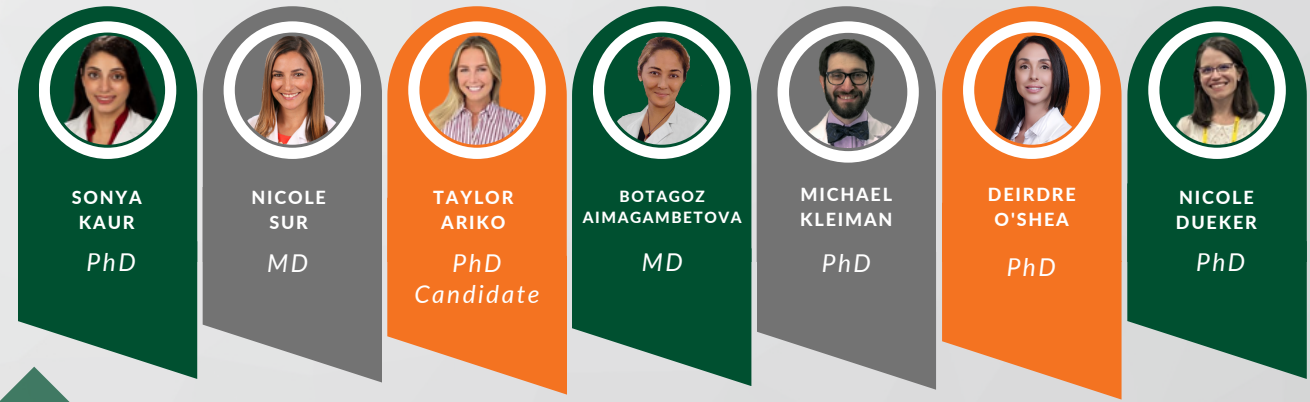
Michelle Marrero, MD (cognitive neurologist) did her Fellowship in Cognitive and Behavioral Neurology at EMBI from 2018-2019. With MBRF funding, she studied and conducted research on memory disorders and the impact of neurological damage and disease upon behavior, memory and cognition. She is now a cognitive neurologist at EMBI.

Anita Seixas Saporta, MD was a McKnight Fellow from 2018-2023 She worked on the McKnight Frailty Program under Dr. Bonnie Levin and on important FL-DOH grants under the mentorship of Dr. Rundek. The experience she gained allowed her to become a research associate with the UM neurology department's Epilepsy program, where she is conducting analysis of neuroimaging and clinical data in Epilepsy and associated psychiatric comorbidities.

Magdalena Tolea, PhD is a research professor and Associate Director of Research at the UM Comprehensive Center for Brain Health (CCBH). Her current research focuses on the intersect between physical dysfunction and cognitive impairment, more specifically on sarcopenia and its role as a potential predictor of cognitive decline and dementia in later life. She received MBRF funding upon arrival at EMBI which has launched her research career. In 2023, she had 4publications (2 as first author). She was selected to participate in the competitive Fellowship Track of the IMPACT-AD class of 2023 in San Diego, CA. She completed her 1FL ADRC AlzSTARS scholarship in 2023.

Regina Vontell, PhD is Associate Director of the UM Department of Neurology Brain Endowment Bank. Her early career at EMBI was supported by MBRF funds, making her success possible. Her primary research focuses on the inflammatory mediators in the brain and their relation to complex diseases. This year, she developed 'Nanostring Technologies' which has been an important tool for detecting RNA and protein changes in the inflammasome complex. She was able to successfully secure funding to get this program started, which has led to several grant applications and submissions. She gave a highlighted talk at an all ADRC meeting in Washington, DC. Dr. Vontell was lead author on the important paper, Identification of inflammasome signaling proteins in neurons and microglia in early and intermediate stages of Alzheimer's disease that made the cover of *Brain Pathology*. She completed her 1 FL ADC AlzSTARS scholarship in 2023.

CURRENT EMBI TRAINEES



Sonya Kaur, PhD (Mentors: Drs. Rundek and Levin) is a psychologist and an Assistant Professor in the Department of Neurology Division of Neuropsychology Schoninger Neuropsychology program. Her research focuses on mechanistic pathways that mediate cognitive impairment in aging. She has a special interest in examining the impact of lifestyle interventions (e.g. exercise, sleep) on markers of disease progression in a variety of neurodegenerative processes. She submitted a K12 grant to the CTSI at the Miller School of Medicine. She was selected as the official trainee of the FL-DOH funded *TRANSlational Fellowship Opportunity for Research on Multimorbidity in Alzheimer's Disease: TRANSFORM-AD*. **She received an Alzheimer's Disease Neuroimaging Initiative (ADNI) Health Equities Scholarship and a McKnight Inter-Institutional Interventional Core Pilot Grant.** This year, she published 4 papers and gave 3 presentations, one to the scientific community and 2 were community outreach. She was chosen as the Evelyn F. McKnight Neurocognitive Scholar to start in 2024.

Nicole Sur, MD (Mentors: Drs. Rundek and Natalia Rost, MGH Harvard, incoming president of the AAN) is a board-certified vascular neurologist and an Assistant Professor of Clinical Neurology in the Stroke Division. In 2021, she became the site-PI for the large, NIH-funded, nationwide *Determinants of Incident Stroke Cognitive Outcomes and Vascular Effects on Recovery DISCOVERY* study to investigate susceptibility and resilience mechanisms for post-stroke cognitive impairment and dementia. She was awarded a Miami Clinical and Translational Science Institute (CTSI) Career Development KL2 Award to study contemporary trends in treatment and prevention of AF-related stroke in the Florida Stroke Registry (2021-2023). She has presented her results from the KL2 Treatment Disparities in Stroke and Atrial Fibrillation at the 2023 International Stroke Conference. She was chosen as the Evelyn F. McKnight Neurocognitive Scholar in the fall of 2023.

Taylor Ariko (Mentors: Drs. Rundek, Zhao and Haq) is a PhD Student in the College of Biomedical Engineering and is our EMBI student trainee. She has been instrumental in working with the FL-DOH IMAGINE Study (Rundek PI). She has been working on the MRI post-processing pipeline under the supervision of the study physicist. She programed and coded the pipeline for WMHV and DTI image sequences and processed the images. She has also been trained in carotid ultrasounds analyses. She completed the course *Radiation Protection* in Spring of 2023 with an A, and is currently taking *Radiation Therapy Physics* and *Applications of Medical Imaging and Medical Physics.* She gave her first oral presentation at the 2023 American Academy of Neurology (AAN) meeting. She also gave a poster presentation and co-authored an abstract that was awarded abstract of distinction at the AAN meeting. She published 2 journal articles and co-authored a poster that was presented at the 2023 AAIC.

Botagoz Aimagambetova, MD (Mentors: Drs. Rundek and Tulay) completed an MD degree and a residency in medicine/cardiology in Kazakhstan. She has studied ultrasound and functional evaluation of cardiovascular diseases and is trained in a full range of noninvasive diagnostic cardiac exams. She is completing a UM MS in Clinical TranslationalInvestigation (Program Director, Dr. Rundek) this year. Her primary research interest is the determination of cardiovascular risk factors in the etiology of neurodegenerative processes in an elderly population. Her current research project is "How arterial stiffness measured by pulse wave velocity correlates with cognitive decline in hypertensive individuals?" She gave a presentation at the 2023 American Academy of Neurology (AAN) meeting. **Her abstract presented at the AAN was awarded `Abstract of Distinction**.' She published a paper and gave poster presentations at 2 scientific meetings.

Michael Kleiman, PhD (Mentor: Dr. Galvin) is a Data Scientist at the UM Comprehensive Center for Brain Health (CCBH). Dr. Kleiman's area of focus is on the intersection between neurology, cognitive psychology and data science. He has developed tools and machine learning models that use neurobehavioral markers as well as health records, cognitive exam scores and neuroimaging data for assessing current impairment and predicting future risk of impairment. He presented a poster at the 2023 AAIC and gave a presentation at the Southeastern Neurodegenerative Disease Conference (SENDCon) 2023. This year, **he was promoted to Research Assistant Professor**.

Deirdre O'Shea, PhD (Mentors: Drs. Galvin and Rundek) is an Assistant Professor and Clinical Neuropsychologist in the Department of Neurology. Her research investigates risk and resilience factors that contribute to variability in cognitive aging and predisposition to Alzheimer's disease and related dementias (ADRD). She is currently working on developing novel DNA methylation (DNAm) biomarkers for predicting ADRD risk. These epigenetic markers offer a quantifiable metric of the interplay between genetic and environmental factors over the life course. She is the PI of a study titled *Developing a DNAm Biomarker for Cognitive Aging: Addressing Disparities and Promoting Community Engagement* and is supported by a two-year CTSI K12 career development award.

Nicole Dueker, PhD (Mentors: Drs. Wang, Blanton, and Rundek) is a research scientist at UM and is an EMBI trainee. She performs statistical and genetic epidemiological analyses in various datasets, including the Northern Manhattan Family Study, UK Biobank, ADNI and others. Her primary work focuses on performing analyses on and investigating the relationship between epigenetic age acceleration and stroke intermediate phenotypes as well as epigenetic changes and their association with carotid bifurcation in a large sample of extended families from the Dominican Republic. She also contributes to grant writing for proposals involving the Family Study dataset as well as developing her own independent grants. She mentored a medical student this year who presented findings in a poster at the American Society of Human Genetics (ASHG) meeting.

SCIENTIFIC EDUCATION

On November, 17th, Dr. Lee Ryan from the Evelyn F. McKnight Brain Institute at the University of Arizona was our invited guest speaker for a special Evelyn F. McKnight Brain Institute (EMBI) Grand Rounds for the Department of Neurology. Her presentation "Precision Aging: Taking an Individual Approach to Brain Aging" was well-received and sparked interesting discussions on an individual approach to brain aging.

EMBI Research Seminars

Each year, we schedule research seminars about new treatments, novel research being published and current research being done by EMBI trainees and collaborators. These are the presentations done this year.

January 11th, 2023 - Nicole Sur, MD "Post-Stroke Cognitive Impairment and Dementia and the DISOCVERY Study"

February 8th, 2023 - David Davis, PhD "Harmful blue-green algae blooms: An emerging risk factor for neurological disease"

March 22nd, 2023 - Christian Agudelo, MD "Gray matter microstructure: a sleep-related marker of accelerated cognitive decline"

April 19th, 2023 - Taylor Ariko "Effect of Amyloid PET on Clinical Management of AD AND Carotid Atherosclerosis and Cognition"

June 28th, 2023 - Juan Pablo de Rivero Vaccari, PhD, MSBA "Inflammasome Signaling Following Traumatic Brain Injury"

September 27th, 2023 - Dr. Christian Camargo "Understanding the Latest AD Treatments"

November 1st, 2023 - Jianhua Wang, MD, PhD "Current status and future direction of the eye as the window to the aging brain"

December 13th, 2023 - Ihtsham Haq, MD "Parkinson's disease, the old and the new"

Scientific training conducted by Dr. David Della-Morte in 2023

- Instituted the Unit of Multidimensional Evaluation for the University Hospital of Tor Vergata with the aims to measure Frailty levels of the patients on admission and at discharge, and to decrease the time of hospital stay.

- Taught a Master class in Intervention, Viterbo, Italy.

- Collaborated in a Presentation of HI-CHIPS Project. Meeting of the Scientific Technical Committee of the Collaboration Agreement in force between the General Secretariat of Defense (SGD) and the University of TOR VERGATA. Rome, Italy.

- Taught Novel Therapies for Resistant Hypertension. Master class in Intervention, Viterbo, Italy.

Medical Resident, Fellow and Student Training Crucial to the Field of Aging

Dr. Crocco our EMBI collaborator from the CNSA has extensive involvement in the training of the Jackson Memorial and UM fellows and residents each year. She provides training specializing in aging, which is especially important as there is a great need for clinicians in this field. Her case conferences and other training offerings are organized for psychiatry residents and fellows, and EMBI neurology trainees are invited. We hold quarterly neurology-psychiatry collaborative educational sessions and grand rounds. Here is an overview of her training.

- Holds Weekly Case Conference for the JMH Geriatric Psychiatry Training Program and Coordinates and supervises all geriatric psychiatry fellows' weekly presentations of patient's case history, including biological, psychological and sociological data and formulates an integrated treatment plan.

- She leads JMH Geriatric Psychiatry Residency Training Program Weekly Journal Club consisting of weekly coordination and supervision of all geriatric psychiatry fellows with the objective of critical evaluation of peer-reviewed, original research articles and learning to apply knowledge to the care of their geriatric patients.

- She leads the Geriatric Psychiatry Seminar consisting of weekly developing and implementing basic, core curriculum-focused conference that covers knowledge and skill areas necessary to the successful completion of the geriatric psychiatry training program and commonly seen diagnoses in geriatric psychiatry.

- She directs the JMH General Psychiatry Residency Training Program and develops and implements comprehensive geriatric specialty lectures in all 4 years of general psychiatric residency training. Topics include: normal aging, late-life schizophrenia, late-life depression, ECT, bereavement, neurodegenerative disorders, Alzheimer's, Vascular, Lewy body disease, neuroimaging and caregiving issues. She also leads the Geriatric Psychiatry Training Program for Jackson Memorial Hospital and led the Geriatric Psychiatry Lecture Series.

Dr. Christian Agudelo:

- Leads a new cognitive neurology program for neurology residents

- Presented at the Day in the Life Seminar Series, as part of the University of Miami School of Medicine NexGenMD Neuroscience Pathway for Medical Students Program in March 2023.

- Spoke at the Young President's Organization (YPO) annual meeting in November 2023.

- Presented to the Medical Student Neuroscience Interest Group at Florida International University Herbert Wertheim College of Medicine, June 2023.

- Gave grand rounds for the Memorial Health Care System Department of Neurology in July 2023.

2023 University of Miami Graduate and Postdoctoral Research Symposium Presentations:

- **Aimagambetova, B**. The Association of Pulse Pressure and Estimated Pulse-Wave Velocity with Cognitive Function: Northern Manhattan Study.
- **Mallepalli S, Dalco L, Rehni AK, Cho S., Dave KR**. Mitochondrial dysfunction following cerebral ischemia in recurrent hypoglycemia (RH)-exposed Insulin Treated Diabetic (ITD) rats.
- **Rehni AK**, Cho S, **Dave KR**. Recurrent hypoglycemia exposure increases stroke risk in insulin-treated diabetic rats for at least one-week after exposure.

COMMUNITY EDUCATION AND OUTREACH

Dr. Rundek was a keynote presenter at the 2023 Neuroscience Expo that took place Sept. 16, 2023 at the Norton HealthCare Neuroscience Expo in Louisville, Kentucky. It was a free event that provided information about treatments, rehabilitation and support resources. It featured four tracks specific to neurological conditions, as well as a life skills workshop. She answered many important questions from the attendees. She highlighted BEFAST, an acronym designed to make people aware of possible stroke signs and how to mitigate a serious situation quickly and accordingly. She also gave a Grand Rounds presentation on `Reducing Disparities in Stroke Outcomes: Lessons Learned from the Florida Stroke Registry' at the Norton Health Neuroscience Institute.

We shine the spotlight on the new outreach series this year led by **Susan Fox Rosellini,** Executive Director of Engagement and Business Administration, and EMBI team.

AGE LIKE A PRO SEMINARS SERIES

Genetic factors cannot be controlled, but many environmental and lifestyle factors can be prevented or managed to reduce risk of memory decline and even Alzheimer's disease. Furthermore, stimulating activities have the following cognitive health benefits:

Increase Neuron Generation - Learning has been found to stimulate neuron generation and connections in the brain. Neurons send information throughout the body and when neurons are increased and better connected, they positively affect memory, attention and reasoning skills.

Lower Stress - Reading a book, listening to music or playing an instrument can decrease blood pressure and stress. Lowering stress levels can help better cope with most situations and changes in life. It can also help restore memory.

Improve Socialization - Learning courses, seminars and discussion groups encourage social interaction that is mentally engaging and helps, especially seniors, to minimize isolation and depression and loneliness. Social connectivity is a proven intervention to prevent cognitive decline.

EMBI has developed ***Age Like a Pro*** seminars and get-togethers, connections that focus on mitigating social isolation and loneliness while offering information for healthy aging and prevention of dementia. After receiving funding from the Community Foundation of Broward and the Ansin Foundation, Susan Fox Rosellini developed the seminars, organized the venues and EMBI faculty as speakers. In 2023, there were ten presentations with almost 250 participants in total. About 40% of the attendees were Hispanic/Latin. Half-way through the program, we designed and instituted a system to evaluate the impact of the presentations, satisfaction and effectiveness, to receive general feedback and learn the demographics of the audience. Paper questionnaires were used as well as Survey Monkey in both English and Spanish. Feedback received will help us to plan presentations in 2024. Of the 100+ questionnaires 90%+ of participants have a high school education, 30%were retired and 95%+ agreed that the presentation increased their knowledge of the subject, that it would inspire them to make a change and that they would tell a friend about the information. Finally, about 15% left contact information to be contacted about research projects. At the end of the presentations, we describe all research studies available with the aim to increase study enrollment.

Topics of focus:

- Importance of Physical Activity
- Nutrition and Diet
- Importance of Sleep
- Reduce Stress through Mindfulness and Meditation
- Protect Against Scamming and Schemes
- Does Learning or Listening to Music Improve Brain Health?
- Frailty, Ways to Reduce Falls or Accidents
- Why Enroll in a Research Study? How to Help Science
- What's New in Brain Health? Learn the Facts

Neuropsychology Division Outreach in 2023

- Dr. Annely Buré-Reyes, Marina Sarno (March, 2023). Latino Center on Aging 10th Annual Conference "Una Vida Sin Memoria: Latinos, Alzheimer y Parkinson." Panelist, Miami Lakes, FL.
- Dr. Annely Buré-Reyes (March, 2023). "La Enfermedad de Parkinson y la Cognición. Salud En Casa" - PD Health @ Home. Virtual Educational Program. Parkinson's Foundation.
- Dr. Marina Sarno (June, 2023). Center on Aging "Para Mayores" Weekly Radio Show. "Parkinson's disease Prevalence." Invited Speaker on La Ponderosa 670AM, Miami, FL.
- Dr. Marina Sarno (June, 2023). "Frontotemporal Dementia, Schizophrenia, or Seizure Disorder: A Longitudinal Case Study." Virtual Presentation for University of Miami. Miami, FL.
- Dr. Marina Sarno (July, 2023). Center on Aging "Para Mayores" Weekly Radio Show. Parkinson's disease Programs at the University of Miami. Invited Speaker on La Ponderosa 670AM, Miami, FL.
- Dr. Katalina Fernández McInerney (Ongoing). "Parkinson's Foundation Mindful Mondays" in English and Spanish. Recurrent invited speaker.
- Dr. Mitchell Slugh (August, 2023). "Cognitive symptoms following concussion." Workshop for the Miami-Dade School System examining difficulties after adolescent concussion and return learn guidelines.
- Dr. Mitchell Slugh (August, 2023). "Emotional and academic difficulties after concussion for athletic trainers" within the Palm Beach County School System.

The Center for Cognitive Neuroscience and Aging (CNSA) provides mandated training to professionals who care for aging people in facilities in South Florida.

- Alzheimer's disease Initiative (ADI) Caregiver Training Seminars in Dementia Miami-Dade County and Monroe County, FL.
- State mandated 4-hour training to caregivers, ADI respite and Day Care professionals and para-professionals for CEU accreditation on an annual basis provided in both English and Spanish.
- ADI Caregiving Training Program in Dementia, Monroe County ADI Respite Care and Day Care Centers, Florida Keys.
- Dr. Roger McIntosh hosted 4 community-based talks (1 radio; 3 in-person) addressing healthy cognitive aging in predominately African-American older adult audiences in conjunction with the Center for Cognitive Neuroscience and Aging (CNSA).

- **Dr. Ihtsham Haq gave the following community presentations in 2023:**

  - Keynote speaker, Parkinson's Foundation Parkinson's Disease in the Hospital event January 14th 2023: "Parkinson's Disease in the Hospital."

  - APDA South Florida Annual Parkinson's Symposium February 4th 2023 "What's new in Parkinson's disease"

  - Keynote speaker, Parkinson's Association of Southwest Florida Annual Parkinson's disease symposium April 18th 2023: "Unlocking the Mysteries of Parkinson's: The Latest in Research and Diagnosis."

Comprehensive Center for Brain Health (CCBH)

Dr. Galvin's team at the CCBH participated in various community outreach events including:

- Multiple community engagement events (origami, book readings, puzzles)
- Lewy Body Dementia Conference
- 6 professional educational programs reaching 1,235 providers
- 15 community educational programs reaching 808 individuals

2023 Healthy Brain Aging Conference

This annual conference had attendees from all over Palm Beach County. The attendees consisted of community members, patients as well as caregivers. The presentations (see below) provided an excellent source of information and prompted great discussion between the audience and faculty from the University of Miami's Comprehensive Center for Brain Health (CCBH).

- "The Future is NOW: Advances in the Treatment and Prevention of Alzheimer's Disease" by James Galvin, MD, MPH

- "You're Only as Old as Your Brain Feels: Epigenetic Biomarkers and Brain Aging" by Deirdre O'Shea, PhD

- "Measuring Cognition Using Behavior" by Michael J. Kleiman, PhD

- "Neighborhood Environments Including Greenspaces and Brain Health" by Lilah Besser, PhD

Outreach by the UM Brain Endowment Bank

Led by Executive Director, **Drs. Xiaoyan Sun**, **Regina Vontell** and team worked to educate the community about brain the Brain Endowment's Bank's brain acquisition and the importance of the science involved with post-mortem brain pathology.

- On February 3, 2023, Christina Piersol visited Eastridge, a retirement community and home to several registered donors to establish a relationship with the new community director and to reconnect with our registrants.
- February 4, 2023, had a booth at the 2023 ALS Symposium held by the University of Miami ALS Clinic.
- February 18. 2023, Dr. Ayled Barreda was interviewed about brain donation in the Latino community on 670 am "Para Mayores" radio show. An organization for Latin adults older than 65 called LCA Florida (LCAFlorida.com)
- On February 21, 2023, Drs. Vontell and Sun and Christina Piersol visited and toured the Collier County Medical Examiner's to try to improve the processes of recovering brain and tissue from opiate donors in Collier County.
- February 22, 2023, Christina Piersol presented to the Alzheimer's Support Group via Zoom located in Naples, Florida.
- February 25, 2023, Christina Piersol participated in the Parkinson's Foundation's Revolution Indoor Cycling Event.
- March 17, 2023, Dr. Sun and Christina Piersol met with the Movement Disorders division of Neurology at the University of Miami Miller School of Medicine. Several patients have been referred for enrollment.
- March 23, 2023, Dr. Ayled Barreda and Christina Piersol attended "A Life Without Memory"- Latinos, Alzheimer's, and Parkinson's, an annual meeting for the Latino Center for Aging. They connected with patient's families who were interested in registering their loved ones and were invited back for future conferences and meetings. This is a very good connection to the Latino community in order to target this underrepresented population.
- April 14, 2023, Drs. Vontell and Barreda attended the Dementia with Lewy Body Conference where they spoke to several interested patients and physicians about the benefits of brain donation.
- June 10, 2023, Christina Piersol gave a talk to Eastridge Assisted Living Facility, Cutler Bay, FL. about the importance of brain donation.
- ·August 21, 2023, Christina Pierson attended United Tissue Network referral network meeting.

D

MOST IMPORTANT RELEVANT SCIENTIFIC ACHIEVEMENTS

MOST IMPORTANT RELEVANT SCIENTIFIC ACHIEVEMENTS

As highlighted below in the Grants section, we think these grants are some of our most relevant scientific achievements given our mission to train future leaders.

- NIH Training grants - T32 PINNACLE **(Rundek, MPI)**, PRIDE **(Rundek MPI)**
- NCATS CTSI and K12 award **(Rundek, K12 PI)**
- (1) NIA/NIH Native Alzheimer's Disease Resource Center for Minority Aging Research (NAD-RCMAR) **(Galvin, MPI)** AND (2) NIN/NIA IND Enabling CMC/Safety/Toxicology Studies, Submission of IND and Pilot Phase 1 Clinical Trial of PV-1950R Vaccine for Lewy Body Dementia (LBD) **(Galvin, MPI)**

Here are some of the most impactful scientific publications of 2023 along with short descriptions.

Important Publications by Dr. Rundek (she published 47 peer reviewed papers in 2023)

Rundek T. Obituary: A Luminary Stroke Leader Dr. Ralph L. Sacco Passed Away. *Cerebrovasc Dis.* 2023;52(6):730-732. doi: 10.1159/000529516. Epub 2023 Mar 15. PMID: 36921579.

This obituary for Dr. Ralph Sacco published by Dr. Rundek speaks of his seminal influence on brain health worldwide.

Rundek T, Chen CLH. Advances in Stroke: Brain Health in 2023. *Stroke*. 2023 Nov;54(11):2923-2925.

Recent advances in brain health have allowed researchers to gain new knowledge of age-related changes in brain structure, function and neuroimaging that can improve brain health across the globe.

Ho BD, Gullett JM, Anton S, Franchetti MK, Bharadwaj PK, Raichlen DA, Alexander GE, **Rundek T**, **Levin B**, Visscher K, Woods AJ, Cohen RA. Associations between physical exercise type, fluid intelligence, executive function, and processing speed in the oldest-old (85 +). *Geroscience*. 2023 Jul 31. doi: 10.1007/s11357-023-00885-4. Epub ahead of print. PMID: 37523033.

While much is known about the effects of physical exercise in adult humans, literature on the oldest-old (≥ 85 years old) is sparse. This study has shown the link between self-reported exercise in the oldest-old and better performance on cognitive measures of processing speed and executive functioning, and a synergistic effect of combining aerobic and resistance training on cognition.

Ghare S, Gardener H, **Ariko T**, Gutierrez J, Wright CB, Goldberg RB, Elkind MSV, Cooper GE, Shields CB, Barve S, **Rundek T**. Osteopontin is associated with dementia in the presence of cerebral small vessel disease. *Cerebrovasc Dis*. 2023 Sep 6. doi: 10.1159/000533953. Epub ahead of print. PMID: 37673055.

Osteopontin (OPN) is a proinflammatory cytokine that has been recently implicated in neuroinflammation and neurodegeneration. The study has shown that greater levels of plasma OPN are associated with dementia and that this link is predominately driven by the contribution of OPN to dementia through the burden of white matter lesions.

Romano JG, **Rundek T**. Expanding Treatment for Acute Ischemic Stroke beyond Revascularization. *N Engl J Med*. 2023 Jun 1;388(22):2095-2096.

Stroke continues to be a leading cause of disability and death. Although revascularization with thrombolysis and thrombectomy for acute ischemia stroke has had a substantial effect on stroke outcomes, only a limited number of patients with stroke receive these treatments. A sizeable proportion of patients treated with thrombolysis do not improve even when treated early. Antiplatelet agents are widely used for the management and prevention of stroke, and they are considered the first-line medication for patients who are not eligible for thrombolysis. This paper explores moving the field beyond revascularization.

Important Publication by Dr. Agudelo

Agudelo C, Ramos AR, Gardener H, Cheung K, Elkind MSV, Sacco RL, **Rundek T**. Sleep Duration Is Associated with Subclinical Carotid Plaque Burden. *Stroke*. 2023 Sep;54(9):2347-2355.

Sleep duration is associated with stroke risk and is 1 of 8 essential components of cardiovascular health according to the American Heart Association. The study reports on the association between long sleep and subclinical carotid atherosclerosis in the NOMAS (Northern Manhattan Study), the finding that may explain the mechanism for the associations between long sleep and stroke.

Important Publication by Dr. Besser

Besser LM, Bean C, Foor A, Hoermann S, Renne J. Evaluating Racial/Ethnic Equity in Planning-Related U.S. Health Impact Assessments Involving Parks and Greenspaces: A Review. *J Am Plann Assoc*. 2023;89(4):472-486. doi: 10.1080/01944363.2022.2096100. Epub 2022 Aug 10. PMID: 38075559; PMCID: PMC10706852.

Health impact assessment (HIA) reports are used by government agencies, other organizations and stakeholders to evaluate potential health effects of plans/policies/projects. The authors developed and used the Tool for the Racial/Ethnic Equity Evaluation of Health Impact Assessments (TREE-HIA) to score 50 U.S. HIA reports on planning-related projects/plans involving parks and greenspaces (2005-2020). In conclusion, HIAs incorporating racial/ethnic equity comprehensively throughout the HIA process will better enable urban planners, HIA practitioners, decision makers and communities of color to work together to combat racist planning practices through the shared goals of addressing health disparities and equity. TREE-HIA provides professionals and researchers with a brief tool that can be used/adapted to guide and evaluate future HIAs for racial/ethnic equity considerations.

Important Publication by Dr. Galvin

Besser LM, Chrisphonte S, **Kleiman MJ**, **O'Shea D**, Rosenfeld A, **Tolea M, Galvin JE**. The Healthy Brain Initiative (HBI): A prospective cohort study protocol. *PLoS One*. 2023 Oct 27;18(10):e0293634. doi: 10.1371/journal.pone.0293634. PMID: 37889891; PMCID: PMC10610524.

This paper explaining the important Health Brain Initiative (HBI), established by UM's CCBH director Dr. Galvin, follows racially/ethnically diverse older adults without dementia living in South Florida. The HBI is poised to make substantial contributions to the growing field of research on brain health and risk and resilience factors associated with ADRD. The data collected will lead to breakthroughs in developing new diagnostics and therapeutics, create comprehensive diagnostic evaluations, provide the evidence base for precision medicine approaches to dementia prevention with individualized treatment plans, provide educational and training opportunities and create information clearinghouse activities for participants, families, caregivers, the lay public, health professionals, and policy makers.

Important Publications by the EMBI Basic Science Team

Pradhyumnan H, Reddy V, Bassett ZQ, Patel SH, Zhao W, **Dave KR**, **Perez-Pinzon MA**, Bramlett HM, **Raval AP**. Post-stroke periodic estrogen receptor-beta agonist improves cognition in aged female rats. *Neurochem Int*. 2023 May;165:105521. doi: 10.1016/j.neuint.2023.105521

Women have a higher risk of having an ischemic stroke and increased cognitive decline after stroke as compared to men. The female sex hormone 17β-estradiol (E2) is a potent neuro- and cognitive-protective agent. The study has reported that periodic (ER-β) agonist treatment reduces stroke severity and improves post-stroke cognitive outcome in menopausal women, which has potential for future clinical investigation.

Iadecola C, Smith EE, Anrather J, Gu C, Mishra A, Misra S, **Perez-Pinzon MA**, Shih AY, Sorond FA, van Veluw SJ, Wellington CL; American Heart Association Stroke Council Council on Arteriosclerosis Thrombosis and Vascular Biology Council on Cardiovascular Radiology and Intervention Council on Hypertension Council on Lifestyle and Cardiometabolic Health. The Neurovasculome: Key Roles in Brain Health and Cognitive Impairment: A Scientific Statement from the American Heart Association/American Stroke Association. *Stroke*. 2023 Jun;54(6):e251-e271.

Advances in neurovascular biology have revealed an intricate relationship among brain cells, meninges and the hematic and lymphatic vasculature (the neurovasculome) that is highly relevant to the maintenance of cognitive function. In this scientific statement, a multidisciplinary team of experts examines these advances, assesses their relevance to brain health and disease, identifies knowledge gaps and provides future directions. These advances shed new light on the symbiotic relationship between the brain and its vessels and promise to provide new diagnostic and therapeutic approaches for brain disorders associated with cognitive dysfunction.

Rehni AK, Cho S, Navarro Quero H, Zhang Z, Dong C, Zhao W, **Perez-Pinzon MA**, Koch S, Jy W, **Dave KR**. Red Blood Cell Microparticles Limit Hemorrhage Following Intracerebral Hemorrhage in Spontaneously Hypertensive Rats. *Stroke*. 2023 Apr;54(4):e152-e154.

Hematoma expands over time in spontaneous intracerebral hemorrhage (sICH) and correlates with post-sICH neurological impairment. Hypertension is a major risk factor for sICH, resulting in increased hematoma volume, worse outcomes and increased mortality following sICH. Using male SHR (spontaneously hypertensive) rats, the study has found that RMP treatment is able to limit hematoma growth and attenuate neurological impairment post-sICH in an animal model of hypertension—a prominent risk factor for sICH.

E

CURRENT BUDGET AND ENDOWMENT INVESTMENT REPORT

CURRENT BUDGET AND ENDOWMENT INVESTMENT REPORT

In 2023, the EMBI stayed within budget, completed all programs and supported all researchers and staff as planned. The endowment return revenue was higher than the previous year ($737,121 vs $686,100).

We received an additional endowment contribution to the Schoninger Professorship held by Bonnie Levin, Ph.D. of $1,000,0000. It will now be called the Schoninger/Goldberg Professorship in Neuropsychology.Spending will be realized 2024/2025.

Additionally, market conditions have caused an increase to our scholar compensation allowing the use of the half of carryover from last year. **See Appendix 5 for the current budget and endowment investment report.**

COLLABORATIVE
PROGRAMS WITH MCKNIGHT
AND NON-MCKNIGHT INSTITUTES

A
WITH MCKNIGHT INSTITUTES

B
WITH OTHER INSTITUTES

A

WITH MCKNIGHT INSTITUTES

Another change in the EMBI organizational structure is the appointment of a new Education Director. Our former Evelyn F. McKnight Neurocognitive Scholar, **Dr. Christian Agudelo**, was appointed the new Education Director position in July of 2023. As the McKnight Scholar, he gained tremendous experience that prepared him for this appointment. **Dr. Xiaoyan Sun**, our previous Education Director became the Executive Director of the NIH-funded Brain Endowment Bank in July of 2023. As EMBI member, Dr. Sun has strengthened the partnership and collaborations of EMBI with the Brain Endowment Bank.

Our EMBI leadership team also includes **Susan Fox-Rosellini, MBA** as the Executive Director of Engagement and Business Administration, **Stacy Merritt, MA, CCRP** as the Director of Research Administration and **Marti Flothmann, BS** as the Digital Engagement Manager. Our Research Clinical Core has added a Project Manager, Digna Cabral and a clinical coordinator, Anara Feal Rodriguez.

New this year, we created an EMBI Executive Committee which consists of the following members: **Bonnie Levin**, **Ihtsham Haq**, **Xiaoyan Sun**, **Christian Agudelo**, **Susan Fox-Rosellini**, **Stacy Merritt** and **Tatjana Rundek**. The committee has started regular bi-weekly meetings to discuss new actions and metrics for achieving our 5-year strategic goals by the end of 2025. This includes discussing new research areas and collaborations, research accomplishments and plans for new grants, identifying and utilizing individual strengths of our EMBI collaborators and partners, re-defining the membership and charge for our Scientific Advisory Board and managing our administrative, research and education activities according to the strategic goals.

INSTITUTE

FY23

AT A GLANCE

A SCIENTIFIC ACHIEVEMENTS

B PROGRAMMATIC ACHIEVEMENTS

A

SCIENTIFIC ACHIEVEMENTS

INSTITUTE FY23 AT A GLANCE

SUMMARY OF MAJOR SCIENTIFIC ACHIEVEMENTS

As we reflect on our first year without Dr. Sacco at the UM Evelyn F. McKnight Brain Institute (EMBI), we are proud of what we have accomplished this year while carrying on the legacy that was passed on to us. In summary, **Dr. Tatjana Rundek** received the 2023 Dean's Excellence in Mentorship award. She also received NCATS funding for the new UM Clinical Translational Science Institute (CTSI) K12 program as K12 PI, and NIH funding for T32 training grant in Sleep, Aging and Behavioral Medicine as MPI. **Dr. Bonnie Levin** received an Excellence in Mentorship Award from the UM Women in Academic Medicine (WIAM) group. **Dr. James Galvin** was given the Alexandria and Bernard Schoninger Endowed Chair in Memory Disorders, and also received two large NIH grants. Our junior faculty members received NIH R01s, a K12, ADNI and FL DOH training awards, and two 1FL ADRC scholarships. EMBI neurologists led an important scientific and stakeholder meeting for the Florida Stroke Registry. EMBI researchers from our Brain Endowment Bank published novel research in Brain Pathology, featured on the journal cover. Dr. Rundek and others from EMBI presented at the 2023 Alzheimer's Association International Conference (AAIC), including three trainee presentations. **Dr. Christian Camargo**, Drs. Galvin and Rundek were interviewed by leading news outlets at the AAIC conference. Dr. Camargo published the findings from the McKnight/AAN funded REACTION study. EMBI researchers published important new contributions on the role of reduced cerebral blood flow (CBF) in preceding brain tissue loss. We attended our first Inter-Institutional meeting at UAB without Dr. Sacco, where Dr. Rundek gave a remembrance on the life and career of Dr. Sacco.

Dr. Tatjana Rundek Receives this well-deserved Dean's Excellence in Mentorship Award. Congratulations!

On September 7th, **Dr. Tatjana Rundek** was bestowed with the prestigious **2023 Dean's Excellence in Mentorship Award.** This remarkable recognition serves as a testament to Dr. Rundek's unwavering commitment to mentorship, a quality that has not only shaped the lives of those she has guided but also contributed significantly to the advancement of her field. It is with great pleasure and heartfelt admiration that we extend our warmest congratulations to Dr. Rundek for this well-deserved accomplishment. Her dedication to fostering the growth and development of future professionals in her discipline is truly commendable and exemplifies the pinnacle of excellence in mentorship. This award not only reflects her individual achievement but also stands as a beacon of inspiration for the academic community at large. We look forward to witnessing the continued positive impact Dr. Rundek will undoubtedly have on her mentees and the broader academic community.

Dr. Bonnie Levin was given the **Excellence in Mentorship Award** by the Women in Academic Medicine (WIAM). The WIAM was established in 2008 to promote clinical, scientific, and teaching excellence; increase women representation, participation and leadership; advance strategies to enhance the recruitment, retention and professional advancement; provide faculty development, mentorship and support; create and promote a positive, healthy work environment; and advance a female leadership development program. We congratulate Dr. Levin on this well-deserved honor.

WIAM
Women In Academic Medicine
GET INSPIRED, GET INVOLVED, GET EMPOWERED

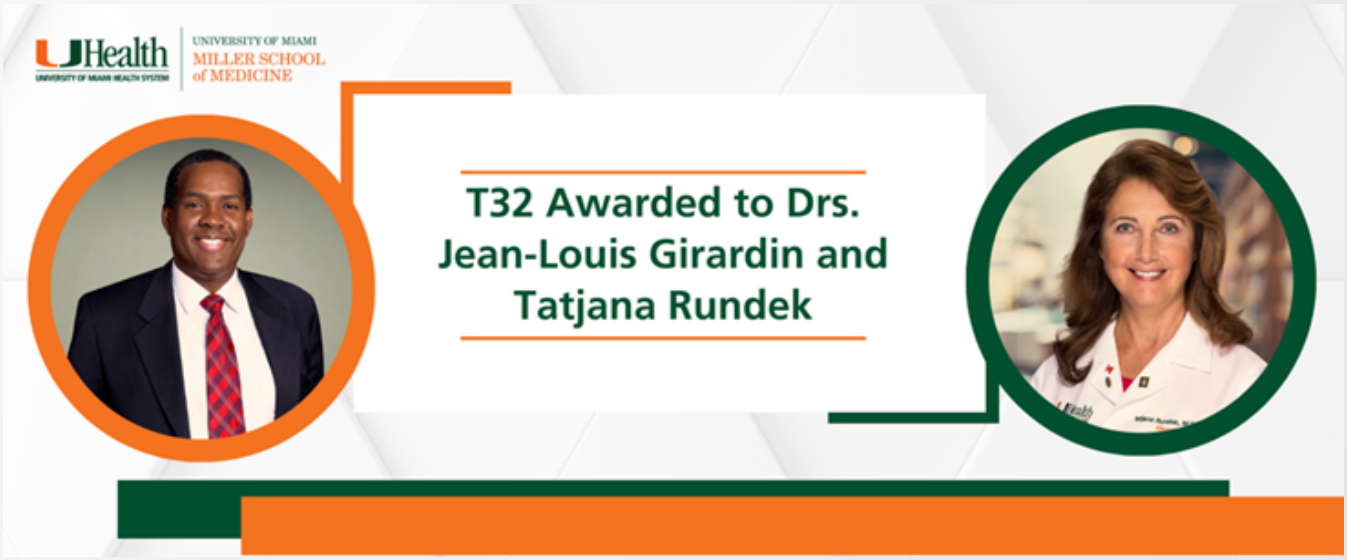
On September 16th, **Dr. Rundek** was the special keynote invited speaker at the 2023 Neuroscience Expo, a community outreach event at the Kentucky International Convention Center in downtown Louisville. It was a large event that showcased the latest information about treatments, rehabilitation and support resources to patients, families and caregivers. There were over 800 attendees including a multitude of presenters, such as neurologists and neuropsychologists; physical, occupational and speech therapists, health educators and representatives from the KY Department of Health. Attendees also consisted of patients and their caregivers and other community partners and stakeholders. Dr. Rundek spoke about the importance of managing stroke risk factors and brain health and discussed lessons learned from her research on brain health and stroke prevention. She also gave a Grand Rounds presentation on brain aging at Norton Health Neuroscience Institute, Louisville, KY September 15, 2023.

University of Miami Neurologists Lead Florida Stroke Registry's Stakeholders Meeting

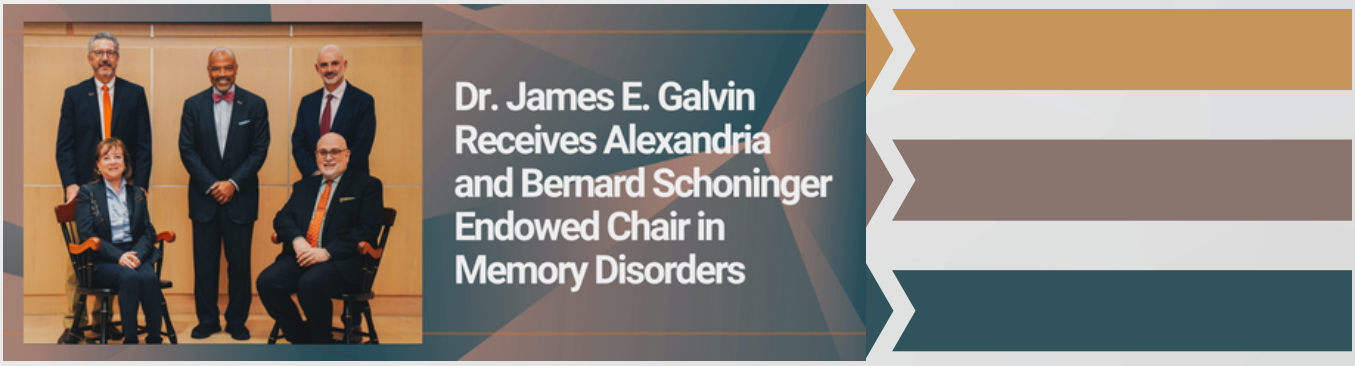
The FL Stroke Registry's work is devoted to developing an effective, consistent and statewide system of stroke care and improved health outcomes. A lot of exciting updates were shared at the Florida Stroke Registry Annual Meeting. More than 130 stakeholders attended the meeting, which included educational, networking and brainstorming sessions related to stroke certification, quality improvement metrics, policy issues, health systems, hospitals, communities and patients. Dr. Rundek presented on improving stroke outcomes and preventing cognitive decline post stroke.

MIAMI CTSI RECEIVES K12 NIH AWARD TO DEVELOP CAREERS IN CLINICAL & TRANSLATIONAL SCIENCE RESEARCH

Dr. Rundek was instrumental in obtaining a $3.8 million K12 award over five years that will build on the Miami CTSI's highly successful KL2 program with a goal of training and mentoring promising early-stage investigators in cross-disciplinary clinical and translational science as well as team science.



The T32 training grant submitted by MPIs **Drs. Girardin Jean-Louis** and **Dr. Tatjana Rundek**, *Promoting Academic Workforce Diversity in Translational Behavioral and Cardio-Metabolic Research-**PINNACLE*** was funded by the NIH's National Heart, Blood and Lung Institute (NHBLI). The T32 is built upon an excellent record in behavioral cardiovascular and health equity research and over a decade long history of training and mentoring underrepresented minority (URM) scientists. Both Drs. Rundek and Jean-Louis have a history of strong collaborations in training successful URM scientists in establishing new careers in cardiometabolic health and health equity. This T32 is a logical extension of their research and training initiatives focusing on URM scientists to develop academic careers in cardio-metabolic risk reductions in high-risk communities.



A renewed focus on exploring the mysteries of the brain and their role in memory disorders was in the spotlight on Tuesday, February 21, 2023 during an Endowed Chair ceremony at the UM Miller School of Medicine to celebrate **Dr. James Galvin**, who became the inaugural holder of the Alexandria and Bernard Schoninger Endowed Chair in Memory Disorders in the Department of Neurology.

NATIVE ALZHEIMER'S DISEASE RESOURCE CENTER FOR MINORITY AGING RESEARCH (NAD-RCMAR)

Dr. James Galvin was just awarded a $3.3 million center grant from the NIH to lead a research consortium and advance the understanding of Alzheimer's disease in American Indian, Alaska Native, Native Hawaiian and Pacific Islander populations. It is the only such funded center. The major goals of this Center are to describe, understand, intervene on and mitigate the Alzheimer's disease health disparities experienced by American Indians, Alaska Natives, Native Hawaiians and Pacific Islanders. The program will fund social and behavioral Pilot Studies that advance the field, emphasizing the recruitment and mentorship of Native junior and mid-level researchers. Dr. Galvin and his collaborators will provide a research training curriculum to a diverse cohort of 12 scientists pursuing social-behavioral research on aging in Native people.

Dr. James Galvin also received a $21 million Grant to further the study into drug development for Lewy Body Dementia.

There is no approved treatment, but there could soon be hope. Based on some promising initial findings, and a new three-year, $21 million grant from the National Institute on Aging, Dr. Galvin and researchers at the UM Miller School of Medicine are launching a Phase 2b study of neflamapimod for Lewy Body dementia. The multicenter study is a public-private partnership between the Miller School, EIP Pharmaceuticals — the company developing neflamapimod — and the Lewy Body Dementia Association, a non-profit that helps educate the public about the condition and will help promote the study.

In 2023, the University of Miami established the **Dr. Ralph L. Sacco Faculty Research Mentor Award.**

EMBI's **Dr. Alberto Ramos** is the first recipient of the Dr. Ralph L. Sacco Faculty Research Mentor Award.

Dr. Deirdre O'Shea, mentored by Dr. Galvin, director of the Comprehensive Center for Brain Health (CCBH) and Dr. Rundek received a K12 award for her research project *Developing a DNAm Biomarker for Cognitive Aging: Addressing Disparities and Promoting Community Engagement* and will bring us another step closer to understanding brain aging. Her proposed study seeks to develop novel epigenetic biomarkers of cognitive aging for use in a dementia risk assessment tool. In tandem with our EMBI's commitment to community engagement, the study will collect data on the perceived clinical value of such a tool among historically underrepresented community older adults to better understand specific barriers that can inform initiatives to broaden community engagement in genomic/epigenomic translational neuroscience.

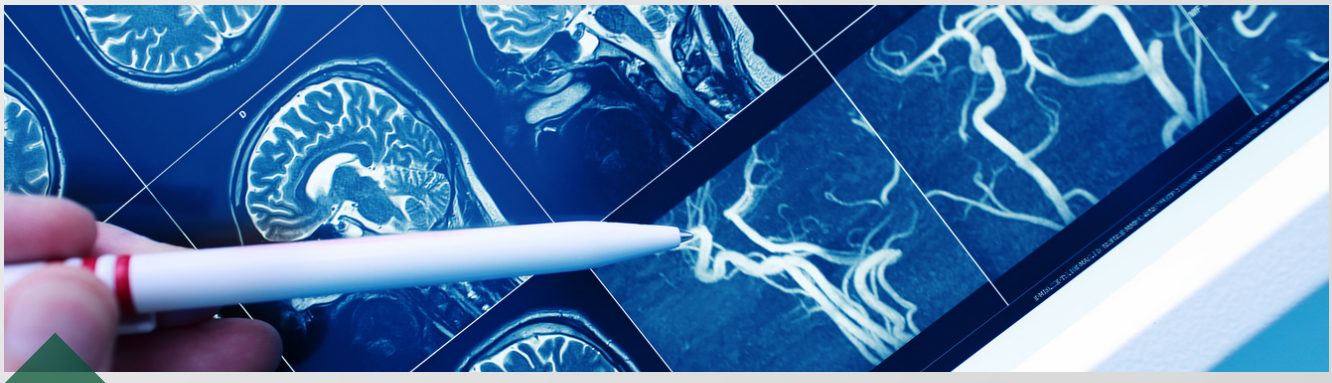
Dr. Sonya Kaur received an ADNI Health Equities Scholarship. The project examines the role of polygenic risk for short sleep duration and its association with cognitive function and decline in ADNI. It is a career development award for highly promising individuals for AD research who have an interest in health disparity research in AD to obtain training in health equity, recruitment science, grantsmanship and receive support for preparation of submission of larger awards.

Dr. Regina Vontell and **Dr. Xiaoyan Sun**, Executive Director of the UM Brain Endowment Bank, and their team made the cover of *Brain Pathology* with their exciting new research, which has uncovered important findings about the role of the brain's immune system in Alzheimer's disease (AD). The study found that certain proteins called inflammasomes are more active in the early stages of AD. These proteins are involved in the brain's inflammatory response. Interestingly, different cells in the brain play different roles in this process. The study showed that these proteins are found in microglia, which are the brain's immune cells, as well as in neurons. The researchers also discovered that the level of one particular protein called ASC is related to the presence of two key markers of AD: β-amyloid plaques and hyperphosphorylated tau. These findings are a significant step forward in our understanding of how AD progresses and may lead to new ways to diagnose and treat the disease in the future.

We highlight this presentation by **Dr. Botagoz Aimagambetova** that was **awarded** `**Abstract of Distinction'** at the 2023 American Academy of Neurology (AAN) meeting.

How Does Arterial Stiffness Affect Cognitive Function?

A recent study presented at the American Academy of Neurology annual meeting explored the association between arterial stiffness and cognitive performance in a racially and ethnically diverse group of older adults. The researchers utilized pulse-wave velocity, measured using arterial tonometry, as the gold standard for assessing vascular stiffness. The study included 1,290 participants from the Northern Manhattan Study, who underwent MRI scans, neuropsychological assessments, and had estimated pulse-wave velocity calculated. The findings revealed a significant link between estimated pulse-wave velocity and cognitive function across various age and race/ethnic groups. The study emphasized the importance of estimated pulse-wave velocity as a potential clinical marker for cognitive decline in aging individuals, even before the onset of noticeable symptoms. The results contribute valuable insights into the relationship between arterial stiffness and cognitive abilities, shedding light on potential indicators and preventive measures for cognitive impairment.



Evelyn F. McKnight Brain Institute Presenters at the Alzheimer's Association International Conference (AAIC) July 16-20, 2023

Dr. Tatjana Rundek presented the new research *Increased Levels of Osteopontin are Associated with Dementia in the Presence of Cerebral Small Vessel Disease* on a protein called osteopontin, which has long been implicated in neuroinflammation.

Dr. Michael Kleiman was lead author on the poster presentation *Unexpected and interesting distractors capture greater attentional gaze behavior in MCI in a naturalistic visual search task*.

Dr. Deirdre O'Shea was lead author on the poster *Are sex differences in cognitive reserve associated with sex differences in verbal memory?*

Dr. Oliver Bracko organized and moderated the workshop: *Evaluating the Human Vasculature for VCID.*

Dr. Alberto Ramos presented and mentored trainee Kevin Gonzalez, BS who also presented:

- *Sleep Phenotypes predict self-reported measures of cognition and mild cognitive impairment in diverse Hispanics/Latinos.*
- *Sleep breathing patterns and neurocognitive function in a diverse Hispanic/Latino cohort.*

Dr. Katalina Fernández McInerney presented the following:

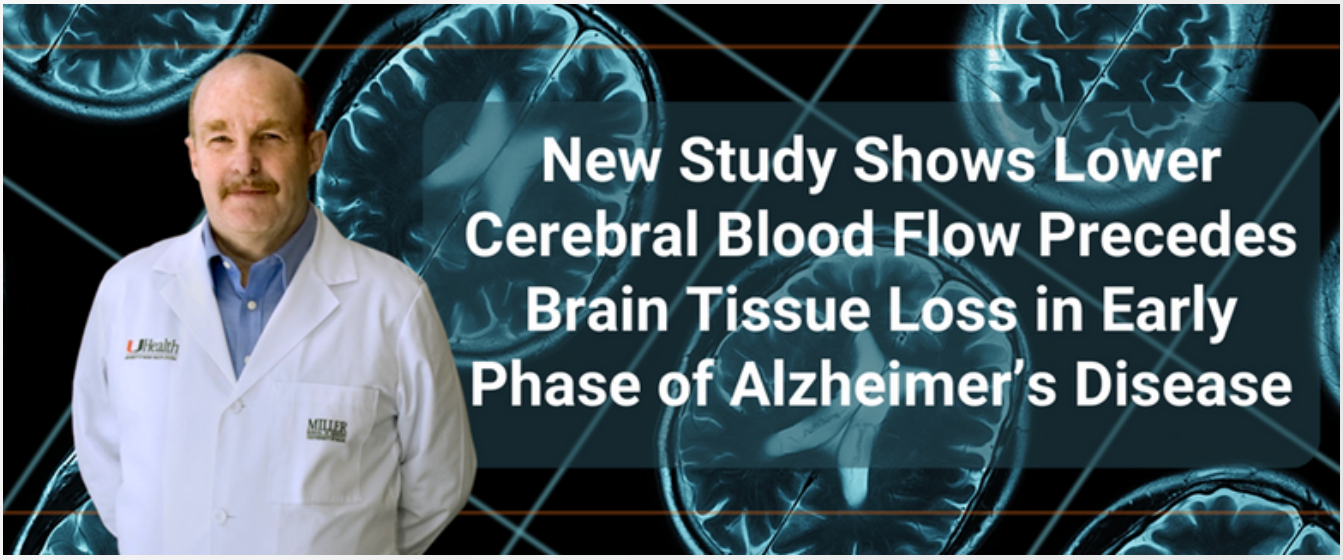
- Featured Research Session *Recruitment and retention for Alzheimer's disease diversity genetic cohorts in the Alzheimer's Disease Sequencing Project (READD-ADSP).*
- She was lead author on the poster presentation *MCI in Caribbean Hispanics shows increased impairment in attention and working memory domains relative to non-Hispanic White individuals*.

Dr. Lilah Besser presented the following:

- *Life course neighborhood social determinants of health and longitudinal changes in cognition in three Alzheimer's Disease Research Center cohorts.*
- *Structural/social determinants of health and vulnerability for and resilience against Alzheimer's disease and related dementias: The Healthy Brain Initiative.*




Dr. Christian Camargo, principal investigator, along with project manager, **Stacy Merritt,** co-investigator, **Dr. Katalina Fernández McInerney** and study coordinator **Marisa Modjeski** wrote a paper on the REACTION study (*Reducing the Effects of Ageing on Cognition with Therapeutic Intervention of an Oral Multi-Nutrient*: *The REACTION Pilot Trial Study Design)* that was funded with support from the McKnight Clinical Translational Research Scholarship in Cognitive Aging and Age-Related Memory Loss. Published in The *Journal of Prevention of Alzheimer's Disease*, the objective was to assess the feasibility of using virtual assessments to study the effects of a multinutrient on cognitive aging. This pilot trial would provide data to guide and inform the selection of participants and outcome measures in future studies on age-related cognitive decline. The study team continues to prepare the final study results for publications.



In the study *Early Amnestic Mild Cognitive Impairment is Associated with Reduced Total Cerebral Blood Flow with No Brain Tissue Loss,* published in the January issue of the *Journal of Alzheimer's Disease,* EMBI collaborators **Dr. Noam Alperin**, **Dr. David Loewenstein** and Dr. Alperin's trainee **Che Lui** have shown that reduced cerebral blood flow (CBF) precedes brain tissue loss. The findings imply that reduced total cerebral blood flow is a stronger biomarker of the early phase of Alzheimer's disease than volumes of AD-prone brain regions.

McKNIGHT BRAIN RESEARCH FOUNDATION
Preserving memory, enhancing life

14th Annual McKnight Brain Research Foundation Inter-Institutional Meeting

Prevention and Mitigation of Cognitive Decline:
From the Bench to Community Engagement
May 3-5, 2023 UAB, Birmingham, Alabama

As always, our favorite time of the year is when we get together with our McKnight trustees, colleagues, fellow scientists, trainees, and friends. This year was no different. We were welcomed by wonderful weather, as well as familiar, and new faces. This year's theme was quite engaging to us and allowed for collaborative conversations and ideas amongst all. We are already looking forward to next year's meeting and want to thank the McKnight Brain Research Foundation for making these meetings possible. Our EMBI's contribution to the 2023 Inter-Institutional meeting is below.

Dr. Tatjana Rundek was the moderator for the McKnight Brain Aging Registry (MBAR) Update session.

Dr. Bonnie Levin presented "Part 3 Where are we going?" during the MBAR Update Session.

Dr. Oliver Bracko presented "Vascular oxidative stress causes neutrophil arrest in brain capillaries, leading to decreased cerebral blood flow and contributing to memory impairment" during the Pre-Clinical Models for Intervention: Mechanisms and Outcomes Session.

Dr. Jianhua Wang presented "Current status and future direction of the eye as the window to the aging brain" during the Optical Coherence Tomographic Angiography: A Novel Biomarker for Aging Session.

April 24, 2023 Dinner Reception for the Recipients of the McKnight Clinical Translational Research Scholarship in Cognitive Aging And Age-Related Memory Loss.

Dr. Rundek with Dr. Madav Thambasetty, Vice-Chair of MBRF hosted a dinner reception for the 4th time for the past and current recipients of the AAN/McKnight Scholarship In Cognitive Aging And Age-Related Memory Loss and their mentors at the 75th Annual AAN Meeting in Boston on April 24th, 2023. This scholarship is funded by the McKnight Brain Research Foundation through the American Brain Foundation, and the American Academy of Neurology. Each year 2 new scholars are named. This event was attended by 5 of our EMBI scholars. There were lively discussions, scholars gave updates on their projects, and much excitement was expressed about the new Alzheimer's drugs. As in previous years, this was a very successful event.

B

PROGRAMMATIC ACHIEVEMENTS

INSTITUTE FY23 AT A GLANCE

PROGRAMMATIC ACHIEVEMENTS

We are a Collaborative Integrative Translational Trans-disciplinary Institute (CITTI) of over 100 clinical and translational scientists dedicated to translating discoveries into interventions to reduce age-related memory loss and improve brain health in partnership with communities.

Evelyn F. McKnight Brain Institute (EMBI)

Our EMBI had a successful year, with the accolades and scientific success highlighted above and throughout the report. EMBI places an emphasis on the strengths of our research training and clinical team in close integration with our programmatic clinical partners. Together, we educate, mentor and work to develop and translate effective research translation strategies for early diagnosis, treatment and prevention of age-related memory loss and cognitive decline with the following:

Clinical Cognitive Division - Dr. James Galvin, Director

Memory Clinic - Dr. Barry Baumel, Lead

Center for Cognitive Neurocognitive Science and Aging (CNSA) in Psychiatry Department - Dr. David Loewenstein, Director, and Drs. Elizabeth Crocco and Rosie Curiel as Co-Directors

Comprehensive Center for Brain Health (CCBH) - Dr. Galvin, Director

Schoninger Neuropsychology Program - Dr. Bonnie Levin, Director

Brain Endowment Bank - Dr. Xiaoyan Sun, Executive Director

The Cornfeld Neuroimaging Program - Dr. Ihtsham Haq, Lead

UM CTSI - It integrates our EMBI trainees and mentors into CTSI education and mentoring activities led by Dr. Rundek, including Master of Science in Clinical Translational Investigation, K12, Mentorship Academy and the Connection - a K to R style grants club.

Our EMBI also has a state-of-the-art sleep program with experts **Dr. Alberto Ramos** and **Dr. Christian Agudelo**, that excels each year. An important and relevant scientific achievement this year is the progress made on the NIH-funded *Sleep in Neurocognitive Aging and Alzheimer's Research (SANAR)* project and research program directed by Dr. Ramos. His success was heightened by the submission of 2 large grants (1) a Clinical Research Networks (CRN) Core HARMONI U54 to address AD/ADRD disparities and (2) a Department of Defense (DoD) grant to research assessing the feasibility of audio stimulation to enhance neuronal synchronization in mTBI patients.

Christian Agudelo, MD is a neurologist with a sleep and cognitive fellowship. He transitioned from his Evelyn F. McKnight Neurocognitive Scholarship to a Diversity Supplement NIH R01 grant, *Sleep in Neurocognitive Aging and Alzheimer's Research (SANAR,)* this year. He was truly a model scholar, actively working on grant applications, publishing papers from his research, and participating in education and community outreach efforts. He was promoted to Assistant Professor this year. He had 2 manuscripts accepted for publication in high impact journals, one in the journal *Alzheimer's and Dementia* and another in the journal *Stroke* (as first author). He was first author on 1 abstract accepted for poster presentation at the Annual Meeting of the Associated Professional Sleep Societies. He submitted an NIH Mentored Patient-Oriented Research Career Development (K23) Award application in October, 2023. He was selected for the Sleep Research Program for Advancing Careers by the American Academy of Sleep Medicine, which began August 2023. He enrolled in the Masters of Science in Clinical and Translational Science program at the University of Miami CTSI and began coursework in the 2023 Fall semester. He reviewed manuscripts for the following journals: *Journal of Sleep Research*, *Sleep* and the *Journal of Alzheimer's Disease*. Lastly, he was appointed the Evelyn F. McKnight Educational Director.

Cognitive Division in the Department of Neurology

Under **Dr. James Galvin's** leadership as Director of the Cognitive Division, he's continued to lead our clinical team in the cognitive division in collaboration with EMBI. Our clinicians are **Dr. Bernard Baumel**, Lead of the UM Memory Program, **Dr. Xiaoyan Sun**, also Executive Director of the UM Brain Endowment Bank, **Dr. Christian Camargo** our former McKnight Cognitive Fellow and AAN/MBRF Scholar and **Dr. Michelle Marrero**, a former EMBI Clinical Fellow. Our clinical training and educational program in aging and age-related cognitive impairment of our EMBI is housed in the Cognitive Division of the Department of Neurology.

Led by **Dr. Agudelo**, there is a new collaboration between the UM Cognitive Division and EMBI that is unique from other neurology programs. In July 2023, we started a **2-week cognitive neurology rotation program for neurology residents** as a core compulsory feature of the neurology residency. It is designed for residents to learn cognitive neurology, engage in EMBI activities and to create a pipeline of neurologists interested in careers in cognitive neurology. It is structured to include clinical rotations in cognitive clinics under supervision of cognitive neurologists, a visit to the Comprehensive Center for Brain Health (CCBH) in Boca Raton, assigned cognitive neurology readings and participation in EMBI activities. These residents will meet with Drs. Rundek and Agudelo to discuss brain aging, cognitive and brain health, cognitive neurology career options as well as, EMBI scholarships. This program has strengthened our collaboration with the Cognitive Division. Seven residents have completed the rotation so far and the feedback from them was highly positive. One resident has expressed strong interest in cognitive neurology and is interested in joining EMBI as a Scholar after completing her residency.

Schoninger Neuropsychology Program

Led by **Dr. Bonnie Levin**, the Schoninger Neuropsychology Program provides a full range of interventions designed to mitigate age-related memory loss and other cognitive changes associated with the aging process. Used in conjunction with neuropsychological testing to identify areas of cognitive weakness, patients are offered a uniquely tailored program to address their specific needs in areas that offer potential for intervention. This precision-based delivery of services focuses on developing realistic goals and practical, accessible plans of action. A major strength of the program is that nearly all of the interventions can be administered on either a virtual platform or face-to-face meeting. The program has seven faculty who see patients, four Fellows and ten practicum students. A main research focus of the Schoninger Program is to investigate and mitigate frailty-associated risk of cognitive decline through the Frailty research program that collects information for the McKnight Registry. The McKnight Registry database included over 500 participants followed at our cognitive neurology clinics.

Comprehensive Center for Brain Health (CCBH)

Dr. Galvin is the Cognitive Division Director, and Director of the CCBH. The addition of the CCBH continues to expand our EMBI cognitive aging scope of research, clinical care and ability to make an impact in the local communities from the Florida Keys to Boca Raton and the Palm Beaches.

In 2023, Dr. Galvin was named the **Alexandra and Bernard Schoninger Endowed Chair in Memory Disorders.** The Schoningers were home builders and shopping center pioneers whose children attended University of Miami and thus they were delighted to make gifts to the University that was furthered with other matching gifts. This gift was also matched by the MBRF gift in 2014, creating the Evelyn F. McKnight Endowed Chair for Learning and Memory in Aging that now Dr. Rundek holds.

Dr. Galvin's team at the CCBH received NIH grants this year, published multiple papers and gave many scientific presentations, which are listed in those report sections. An important achievement for the CCBH this year, is the beginning 1st round of longitudinal visits for the Healthy Brain Initiative (HBI). The over-arching goal of the project is to improve our understanding of healthy brain aging and risk factors and predictors associated with development of Alzheimer's Disease and Related Disorders (ADRD). Dr. Galvin and team prospectively collect, analyze, maintain and store clinical, cognitive, behavioral and functional data, neuroimaging and biospecimens from research participants to characterize transitions in cognitive status and study risk, and protective factors for cognitive and functional decline. With 195 participants enrolled, his team is now completing second year visits. This data is being used for 9 current grant applications.

Center for Cognitive Neuroscience and Aging (CNSA)

Led by **Dr. David Loewenstein**, the CNSA includes Dr. Rosie Curiel, a recognized minority leader in AD clinical research and Diversity Core Lead of the 1FL ADRC, and the CNSA Medical Director, **Dr. Elizabeth Crocco**, a recognized clinical AD investigator and Chief of Geriatric Psychiatry. This Center's mission is to be a leader in understanding the aging brain and a hub to develop and implement the most state-of-the-art techniques for the study of brain disorders. The CNSA is grounded upon three pillars: research, clinical care and education. Their scientists are leaders in the development of cutting-edge methodologies to diagnose and treat cognitive disorders. In 2023, the CNSA and EMBI continued their collaborations on the 1FL ADRC and met regularly on the translational vascular imaging projects VIP and IMAGINE. This year, CNSA investigators were awarded a FL-DOH Ed and Ethel Moore grant and an NIH grant (details in grants section).

Brain Endowment Bank (BEB)
The Department of Neurology Brain Endowment Bank™, led by **Dr. Xiaoyan Sun**, is one of six NIH designated NeuroBioBank brain and tissue biorepositories in the nation with a large AD/ADRD and control brain repository from diverse populations. The Brain Endowment Bank encourages brain donation to support medical and scientific researchers who study the human brain in search of better treatments, and ultimately a cure for brain disorders. EMBI and the Cognitive Division participate and support collaborations with this outstanding UM Program that also includes two neurooscientists **Dr. Regina Vontell** and **Dr. David Davis**.

This year, the BEB developed a strong collaboration with the Miami Project to Cure Paralysis group, looking at neuropathological conditions where the inflammasome plays an important role and may prove to be an important therapeutic target. Dr. Sun coordinates **brain cutting sessions** for EMBI members, collaborators and trainees. Both Drs. Vontell and Davis's grants awarded in 2023 are listed in the grants section of the report. The NIH NeuroBioBank contract for the UM Brain Bank and the NIH BICAN Option for the BEB were renewed for another year.

Regina Vontell, PhD is Associate Director of the Department of Neurology Brain Endowment Bank. Her primary research has focused on the inflammatory mediators in the brain and their relation to complex diseases. She has been instrumental in studies that identify potential targets for neuronal inflammation. This year, she developed 'Nanostring Technologies' which will prove to be an important tool for detecting RNA and protein changes for the inflammasome complex. She was able to successfully secure funding to get this program started, which has led to several grant applications and submissions. She gave an important talk on "What comes first, the inflammasome complex or synaptic dysregulation?" at an ADRC meeting in Washington, DC this year. Dr. Vontell was lead author on the important paper, *Identification of inflammasome signaling proteins in neurons and microglia in early and intermediate stages of Alzheimer's disease* that made the cover of *Brain Pathology*. She completed her 1FL ADRC AlzSTARS (Alzheimer's Science Training to Advance Research Success) scholarship under the mentorship of Drs. Sun and Rundek.

Dr. David Davis published a novel study demonstrating that toxins from algal blooms inhaled in the upper respiratory tract and entered the brain may cause a wide range of brain disorders. The algae called BMA is a microscopic plant, but it's packed with toxins that could have a huge impact on our health in South Florida. It's just one of the toxins produced by common, canal-clogging blue-green algae. Many scientists suggest BMA

exposure could cause or accelerate diseases in humans such as Alzheimer's, ALS and dementia. These blue-green algae may also be harmful to other organs. This study gained major media attention that is listed in the Media section of the report. Dr. David Davis was also on a Town Hall Panel for the documentary "We Are All Plastic People Now" Released by PBS in 2023; Directed by Rory Fielding (Narrated by Ted Danson) in Boca Raton, FL.

UM Bascom Palmer Institute (BPI)

BPI is the world-renowned Institute that has been ranked the #1 eye hospital in the country by the US News & World Report's Best Hospitals for the 22nd time. BPI faculty, **Drs. Hong Jiang** and **Jianhua Wang** train the next generation of aging researchers at BPI including fellows and medical students and are active EMBI members with a research focus on ocular biomarkers of cognitive aging and dementia. They collaborate with Dr. Rundek on microvasculature and microcirculation changes and with Dr. Galvin on retinal amyloid imaging in brain aging, MCI and AD/ADRD. They are also Co-Investigators with Dr. Signorile, Director of the Laboratory for Neuromuscular Research and Active Aging on the pilot study Circuit Resistance Training and Retinal Vascular Changes in Older Persons. Drs. Jiang and Wang have a collaborative grant with the UAB EMBI that is listed in the collaborative programs section. This year, they received a McKnight Brain Research Foundation (MBRF) grant as well as an NIA grant.

UM Clinical Translational Science Institute (CTSI)

CTSI, formerly led by **Dr. Ralph Sacco** and now led by MPIs (Drs. Kobetz and Carrasquillo) is a university-wide institute dedicated to accelerating and transforming culturalized clinical translational science (CTS) and serves as the Miami Hub of the national CTSI consortium to advance scientific discoveries into improved health and health equity. In 2023, the CTSI was renewed for 7 years. With its programs (biostatistics, epidemiology and research design; informatics and data science; community and stakeholder engagement; team science; integrating special population; regulatory, network capacity, translational workforce development, K12, and pilot program) it provides infrastructure and resources for CTSI and clinical trial readiness to address new pandemics or emergencies and support education, training and diverse translational workforce development.

CTSI K12 Program

Dr. Tatjana Rundek is Director of the CTSI K12 Program and is Director of a MS Degree in Clinical Translational Investigation (MCSTI), both highly integrated, cross-disciplinary programs to train and mentor the next generation of translational scientists-leaders. In 2023, the K12 program (Dr. Rundek PI) was renewed for 5 years. This program builds upon

the 10 years of success in her prior CTSI KL2 leadership, with 21 Scholars who graduated from Kl2 and who had 176 publications directly related to their KL2 projects and successfully competed for R and K type awards with over $50M in research funding. Consistent with the overall CTSI theme, half of the K12 scholar research projects were on minority health and health disparities. The K12 award of $3.8 million over five years will build on the Miami CTSI's highly successful KL2 program with a goal of training and mentoring promising early-stage investigators in cross-disciplinary clinical and translational science, team science and community participatory research.

$50 MILLION
IN RESEARCH FUNDING

176
PUBLICATIONS

10 YEARS
OF SUCCESS

21
SCHOLARS

Movement Disorders Division

Dr. Ihtsham Haq is Director of the Movement Disorder Division at UM Department of Neurology and our EMBI Co-Associate Director. His overall research interest has been in improving the care of patients with movement disorders and Lewy Body Dementia with a focus on the use of technology in the understanding of brain circuitry. One of his priorities is to take concrete steps to ensure historically underrepresented patients are provided an opportunity to participate in research at UM, including pipeline programs, advocacy and disparity research. He is an important collaborator with our imaging pipeline initiative and meets regularly with the EMBI team regarding imaging projects. He has been instrumental as a collaborator and mentor to our EMBI PhD student **Taylor Ariko** and junior faculty on research projects. Dr. Haq published 4 papers this year, was a moderator for 1 session and a chair for another at the 2023 American Academy of Neurology (AAN) meeting. He was also a session moderator at the 56th annual University of Miami Neurology Update and Stroke Intensive Review. He was a keynote speaker at the Parkinson's Association of Southwest Florida Annual Parkinson's Disease Symposium as well as a keynote speaker at the Parkinson's Foundation Parkinson's Disease in the Hospital event. He co-authored 8 posters for presentations, of which, 6 involved trainees he mentored. He has been leading the Cornfeld Neuroimaging Program with data science Core – advancing our neuroscience mission and computational infrastructure with the ML/AI program.

Translational Sleep and Circadian Sciences (TSCS) Program

Dr. Girardin Jean-Louis, one of the world's leading experts on advancing the science and practice of sleep and circadian sciences, directs the Translational Sleep and Circadian Sciences (TSCS) Program in the Department of Psychiatry and Behavioral Sciences at the UM Miller School of Medicine. He collaborates with Dr. Rundek on the T32 programs and NIH-funded PRIDE. These programs focus on how interventions aimed at better sleep quality can improve the health of minority populations that are disproportionately affected by problems associated with sleep. He received a National Institute of Aging Career Leadership Award. The TSCS research focus is on investigating how sleep deficiencies and circadian misalignment, or a misalignment of the body's internal clock, impacts development of cardiovascular disease, dementia and other chronic health problems. The TSCS has three pillars: research, training and community engagement and empowerment. A major objective of the program is training and mentoring new generations of sleep and circadian scientists, including underrepresented minority investigators to attain the national mandate to achieve health equity in all U.S. communities. Dr. Jean-Louis was elected to the Academy of Science, Engineering and Medicine of Florida (ASEMFL) this year.

Frost School of Music

The Frost School of Music at the University of Miami is one of the most highly acclaimed innovative music schools in the United States. It is a progressive school that fosters students to build themselves into self-assured music professionals. Its award-winning faculty vigorously and effectively seeks to improve the world through ardent musical performances, impactful research and exceptional teaching. **Drs. Theresa Lesiuk**, **Xiaoyan Sun** and **Roger McIntosh** collaborate on the project *The Neural Network Connectivity of*

Autobiographical Music in Adults with Mild Cognitive Impairment and Mild Alzheimer's Disease, funded by the ML Pearce Foundation. The aims of the project are to investigate the activated neural networks of autobiographical versus novel music in patients with Mild Cognitive Impairment (MCI) and mild Alzheimer's disease (mAD). The study uses a within-subjects and between-subjects design using 24 participants with MCI/mAD and a control group of 10 cognitively normal controls. The three conditions (i.e., recorded autobiographical music, novel music, white noise) are randomly counter-balanced. This study will foster significant collaborations with Frost and creation of a new program on music and mind in our EMBI.

OneFlorida ADRC (1FL ADRC)

1FL ADRC continues to operate under the leadership of **Dr. David Loewenstein**, one of the 1FL ADRC Directors. **Dr. Tatjana Rundek** serves as Co-Director of 1FL ADRC REC AlzSTARS (Alzheimer's Science Training to Advance Research Success) together with Dr. Glenn Smith from UF. Two UM AlzSTARS graduates of EMBI, **Dr. Magdalena Tolea**, CCBH and **Dr. Regina Vontell**, UM Brain Endowment Bank have completed the program in 2023. Together with 1FL ADRC, UM has a strong national presence in AD/ADRD genetic research, particularly in minority populations through the Hussman Institute for Human Genomics (HIHG). In 2023, 2 new scholars from UM were selected for AlzSTARS program, Alexandra Ortega, PhD from CNSA, and Katrina Celis, PhD from HIHG.

Hussman Institute for Human Genomics (HIHG)

Led by Dr. Margaret Pericak-Vance, HIHG is leading a national initiative in the whole genome sequencing for ethnically diverse AD cohorts and the project on the origin of AD in people of African Ancestry. The HIHG received a National Human Genome Research Institute (NHGRI) and NIA grant of over ten million dollars to focus on individuals with mixed genetic backgrounds. This research champions UM's commitment to diversity and hemispheric collaborations. **Dr. Katalina Fernández McInerney**, from the Schoninger Neuropsychology Program, is a key neuropsychologist on the Whole Genome Sequencing in Ethnically Diverse Cohorts for the Alzheimer Disease Sequencing Project Follow-up Study, focusing on adjudication, harmonization and training efforts aimed at better understanding the role of genetics in Alzheimer's disease in diverse populations.

Basic Science Collaborators

The Peritz Scheinberg Cerebral Vascular Disease Research Laboratories

The laboratories continue to conduct research on cerebral circulatory control mechanisms in animal models which have evolved over the years into studying cerebral ischemia from molecular biology to physiology and behavioral testing, with the goal of finding novel therapies. Their scientists are constantly in search of novel findings, seeking to expand the knowledge of cerebrovascular disorders with the aim to treat and enhance quality of life. **Dr. Miguel Perez-Pinzon** is the Scheinberg Professor of Neurology and Neuroscience, Vice-Chair for Basic Science in Neurology and Director of the Peritz Scheinberg Cerebral Vascular Disease Research Laboratories. **Dr. Kunjan Dave** is a Research Associate Professor whose research includes studying potential signaling pathways responsible for neuronal death in neurodegenerative diseases. He received 2 grants, published 4 journal articles and made progress toward developing a novel therapy for intracerebral hemorrhage, which he presented at the Department of Cancer Biology and Pharmacology at the University of Illinois College of Medicine. There were 8 scientific presentations which Dr. Dave and his trainees presented this year.

Dr. Ami Raval is a Research Associate Professor in the Department of Neurology in the basic science division. Her research focuses on understanding the effects of estrogen on neuronal survival after ischemic episode, and the role of nicotine addiction on beneficial effects of estrogen on hippocampal neurons subjected to ischemia. She received a Transformational Project grant from the American Heart Association (AHA) this year. She co-authored 4 journal articles, was an invited speaker for 3 lectures, co-authored 8 poster presentations and gave an oral poster presentation at the 2023 International Stroke Conference.

Dr. Oliver Bracko's lab focuses on brain blood flow reductions and their contribution to dementia. The lab uses high-temporal and high-resolution in vivo multi-photon imaging to understand the immune system's interactions with the microvasculature in neurodegenerative diseases. This year, he received an NIH grant and a FL-DOH grant, co-authored 2 publications and gave 5 presentations at scientific meetings.

C

TRAINING, SCIENTIFIC EDUCATION & COMMUNITY EDUCATION & OUTREACH

COLLABORATIVE PROGRAMS
WITH MCKNIGHT INSTITUTES

New collaborations with McKnight Institutes in 2023

- **Dr. Sonya Kaur** received a McKnight Inter-Institutional Interventional Core Pilot Grant to study *Feasibility of a Timed Bright Light Exposure Therapy to Improve Circadian Function*. The project is a pilot study in collaboration with Karen Gamble, PhD at the University of Alabama, Birmingham. It aims to examine if a circadian rhythm intervention to correct delayed sleep phase in older adults can be done and can lead to changes in cognition over time.

Role: Co-Is UM - Dr. Kaur; UAB - Dr. Gamble

- EMBI and UF Collaborators received a McKnight Brain Research Foundation grant to study *Cued high-speed multidirectional Yoga: impact on retinal vascular and cognitive measure.* This study is to examine the impact of cued high-speed multidirectional Yoga on retinal vascular and cognitive measures in healthy older adults.

Collaborators: UM - Drs. Jiang, Wang, Signorile; UF - Dr. Ebner

Ongoing collaborations with McKnight Institutes

- NIA U19 *Precision Aging Network (PAN)* a partnership focused on sustaining healthy minds for life by discovering personalized solutions to improve brain health.

Collaborators: UM - Drs. Rundek, Levin; UA - Drs. Barnes, Ryan.

- The *Florida Consortium to Reduce Misinformation and Exploitation in Alzheimer's Disease* grant funded by the FL-DOH Ed and Ethel Moore Alzheimer's Disease Research Program. The consortium will utilize joint efforts to fight the burgeoning health crisis of misinformation and exploitation in Florida targeting older adults at risk for Alzheimer's Disease. The project builds on research showing parallel disease and fraud vulnerability trajectories rendering older individuals with cognitive impairments, in particular those from underserved racial/ethnic backgrounds, most vulnerable to deception. Findings will be used to design interventions in concert with community partners.

Collaborators: UM - Dr. Levin; UF - Dr. Ebner; UCF Dr. Lighthall

- *OneFLorida ADRC REC Alzheimer's Science Training to Advance ResearchSuccess (AlzSTARS)* a program to train diverse, multidisciplinary early stage Investigators.

Collaborators: UM - Drs. Rundek, Loewenstein; UF - Dr. Smith

- *Improving Age-Related Cognitive Decline with Exercise in Hypertensive Older Adults: A Pilot Study to Investigate A Retinal Microvascular Biomarker and the Role of IGF-1.* MBRF Cognitive Aging and Memory Intervention Core Grant

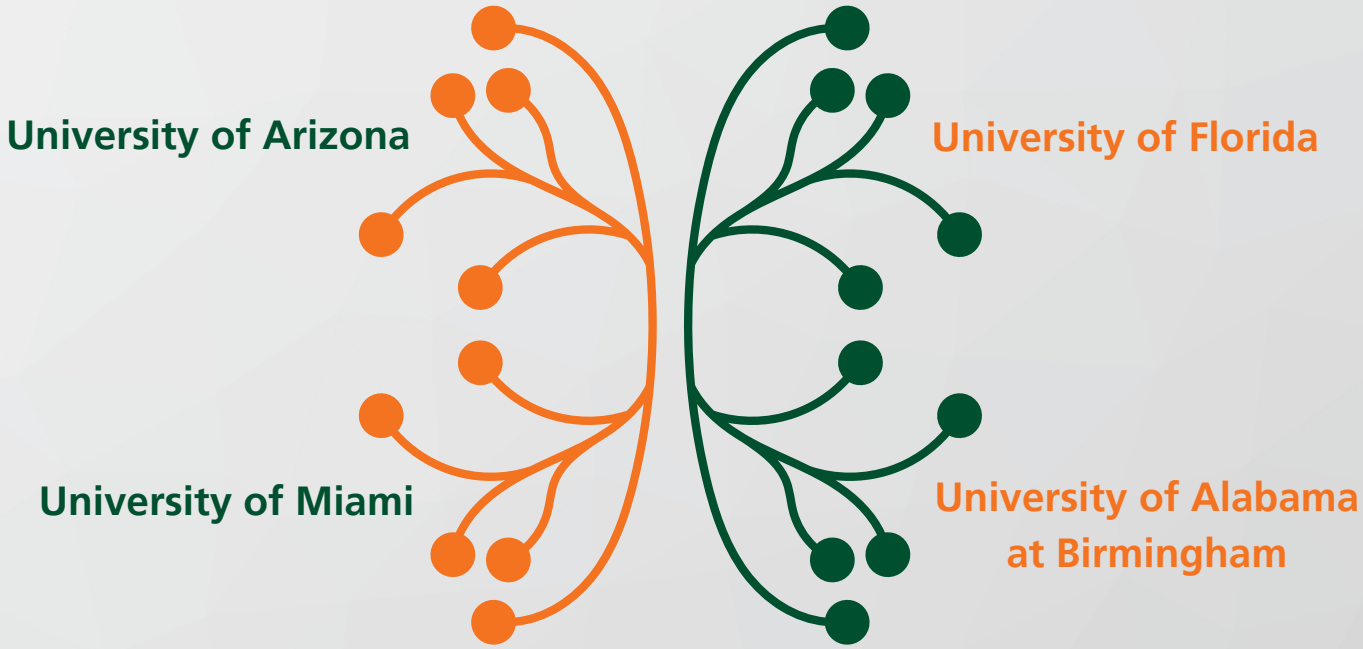
Collaborators: UM - Drs. Jiang, Wang; UAB - Dr. Lazar

- The *McKnight Brain Aging Registry (MBAR)* study, a collaboration between all four McKnight Institutes has a working group continues to meet regularly in to review and approve ideas for manuscript submissions.

Collaborators: UM, UAB, UA, UF

- The *MBRF Cognitive Aging and Memory Intervention Core* awards grants to collaborations among McKnight Brain Institutes on a pilot-study that researches interventions to reduce age-related memory loss and cognitive decline. MBRF Cognitive Aging and Memory Intervention Core Grant

Co-Chairs: UM - Dr. Levin; UAB - Dr. Lazar



B

WITH NON-MCKNIGHT INSTITUTES

COLLABORATIVE PROGRAMS
WITH OTHER INSTITUTES

New Collaborations with Other Institutes

- **Dr. Rundek** - NINDS U19 *The Clinical Significance of Incidental White Matter Lesions on MRI Amongst a Diverse Population with Cognitive Complaints (Diverse VCID).*

- **Dr. Rundek** - NIH R01 *Ecological Momentary Assessment of a Psychosocio-neuro-immune Mechanism for Atherosclerotic CVD Risk in Persons living with HIV*.

New Submissions with Other Institutes in 2023

- **Dr. Rundek** submitted a U01 grant with Columbia University (Dr. Gutierrez) *Analytical and Clinical Validation of Biomarkers for Alzheimer's Disease (AD) and AD-Related Dementia.* The research is to better understand how vascular health and abnormal white matter signals in the brain affect thinking. Results from this study will improve our understanding of how poor vascular health causes WMH and VCID. We hope that these findings will lead to treatments aimed to reduce VCID. Status: Pending NIH review.

- **Dr. Rundek** submitted another grant with Columbia University (Dr. Moise Desvarieux), the *Multimorbidity 3-City Alzheimer's Disease EHR Study - M3AD* Study to the NIA. Dr. Rundek will serve as the UM site PI. The project will focus on looking for cerebrovascular co-morbidities and AD/ADRD phenotypes and their outcomes. Status: Received fundable score of 23, pending NIH Council meeting.

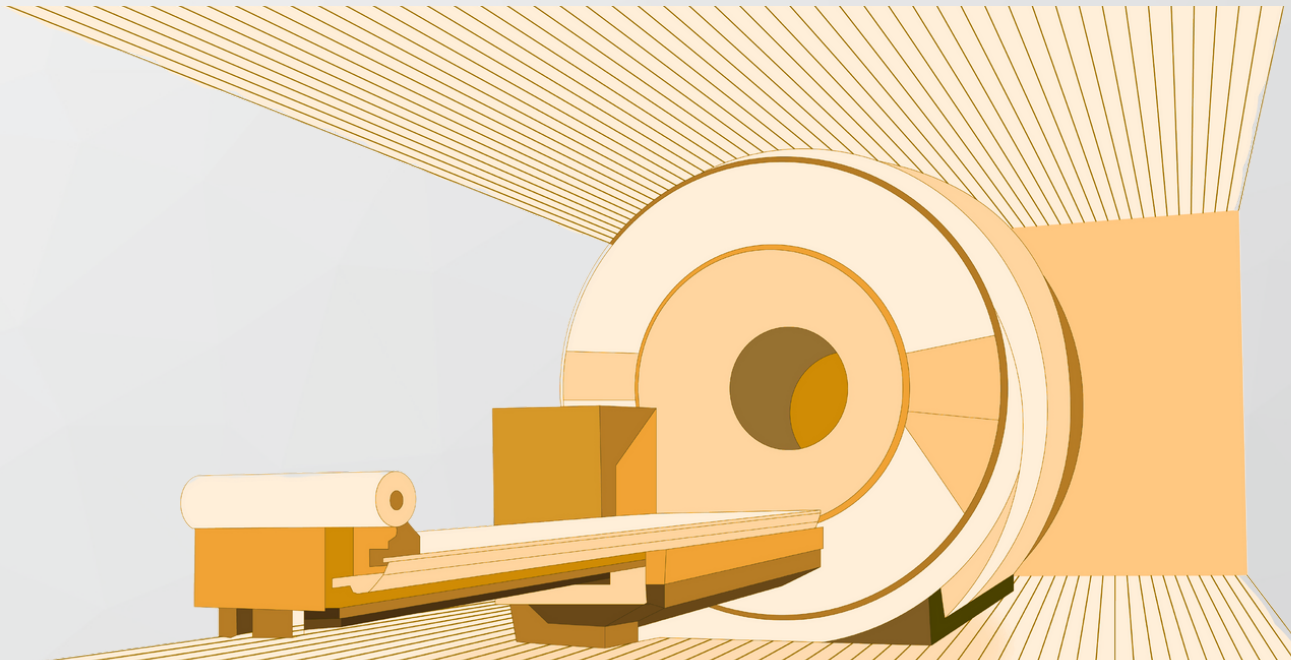
- **Dr. Rundek** submitted an NIH grant as site PI along with Tulane University (Dr. Demetrius Maraganore) for the project *PCORnet Study of Older Persons with Superior Cognitive Performance Over Age 90*, a study of superior cognitive performance of independent persons over age 90 looking at computable phenotypes of successful aging that will focus on molecular and meta-molecular determinants, taking a medical and not a public health approach to improve cognitive health. Status: Will be resubmitted in 2024.

Dr. Rundek's Ongoing Collaborations with Other Institutes

- This R01 grant *Innovative Deep Phenotyping of African Americans (AAs) at Risk for Alzheimer's disease* was recently funded. The project will deeply phenotype AAs using novel cognitive and biomarker assessments that consider the multiple comorbidities identified in this population. The study leverages our vast expertise in neuroimaging and conducting home-based assessment to evaluate clinical and neuropsychological status with equipment that we place within the home.
  (PI: Loewenstein, Co-PI: Rundek)

- NIA/NIH R01 *Phenotyping of African Americans at Risk for Alzheimer's Disease.* The goal of the project is to accelerate efforts to gain critically needed knowledge of AD and ADRD in a seriously underrepresented AA group by obtaining innovative cognitive and biomarker data for participants, using in home assessment, blood-based bio markers, MRI, and amyloid imaging.
  (MPI Rundek, Crocco, Curiel, Loewenstein)

- Dr. Rundek in collaborations with UCSD is an NIA R01 titled *Study of Latinos-Investigation of Neurocognitive Aging-Alzheimer's Disease.* The major goals of this project are to study the neurocognitive assessments, MRIs, and PETs among HCHS/SOL participants with cognitive decline and impairment and those meeting MCI and ADRD research criteria.
  (PI: Dr. Hector Gonzalez; Co-PI: Rundek)



HONORS
NEW GRANTS
AND AWARDS

A HONORS AND AWARDS

B NEW GRANTS

A

HONORS AND AWARDS

HONORS AND AWARDS

- **Dr. Tatjana Rundek** received the 2023 Dean's Excellence in Mentorship Award.
- **Dr. Bonnie Levin** was given the Excellence in Mentorship Award by the Women in Academic Medicine (WIAM).
- **Dr. Oliver Bracko** received the Chair's Choice Award for the session 'Cerebrovascular Continuum from Brain Development to Neurological Disorders' ASN 2023 Meeting, Lexington, KN.
- **Dr. Elizabeth Crocco** received the Psychiatric Residency Didactic Teaching Award UM Department of Psychiatry and Behavioral Sciences Most outstanding didactic teacher in the General Psychiatry Training Program 2023.
- **Dr. David Davis** received the Research Award, Vice Provost for Research and Scholarship, and the OVPRS's Diversity Research Council Subcommittee Funding, 2023 as well as Legacy Magazine's 2023 Most Prominent and Influential Black Professional.
- **Dr. David Della-Morte** was nominated personal advisor for the medical scientific research of the Italian Minister of University and Research.
- **Dr. Alberto Ramos** was awarded the Dr. Ralph Sacco Faculty Research Mentor Award.

Junior Scientists Honors and Awards

Dr. Christian Agudelo was selected for the Sleep Research Program for Advancing Careers by the American Academy of Sleep Medicine. He was named the Evelyn F. McKnight Educational Director at the University of Miami Miller School of Medicine in 2023.

Dr. Botagoz Aimagambetova's abstract at the 2023 Annual Academy of Neurology (AAN) received a 2023 `Abstract of Distinction' in the Behavioral and Cognitive Neurology category which is awarded to the top-rated abstract in each topic category. It was selected for the merit of distinction based on the quality of study and interest to the neurologic community. Her abstract was titled *Estimated Pulse Wave Velocity Inversely Associates with Cognition in the Northern Manhattan Study.*

Taylor Ariko, our EMBI student trainee was appointed to the UM Executive Board of the Medical Physics Society (MPS). The MPS is an organization for students interested in the medical uses of radiation and radiation protection. The organization's goal is to promote education in the field, inform members on the professional aspects of the field, plan social events and create opportunities for community service involvement.

Dr. Lilah Besser is a 2023 Awardee of the NIH Office of Disease Prevention's Early Stage Investigator Lecture. It is titled *Structural and Social Determinants of Brain Health and Alzheimer's Disease and Related Dementias* which discusses structural and social determinants of health (S/SDOH) that encompass a multitude of factors in the environments in which we live, learn, work, play and worship.

Dr. Sonya Kaur received an ADNI Health Equities Scholarship. The project examines the role of polygenic risk for short sleep duration and its association with cognitive function and decline in ADNI. It is a career development award aimed at allowing individuals with an interest in health disparity research to obtain training in health equities, recruitment science, grantsmanship and support submission of larger awards. She was also chosen as the trainee for the FL-DOH funded research project TRANSFORM-AD.

Dr. Deidre O'Shea received a Travel Award for Reserve and Resilience workshop where experts provided practical information about various facets of data sharing. Also, her application was selected for the NIH sponsored workshop: Genomics for Social Scientists Workshop--Epigenetics at University of Michigan. The purpose of this NIA sponsored workshop on epigenetic research is to familiarize researchers with epigenetic data and to provide instruction on best practices for incorporating these data with social science analyses. She was also awarded a CTSI K12 award.

Dr. Magdalena Tolea was selected to participate in the Fellowship Track of the IMPACT-AD class of 2023 from August 27 to September 1 in San Diego, CA. It is a competitive week-long training program designed for those interested in writing/submitting their own ADRD clinical trial grants. The training was very informative and the specific discussions of her protocol were useful in reshaping an upcoming grant submission.

B

NEW GRANTS

DR. TATJANA RUNDEK'S NEW GRANTS IN 2023

NIH K12 This award is to develop careers in clinical and translational science research with the goal of training and mentoring promising early-stage investigators in cross-disciplinary science as well as team science.
Role: PI Rundek

NIH/NHBLI T32 *Promoting Academic Workforce Diversity in Translational Behavioral and Cardio-Metabolic Research-**PINNACLE***. This program trains, mentors and sustains a network of 12 underrepresented minority post-doctorate mentees committed to developing independent academic careers in translational and behavioral cardiovascular health research. This will have a strong impact in achieving the national mandate (Healthy People 2030) to increase diversity in the academic workforce, thus expanding capacity to implement translational models to improve health quality and equity.
Role: MPI Rundek, Girardin

NIA/NIH R01 *Phenotyping of African Americans at Risk for Alzheimer's Disease*
The goal of the project is to accelerate efforts to gain critically needed knowledge of AD and ADRD in a seriously underrepresented AA group by obtaining innovative cognitive and biomarker data for participants, using in home assessment, blood-based bio markers, MRI, and amyloid imaging.
Role: MPI Rundek, Crocco, Curiel, Loewenstein

FL-DOH Ed and Ethel Moore Alzheimer's Disease Research Program *Deep Phenotyping of African American Older Adults at risk of Alzheimer's Disease*
Role: Co-I Rundek, Curiel

NIH R01 *Ecological Momentary Assessment of a Psychosocio-neuro-immune Mechanism for Atherosclerotic CVD Risk in Persons living with HIV*
Role: Co-I Rundek, McIntosh

The Community Foundation of Broward and the Ansin Foundation provided funding for a series of presentations which cover the diverse range of brain-related subjects within the Broward County community.

DR. JAMES GALVIN'S NEW GRANTS IN 2023

NIA/NIH *Native Alzheimer's Disease Resource Center for Minority Aging Research* ***(NAD-RCMAR)*** The major goals of this Center are to describe, understand intervene on, and mitigate the Alzheimer's disease health disparities experienced by American Indians, Alaska Natives, Native Hawaiians, and Pacific Islanders by funding social and behavioral Pilot Studies that advance the field, emphasizing the recruitment and mentorship of Native junior and mid-level researchers.
Role: MPI Galvin, Johansson

NIN/NIA IND *Enabling CMC/Safety/Toxicology Studies, Submission of IND and Pilot Phase 1 Clinical Trial of PV-1950R Vaccine for Lewy Body Dementia (LBD)* The major goals of this project are to manufacture cGMP adjuvanted PV-1950R/A vaccine, complete testing in mouse and non-human primate models, submit an IND, and complete a Phase 1 clinical trial in healthy volunteers (phase 1a) and REM sleep behavior disorder (Phase 1b).
Role: MPI Galvin

OTHER EMBI NEW GRANTS IN 2023

FL-DOH Ed and Ethel Moore Alzheimer's Disease Research Program *Building an Expanded Registry for African Americans At-Risk for Alzheimer's Disease and Related Dementias.* This registry is for African Americans At-Risk for Alzheimer's disease and Related Dementias. This will collect foundational data that can be used by aging investigators interested in studying risk for diseases of the aging brain. This effort will also work with community stakeholders to develop and deploy a culturally tailored African American Brain Health Educational Series.
Role: MPI Rundek

U.S. Department of Veterans Affairs *The National Posttraumatic Stress Disorder Biorepository Brain Bank: SCOTT US DEPARTMENT OF VETERANS AFFAIRS VA PTSD BRAINS.*
Role: Site PI Davis

Italian Ministry of Defense Healthy Soldier This project is aimed to ensure the safety of the NATO soldiers employed in missions abroad through innovative sensors technologies, artificial intelligence (AI), virtual reality (VR) and personalized nutrition.
Role: PI Della-Morte

MBRF *Cued high-speed multidirectional Yoga: impact on retinal vascular and cognitive measure*. This study aims to examine the impact of cued high-speed multidirectional Yoga on retinal vascular and cognitive measures in healthy older adults.
Role: MPI: Jiang, Signorile, Wang

NIA *Validation of a Novel Magnetic Resonance Imaging (MRI) Technology for both Diagnostic Screening and Quantification of Brain Vascular Physiology in Alzheimer's-Disease-Related Dementias*. The aim of this study is to validate Quantitative Ultra-short Time-to-Echo Contrast-Enhanced (QUTE-CE) MRI with Ferumoxytol as the contrast agent for screening and quantification of brain vascular physiology in Alzheimer's disease and related dementias.
Role: PI Jiang

BASIC SCIENCE NEW GRANTS IN 2023

DR. REGINA VONTELL'S NEW GRANTS IN 2023

UM Team Science Award to study *A novel target for inflammasome signaling proteins in stages of Alzheimer's disease*. This project seeks to show that apoptosis-associated speck-like protein containing a caspase recruitment domain (ASC) oligomerized and that caspase-1 are associated with extracellular amyloid plaques. Most interesting, we show that antibodies raised against two different epitopes of ASC (CARD vs. PYD) differentially identify neurons and microglia in the early stages of AD. IC100, a humanized and deimmunized monoclonal antibody (mAb) (IgG4k) raised against the CARD domain of ASC was immunoreactive mainly in neurons whereas a commercially available anti-ASC raised against the PYD domain was mainly identified in microglia.
Role: PI

State of Florida Alzheimer's Disease Proposal: *Biomarkers and Histopathology*. Using state of the art proteomic technology such as Nanostring, this project will identify inflammasome proteins relevant to the early stages of AD in the brain of donors with different stages of AD. Thus, emphasizing investigations regarding the development of therapeutic targets can be used to develop novel treatments of AD.
Role: Co-I

American Heart Association *Transformational Project Impact of electronic cigarette vaping on stroke outcomes in animals of both sexes*.
Role: PI Raval

DR. OLIVER BRACKO'S NEW GRANTS IN 2023

FL-DOH Ed and Ethel Moore Alzheimer's Disease Research Program (One-Time Funding Opportunity for Junior Faculty) *Contribution of hyperactivated platelets to microvascular dysfunction in Alzheimer's Disease.*
Role: PI

NIH R21 *Brain capillary Piezo1 ion channels and blood flow regulation in Alzheimer's Disease.*
Role: MPI Bracko, Harraz

DR. KUNJAN DAVE'S NEW GRANTS IN 2023

RxMP Therapeutics, Inc. *Red Cell Microparticles (RMP) as a Hemostatic Agent*.
Role: PI

University of Miami SAC *Serum metabolite profiling following ischemic and hemorrhagic stroke*.
Role: PI

JUNIOR SCIENTIST GRANTS

ADNI Health Equities Scholarship The project examines the role of polygenic risk for short sleep duration and its association with cognitive function and decline in ADNI.
Role: PI Kaur

McKnight Inter-Institutional Interventional Core Pilot Grant *Feasibility of a Timed Bright Light Exposure Therapy to Improve Circadian Function*. The project is a pilot study to examine if a circadian rhythm intervention to correct delayed sleep phase in older adults can be done and can lead to changes in cognition over time.
Role: Co-Is Kaur, Gamble

UM Aging Team Science Award *Sex-Specific DNA Methylation Signatures of Cognitive Resilience*. This project will explore the Link Between DNAm Changes and Age-Sensitive Cognitive Performances in Older Adults Over a One-Year Interval.
Role: Co-Is O'Shea, Cuccaro

UM Aging Team Science *Exploring the Link Between DNAm Changes and Age-Sensitive Cognitive Performances in Older Adults Over a One-Year Interval*.
Role: PI O'Shea

CTSI K12 *Developing a DNAm Biomarker for Cognitive Aging: Addressing Disparities and Promoting Community Engagement*. Her study seeks to develop a novel epigenetic biomarker of cognitive aging for use as a dementia risk assessment.
Role: PI O'Shea

TECHNOLOGY
TRANSFER

TECHNOLOGY TRANSFER

Inflammasome Antibody Compositon and Method for Treating Alzheimer's Disease Vontell R, Keane RW, de Rivero Vaccari JP, HM Bramlett, Dietrich WD US 63/405,009 (provisional) (09/09/2022).

ADDITIONAL INFORMATION

- No funds were used for a prohibited purpose during the report period. **See Appendix 5 for the current budget and endowment investment report.**
- There are no recommendations or modifications to the purpose or mandates in the gift agreement at this time.
- All activities during the report period furthered the purpose.
- There are no additional comments.

APPENDIX

1 List of Faculty and Trainees

FACULTY (LEADERSHIP & MEMBERS)

Name in alphabetical order	Institute Role	Area of Expertise
Christian Agudelo, MD	Education Director	Neurology, Sleep Medicine
Christian Camargo, MD	Member	Neurology
Kunjan R. Dave, PhD	Member	Neurobiology, Basic Science
David Della-Morte, MD, PhD	Member	Neurology
Ihtsham Ul Haq, MD	Associate Director & Scientific Advisory Board	Neurology, Movement Disorders
Hong Jiang, MD, PhD	Member	Neuro-opthalmology, Neurology
Bonnie Levin, PhD	Cognitive Core Director, Associate Director & Scientific Advisory Board	Neuropsychology
Tatjana Rundek, MD, PhD	Director & Scientific Advisory Board	Neurology, Epidemiology
Xiaoyan Sun, MD, PhD	Collaborator & Scientific Advisory Board	Neuroscience, Biochemistry

FACULTY (COLLABORATORS)

Name in alphabetical order	Institute Role	Area of Expertise
Noam Alperin, PhD	Collaborator	Radiology, Physics (MRI)
Lilah Besser, PhD, MSPH	Collaborator	Neurology
Susan Blanton, PhD	Collaborator	Genetics
Oliver Bracko, PhD	Collaborator	Neuroscience
Scott Brown, PhD	Collaborator	Public Health
Elizabeth Crocco, MD	Collaborator	Psychiatry
Chuanhui Dong, PhD	Collaborator	Epidemiology, Biostatistics
James Galvin, MD, MPH	Collaborator & Scientific Advisory Board	Neurology
Joyce Gomes-Osman, PT, PhD	Collaborator	Physical Therapy, Neurology
Girard Jean-Louis, PhD	Collaborator	Psychiatry, Neurology
David Loewenstein, PhD	Collaborator & Scientific Advisory Board	Neuropsychology
Michelle Marrero, MD	Collaborator	Neurology
Katalina McInerney, PhD	Collaborator	Neuropsychology
Roger McIntosh, PhD	Collaborator	Psychology
Miguel Perez-Pinzon, PhD	Collaborator & Scientific Advisory Board	Neuroscience
Alberto Ramos, MD	Collaborator	Neurology, Sleep Medicine
Ami Raval, PhD	Collaborator	Neuroscience, Epidemiology
Magdalena Tolea, PhD	Collaborator	Neurology
Regina Vontell, PhD	Collaborator	Neurology
Jianhua Wang, MD, PhD	Collaborator	Neuro-ophthalmology, Neurology

TRAINEES

Name in alphabetical order	Institute Role	Academic Focus	Mentor
Botagoz Aimagambetova, MD	Post-Doctoral Fellow	Neurology	Tatjana Rundek, MD, PhD
Ayham Alkhachroum, MD	Assistant Professor	Neurology	Tatjana Rundek, MD, PhD
Abdulrahman Allaf	MD Student	Neuro-ophthalmology	Hong Jiang, MD, PhD Jianhua Wang, MD, PhD
Taylor Ariko, BS	PhD Student	Biomedical Engineering	Tatjana Rundek, MD, PhD
Mirza Baig, MBBS, MPH	Pre-Doctoral Trainee	Data Science, Neurocognition	James Galvin, MD, MPH
Zoe Bassett	Undergrad Trainee	Neuroscience	Ami Raval, PhD
Tyler Benjamin	Post-Doctoral Fellow	Neuropsychology	Bonnie Levin, PhD
Nairuti Bhatt	Graduate Student	Neuroscience	Oliver Bracko, PhD
Kriselli Castro	Practicum Student	Neuropsychology	Bonnie Levin, PhD
Supriya Chakraborty	PhD Student	Biology	Oliver Bracko, PhD
Sunjoo Cho	Pre-Doctoral Trainee	Neurology	Kunjan Dave, PhD
Jack Cipolla	MD Student	Neurology	Hong Jiang, MD, PhD Jianhua Wang, MD, PhD
E. Valerie Daniel, PhD	Post-Doctoral Fellow	Public Health	James Galvin, MD, MPH
Katie Dillon, MA	Graduate Trainee	Neuroscience	Roger McIntosh, PhD Bonnie Levin, PhD
Emma Ducca, PhD	Post-Doctoral Fellow	Neuropsychology	Bonnie Levin, PhD
Iris Escobar	PhD Student	Neurology	Miguel Perez-Pinzon, PhD
Eric Fagerli	PhD Student	Neuroscience	Miguel Perez-Pinzon, PhD
Carolina Fernandez	Post-Doctoral Fellow	Neuropsychology	Bonnie Levin, PhD

Sofia Andrea Franciosa	Undergraduate Trainee	Neuroscience	Oliver Bracko, PhD
Elizabeth Gabrielli, MD	Post-Doctoral Fellow	Anesthesiology	Alberto Ramos, MD
Samantha Gestido	Practicum Student	Neuropsychology	Bonnie Levin, PhD
Ryan Gober, BS	PhD Candidate	Neuroscience	Regina Vontell, PhD
Christian Gonzalez, PhD	Post-Doctoral Fellow	Neuropsychology	David Loewenstein, PhD
Kevin Gonzalez, BS	Pre-Doctoral Trainee	Neuroscience	Alberto Ramos, MD
Diana Hipcample, PhD	Post-Doctoral Fellow	Neuropsychology	David Loewenstein, PhD
Kia Howard, BS	Pre-Doctoral Trainee	Neuroscience	Roger McIntosh, PhD
Charlie Jackson	Graduate Student	Neuroscience	Miguel Perez-Pinzon, PhD
Karlon Johnson, PhD	Pre-Doctoral Trainee	Public Health	Tatjana Rundek, MD, PhD
Nathan Johnson	PhD Candidate	Neurology	Xiaoyan Sun, MD, PhD
Sonya Kaur, PhD	Instructor	Neuropsychology	Bonnie Levin, PhD Tatjana Rundek, MD, PhD Alberto Ramos, MD
Michael Kleiman, PhD	Data Scientist	Experimental Psychology	James Galvin, MD, MPH
Kayla Kotalik, BS	Practicum Student	Neuropsychology	Bonnie Levin, PhD
Eduaro Leal, PhD	Post-Doctoral Fellow	Neuropsychology	David Loewenstein, PhD
Che Liu	Graduate Student	Neuroradiology	Noam Alperin, PhD
Suresh Mallepalli, PhD	Post-Doctoral Fellow	Neurology	Kunjan Dave, PhD
Ileana Pacheco-Colon	Post-Doctoral Fellow	Neuropsychology	Bonnie Levin, PhD
Daniella A. Lopez Palacios	Practicum Student	Neuropsychology	Bonnie Levin, PhD
Devi Priya Patcha	Student Trainee	Neuroscience	Oliver Bracko, PhD
Claire Narang	Medical Student	Neuro-ophthalmology	Hong Jiang, MD, PhD Jianhua Wang, MD, PhD
Stephanie Novotny, MS	Pre-Doctoral Trainee	Neuropsychology	Bonnie Levin, PhD
Alexandra Ortega	Post-Doctoral Fellow	Neuropsychology	David Loewenstein, PhD

Deirdre O'Shea	Post-Doctoral Fellow	Neurology	James Galvin, MD, MPH
Zachary Peart	Practicum Student	Neuropsychology	Bonnie Levin, PhD
Gina Perez	Undergraduate Student	Neuroscience	Ami Raval, PhD
Jahanett Ramirez, MD, MPH	Post-Doctoral Trainee	Neurology	Alberto Ramos, MD
Ashish Rehni, PhD	Post-Doctoral Fellow	Neuroscience	Kunjan Dave, PhD
Anita Seixas Dias Saporta, MD	McKnight Fellow	Neurology, Imaging	Tatjana Rundek, MD, PhD
Ratanpriya Sharma, MA	Graduate Trainee	Neuroscience, Psychology	Roger McIntosh, PhD
Hossein Shayestehyekta, MD	Post-Doctoral Trainee	Neurology	Hong Jiang, MD, PhD Jianhua Wang, MD, PhD
Ava Simms, MD	Post-Doctoral Trainee	Neurology	Hong Jiang, MD, PhD Jianhua Wang, MD, PhD
Sophia Sinder	Undergraduate Student	Neuroscience	Ami Raval, MD
Nicole B. Sur, MD	Assistant Professor	Neurology, Stroke	Tatjana Rundek, MD, PhD
Zeynab Tabrizi	Graduate Student	Neuroscience	Oliver Bracko, PhD
Saba Verani	Practicum Student	Neuropsychology	Bonnie Levin, PhD
Emily Ann Weiss	Undergraduate Trainee	Neuroscience	Oliver Bracko, PhD

APPENDIX

2

Top Publications in 2023

Trainees as First Author Publications

Daniel EV, Kleiman MJ, Galvin JE. Exploring reasons for differential vulnerability and Alzheimer's disease risk in racial and ethnic minorities. *J Alzheimer Dis*, 91:495-506, 2023.

Dillon K, Goodman ZT, Kaur SS, Levin B, McIntosh R. Neutrophil-to-Lymphocyte Ratio Amplifies the Effects of Aging on Decrements in Grip Strength and its Functional Neural Underpinnings. *J Gerontol A Biol Sci Med Sci*. 2023 Feb 9:glad048. doi: 10.1093/gerona/glad048. Epub ahead of print. PMID: 36757160.

Dueker N, Wang L, Gardener H, Gomez L, Kaur S, Beecham A, Blanton SH, Dong C, Gutierrez J, Cheung YK, Moon YP, Levin B, Wright CB, Elkind MSV, Sacco RL, Rundek T. Genome-wide association study of executive function in a multi-ethnic cohort implicates LINC01362: Results from the northern Manhattan study. *Neurobiol Aging*. 2023 Mar;123:216-221. doi: 10.1016/j.neurobiolaging.2022.11.016. Epub 2022 Dec 5. PMID: 36658081; PMCID: PMC10064578.

Kleiman MJ, Ariko T, Galvin JE. Alzheimer's Disease Neuroimaging Initiative. Hierarchical Two-Stage Cost-Sensitive Clinical Decision Support System for Screening Prodromal Alzheimer's Disease and Related Dementias. *J Alzheimers Dis*. 2023;91(2):895-909. doi:10.3233/JAD-220891.

Liu C, Lee SH, Loewenstein DA, Galvin JE, Levin BE, McKinney A, Alperin N. Early Amnestic Mild Cognitive Impairment Is Associated with Reduced Total Cerebral Blood Flow with no Brain Tissue Loss. *J Alzheimer's Dis.* doi: 10.3233/JAD-220734. 2023. Epub ahead of print. PMID: 36617780.

O'Shea DM, Alaimo H, Davis JD, Galvin JE, & Tremont G. A comparison of cognitive performances based on differing rates of DNA methylation GrimAge acceleration among older men and women. *Neurobiology of aging*. 2023;123, 83-91.

O'Shea DM, Galvin JE. Female APOE ε4 Carriers with Slow Rates of Biological Aging Have Better Memory Performances Compared to Female ε4 Carriers with Accelerated Aging. *J Alzheimers Dis.* 2023;92(4):1269-1282. doi:10.3233/JAD-221145.

McKnight Inter-Institutional Publications

Ho BD, Gullett JM, Anton S, Franchetti MK, Bharadwaj PK, Raichlen DA, Alexander GE, **Rundek T**, **Levin B**, Visscher K, Woods AJ, Cohen RA. Associations between physical exercise type, fluid intelligence, executive function, and processing speed in the oldest-old (85 +). *Geroscience*. 2023 Jul 31. doi: 10.1007/s11357-023-00885-4. Epub ahead of print. PMID: 37523033.

Nolin SA, Cowart H, **Merritt S**, **McInerney K**, Bharadwaj PK, Franchetti MK, Raichlen DA, Jessup CJ, Hishaw GA, Van Etten EJ, Trouard TP, Geldmacher DS, Wadley VG, Porges ES, Woods AJ, Cohen RA, **Levin BE**, **Rundek T**, Alexander GE, Visscher KM. Validity of the NIH toolbox cognitive battery in a healthy oldest-old 85+ sample. *J Int Neuropsychol Soc*. 2023;29(6):605-614. doi:10.1017/S1355617722000443.

Top Publications in 2023

Allaft AM. Wang J, Simms AG, **Jiang H**. Age-related alterations in retinal capillary function. *Microvascular Resarch*. 2023;148: 104508.

Bretzner M, Bonkhoff AK, Schirmer MD…… **Rundek T**, **Sacco RL**, et al. Radiomics-Derived Brain Age Predicts Functional Outcome After Acute Ischemic Stroke. *Neurology*. 2023;100(8):e822-e833. doi:10.1212/WNL.0000000000201596.

Camargo CJ, **Merritt S**, **Modjeski M**, Counotte DS, **McInerney KF**. (2023). Reducing the effects of ageing on cognition with therapeutic intervention of an oral multi-nutrient: the REACTION pilot trial study design. *Journal for the Prevention of Alzheimer's Disease*. DOI: https://doi.org/10.14283/jpad.2023.81.

Chakraborty S, Tabrizi Z, Bhatt NN Franciosa SA, and **Bracko O**. A brief overview of neutrophils in neurological diseases. *Biomolecules*. 2023;13(5):743.

Della-Morte D, Pacifici F. Nature can still be the strongest help against aging and neurodegeneration: the sirtuins way. *Neural Regen Res.* 2023 Jun;18(6):1271-1272. doi: 10.4103/1673-5374.360173.

Fonseca LM, Chaytor NS, Olufadi Y, Buchwald D, **Galvin JE**, Schmitter-Edgecombe M, Suchy-Dicey A. Intraindividual cognitive variability and magnetic resonance imaging in aging American Indians: Data from the Strong Heart Study. *J Alzheimer Dis*, 91:1395-1407,2023 (PMCID: 9974814).

Garamszegi SP, Banack SA, Duque LL, Metcalf JS, Stommel EW, Cox PA, **Davis DA**. Detection of β-N-methylamino-l-alanine in postmortem olfactory bulbs of Alzheimer's disease patients using UHPLC-MS/MS: An autopsy case-series study. *Toxicol Rep*. 2023;10:87-96. Published 2023 Jan 6. doi:10.1016/j.toxrep.2023.01.002.

Gonzalez KA, Tarraf W, Stickel AM, **Kaur S**, **Agudelo C**, DeCarli C, Gonzalez HM, **Ramos AR.** Sleep duration and brain MRI measures: results from SOL-INCA MRI study; *Alzheimer's Dement.* 2023 Sep 29; 1-11.

Jiang H, Signorile, Simms AG, Wang J. Improvement of retinal capillary function after high-speed resistance training in healthy older adults. *J Neuroophthalmol* 2023;43: 180-184.

Leibowitz D, Yoshida Y, Jin Z,…. **Rundek T**, et al. Long term aortic arch plaque progression in older adults. *Atheroscler Plus*. 2023;52:18-22. Published 2023 May 20. doi:10.1016/j.athplu.2023.05.001.

Liu M, Khasiyev F, Sariya S…. **Rundek T**, et al. Chromosome 10q24.32 Variants Associate With Brain Arterial Diameters in Diverse Populations: A Genome-Wide Association Study. *J Am Heart Assoc.* 2023;12(23):e030935. doi:10.1161/JAHA.123.030935.

Meyer OL, **Besser L**, Tobias M, George KM, Gavett B, Farias ST, Bhagat N, Pham ML, Chrisphonte S, Whitmer RA. Neighborhood socioeconomic status and segregation linked to cognitive decline. A*lzheimers Dement* (Amst). 2023 Feb 8;15(1):e12401. doi: 10.1002/dad2.12401. PMID: 36788980; PMCID: PMC9909261.

Sharma R, **Dillon K**, Williams SEE, **McIntosh R**. Does emotion regulation network mediate the effect of social network on psychological distress among older adults? *Soc Neurosc*i. 2023;18(3):142-154. doi:10.1080/17470919.2023.2218619.

Tolea MI, Camacho S, Cohen IR, **Galvin JE**. Mindfulness and care experience in family caregivers of persons living with dementia. *J Alzheimers Dis Rep,* 2023; 7(1):151-164.

Zhang Y, Elgart M, Granot-Hershkovitz E, Wang H, Tarraf W, **Ramos AR**, et al. Genetic associations between sleep traits and cognitive ageing outcomes in the Hispanic Community Health Study/Study of Latinos. *EBioMedicine*, 2023.87.

APPENDIX

3 Top Presentations in 2023

A. SCIENTIFIC PRESENTATIONS IN ACADEMIA

UM Evelyn F. McKnight Brain Institute (EMBI) Trainees

B. Aimagambetova, T. Ariko, D. Cabral, H. Gardener, B. Levin, X. Sun, C. Mora-McLaughlin, J. Gutierrez, R. Sacco, T. Rundek. *Estimated Pulse Wave Velocity Inversely Associates with Cognition in the Northern Manhattan Study*. American Academy of Neurology Conference, Boston, MA. April 2023. Oral presentation. Awarded `Abstract of Distinction.'

T. Ariko, H. Gardener, **B. Aimagambetova**, B. Levin, Z. Sun, D. Cabral, C. Gutierrez, W. Zhao, C. Mora-McLaughlin, J. Gutierrez, M. Elkind, C. Wright, R. Sacco, N. Alperin, T. Rundek. *Ultrasound Imaging Markers of Carotid Atherosclerosis are Associated with Cognition Through Cerebral Small Vessel Disease on MRI.* American Academy of Neurology Conference, Boston, MA. April 2023. Oral presentation.

T. Ariko, M. Modjeski, L. Chang, M. Merrifield, K. Ripper, D. Dowd, J. Galvin, C. Camargo. *Effect of Amyloid PET on Clinical Management of Alzheimer's Disease Medication Therapy: The Khatib Study*. American Academy of Neurology Conference, Boston, MA. April 2023. Poster presentation.

Six trainees mentored by Dr. Ihtsham Haq authored posters at this year's AAN.

Faculty at the 2023 American Academy of Neurology (AAN)

Dr. Ihtsham Haq. Session Moderator: Division Chiefs Division Chief Bootcamp. AAN Annual meeting 2023.

Dr. Ihtsham Haq. Session Chair: S37 - Movement Disorders: Phenotyping and Biomarkers AAN Annual meeting 2023.

Dr. Alberto Ramos. *Sleep Duration and Brain MRI Biomarkers: Results from SOL-INCA MRI Study*. AAN Annual meeting 2023.

MCKNIGHT BRAIN RESEARCH FOUNDATION POSTER RECEPTION

McKNIGHT BRAIN RESEARCH FOUNDATION
Preserving memory, enhancing life

At the Society for Neuroscience (SfN) 2023

EMBI trainees whose posters were accepted for presentation at the 2023 Society for Neuroscience meeting were also invited to present at the first McKnight Brain Research Foundation sponsored poster session since Covid. It was a resounding success with 70+ posters. We would like to congratulate all the outstanding young researchers who presented their posters and give a special shout out to **Zoe Bassett who won Honorable Mention** for her research titled *Estrogen receptor-beta agonist treatment confers ischemic protection via altered brain metabolism in aged female rats*. We are grateful to Drs. Laura Bianchi, Kunjan Dave, Suhrud Rajguru and Ami Raval who were mentors for the 8 researchers, and to the McKnight Brain Research Foundation for coordinating this important scientific event.

SOCIETY *for* NEUROSCIENCE

POSTERS PRESENTED AT SFN AND MBRF POSTER SESSION

Mentored by Laura Bianchi, PhD
"Investigating the role of glial KCNQ K+ channels in neuronal function in C. elegans"
By Bianca Graziano

Mentored by Kunjan Dave, PhD
"A single episode of hypoglycemia increases stroke risk in insulin-treated diabetic rats."
By Ashish Rehni

Mentored by Suhrud Rajguru, PhD
"Transient Changes in Sound-Evoked Vestibular Myogenic Potential in a Preclinical Model of Noise Overexposure"
By Federica Raciti

Mentored by Ami Raval, PhD
"Estrogen receptor-beta agonist treatment confers ischemic protection via altered brain metabolism in aged female rats."
By Zoe Bassett

"Electronic cigarette vaping exacerbates cortical contusion after traumatic brain injury in female rats."
By Gina Perez

"Oral contraceptive treatments increase cerebral sphingolipid and ceramide metabolites in female rats"
By Sabrina Sharma

"Post-stroke cognition is worsened by electronic cigarette exposure in male and female rats"
By Hari Pradhyumnan

ANNUAL MEETING OF THE INTERNATIONAL NEUROPSYCHOLOGICAL SOCIETY. SAN DIEGO, CALIFORNIA.

Nuccio, A. G., Pintos Lobo, R., Goodman, Z., **Levin, B.**, & **McInerney, K. F**. (2023, February). The Effect of Adverse Childhood Experiences on Frailty in Late Life. Poster session. Annual meeting of the International Neuropsychological Society. San Diego, CA.

Pintos Lobo, R., Nuccio, A. G., Goodman, Z., **Merritt, S. S.**, **Sun, X.**, **McInerney, K. F.**, & **Levin, B.** (2023, February). Association between Adverse Childhood Experiences on Depression and Anxiety in Adulthood: Examining the Role of Cognitive Flexibility. Poster session. Annual meeting of the International Neuropsychological Society. San Diego, CA.

Kaplan, B., & **O'Shea, D.M**. (2023, February). Sex, APOE e4 status and memory: role of biological age. Poster presented at the 51st Annual International Neuropsychological Society, San Diego, CA.

EMBI Guest Speakers at Academic Institutions

Dr. Kunjan Dave presented Progress toward developing a therapy for intracerebral hemorrhage. Presented at the Department of Cancer Biology and Pharmacology at the University of Illinois College of Medicine at Peoria, February 2023.

Dr. Tatjana Rundek gave a Grand Rounds presentation on Reducing Disparities in Stroke Outcomes: Lessons Learned from the Florida Stroke Registry at the Norton Health Neuroscience Institute, September 2023.

Dr. Lilah Besser was an invited oral presentation at UC Davis Alzheimer's Disease Research Center symposium on Social and Environmental determinants of Alzheimer's disease and related dementias, September 28, 2023.

Dr. Oliver Bracko was an invited speaker at these institutions in 2023:

- Invited seminar speaker, University of Kentucky College of Medicine, KY
- Invited seminar speaker, Medical College of Georgia - Augusta University, GA
- Seminar Speaker, Cornell University, Ithaca, NY

International Presentations/Talks

Dr. James Galvin "Building a Better Brain – Using Precision Medicine Approaches for Dementia Prevention Research." AD/PD 2023, Gothenburg, Sweden.

Dr. Katalina Fernández McInerney "Presentación y entrenamiento de pruebas neuropsicológicas." II Peru Alzheimer's Disease Initiative (II-PeADI), Lima, Peru, June 2023.

Dr. Alberto Ramos "Sleep, Cognitive Impairment and Dementia" Association of Consultant Physicians of Jamaica. Jamaica, September 2023.

Dr. Oliver Bracko "The role of vascular inflammation in neurodegenerative disease." Center of Neuroscience, Zürich, Switzerland, July 2023.

Dr. Oliver Bracko "The role of vascular inflammation in neurodegenerative disease" Biomedical research Center, Hanover, Germany, July 2023.

Presentations with the NIH

Besser, L. 2023 NIH Office of Disease Prevention's (ODP) Early Stage Investigator Lecture (ESIL), "Structural and Social Determinants of Brain Health and Alzheimer's Disease and Related Dementias," May 3, 2023.

Besser, L. Invited oral presentation at NIH Seminar on Neighborhood built environments and Alzheimer's disease and related dementia outcomes and risk factors "Traffic!"February 3, 2023.

Presentations of Note

Agudelo, C, **Ramos, AR**, Gardener, H, Cheung, K, Elkind, MSV, **Sacco, RL**, **Rundek, T**. Sleep duration is associated with subclinical carotid plaque burden. Meeting of the Associated Professional Sleep Societies; Indianapolis, IN; June 2023.

Bassett ZQ, Pradhyumnan H, Patel S, **Raval AP**. Estrogen receptor beta agonist treatment induces metabolic changes thus protects brain from ischemic damage in aged female rats. Neurotrauma 2023. Austin, Tx. June 25-28, 2023.

Besser, L. Neighborhood social and built environments and walking in the neighborhood among Black older adults at 2023 International Conference on Urban Health, November 5-9, 2023.

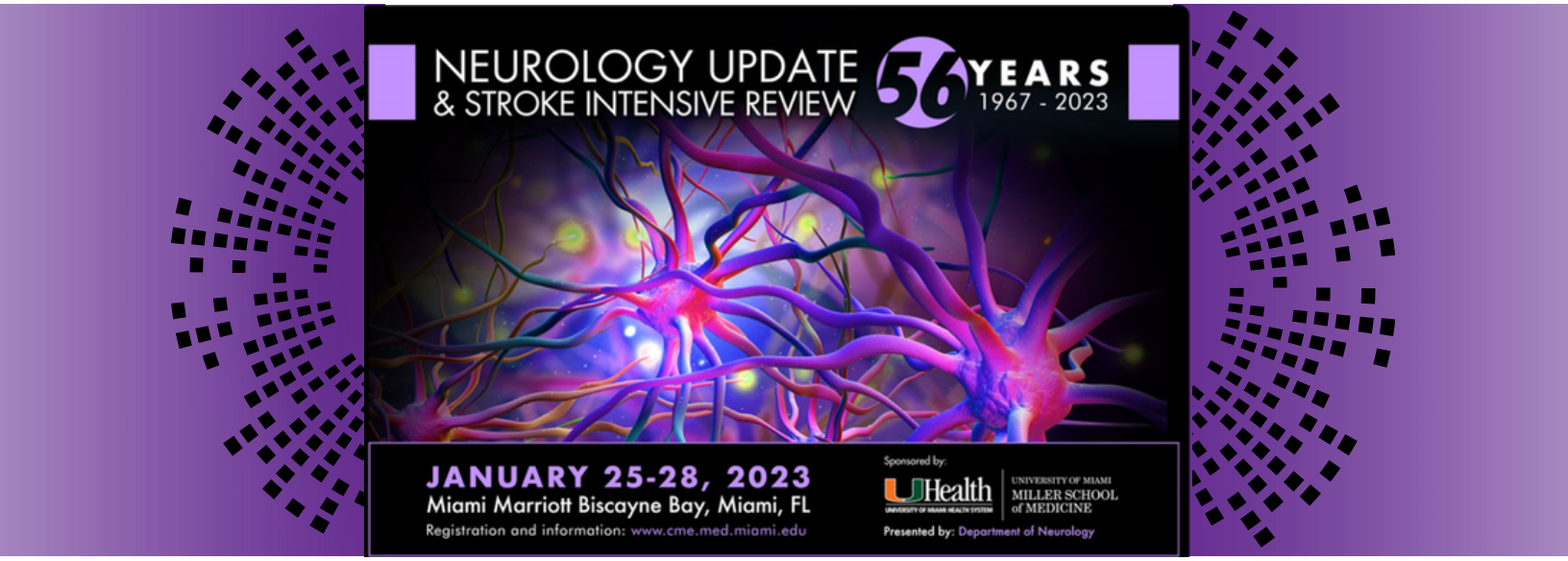
Davis, D. BMAA induced motor neuron pathology in nonhuman primate models. International BMAA Conference; Salt Lake City, Utah October, 2023.

Kleiman, M. Mild cognitive impairment influences post-disfluency speech behavior in narrative recall, picture description, and spontaneous speech tasks. Southeastern Neurodegenerative Disease Conference SENDCon October, 2023.

Wang J. Age-related alterations in retinal capillary function. Annual meeting of ARVO. New Orleans, LA, April 23-27, 2023.

B. SCIENTIFIC PUBLIC PRESENTATIONS

University of Miami Neurology Update & Stroke Intensive Review



Dr. Christian Agudelo - *Sleep as a risk factor and confounder of cognitive impairment*.

Dr. Ihtsham Haq - Session Moderator 56th annual University of Miami Neurology Update and Stroke Intensive Review, Jan 26th 2023: Movement Disorders.

Dr. Sonya Kaur - *Health Disparities in Sleep and Cognition*.

Drs. Katalina Fernández McInerney, Sonya Kaur, Annely Buré-Reyes presented *Neuropsychology and Cognitive Neuroscience: Update on Cognitive Disorders*. Chaired by Dr. Bonnie Levin

Dr. Katalina Fernández McInerney - *Therapeutic approaches to patients with neurologic disorders.*

Dr. Deirdre O'Shea - *The Epigenetic Clock as a biomarker of age: applications in cognitive aging research*.

APPENDIX

4

Highlights of News, Website and Social Media Development

A MEDIA COVERAGE

In September of 2023, Dr. Tatjana Rundek recorded an episode with Rosa Hart, BSN, RN, SCRN, Stroke Nurse Navigator and Host of the "Stronger After Stroke" podcast.

Click to Listen

https://www.youtube.com/watch?v=nZiFwjUO-iE

Stronger After Stroke: Brain Health - Interview with Tatjana Rundek, M.D., Ph.D., FANA

Episode 11: Brain Health - Interview with Tatjana Rundek, M.D., Ph.D., FANA Maintaining a healthy brain is possible with a series of specific life choices. In this episode of the "Stronger After Stroke" podcast, Tatjana Rundek, M.D., Ph.D., FANA, shares what these choices are, how they can affect your brain health and, ultimately, how ...

www.youtube.com

Healio Strategic Solutions

Introduction In September of 2023, Dr. Tatjana Rundek recorded an episode with Rosa Hart, BSN, RN, SCRN Stroke Nurse Navigator and Host of "Stronger After Stroke" podcast.

Dr. Katalina Fernández McInerney was interviewed for the research she contributed to with the John P. Hussmann Institute for Human Genomics (HIHG). Increased diversity in Alzheimer's disease research is important to ensure people of all demographic groups have access to proper diagnostic procedures and treatments. McInerney and colleagues sought to compare patterns of neuropsychological performance in older Caribbean Hispanic adults with mild cognitive impairment against non-Hispanic white counterparts.
-https://www.healio.com/news/neurology/20230718/attention-memory-deficits-greater-in-caribbean-hispanic-adults-with-cognitive-decline

Florida Phoenix

In South Florida, Latinos with Alzheimer's face language barriers. Is more outreach needed?

Dr. Katalina Fernández McInerney was interviewed for this story.

https://floridaphoenix.com/2023/08/04/in-south-florida-latinos-with-alzheimers-face-language-barriers-is-more-outreach-needed/

Dr. Agudelo was a guest for the Spanish podcast Univision Reporta discussing sleep apnea in April and was interviewed in Spanish by Univision national television in August discussing the freezing episodes being experienced by the US Senate Minority Leader. He was given the tremendous opportunity to be interviewed in Spanish by the Univision Vix Streaming Platform, a streaming service owned and operated by TelevisaUnivision on important topics for the Hispanic community to learn from a leading expert in the field.

These topics included:
- How to recognize and treat dementia - March 2023
- Sleep apnea - July 2023
- Increased rates of Alzheimer's disease in the South and Southeast US - July 2023
- FDA approval of donanemab for early Alzheimer's disease - July 2023

Dr. Christian Agudelo's article published in *Stroke*, "Sleep duration is associated with subclinical carotid plaque burden", is featured on the September 2023 episode of the American Heart Association's (AHA) Stroke Alert Podcast. Launched by *Stroke* in 2021, the monthly podcast begins each episode by posing key takeaway questions from featured articles in the current issue of the journal. This is followed by a brief summary and analysis of these articles, as well as an interview with the author of one of the featured articles or with one of the *Stroke* editors.

Dr. David Davis was involved in the following news stories. An especially important one is a documentary on PBS Introduced by actor and environmentalist Ted Danson, "We're All Plastic People Now," investigates the hidden story of plastic and its effects on human health. In an era of throw-away ease, convenience has cost us our well-being. Plastics have been found inside our bodies — in our colons, our brains, in developing embryos and even breast milk.

- We Are All Plastic People Now: PBS-Released 2023; Directed by Rory Fielding (Narrated by Ted Danson)
- INVENTUM – "Miller School Researcher Links Algae Blooms to Airborne Neurotoxins" (1/26/23)
- WSVN 7 News – "Scientists investigating health effects of airborne toxin from blue-green algae" (Aired: 3/30/23)

Dr. David Della-Morte was interviewed on his research by the Italian media publication Forte Village.

Dr. Botagoz Aimagambetova "Link Between Arterial Stiffness and Cognitive Function Persists in Diverse Groups," Video interview at MedPage Today, 05/2023.

RESEARCH AND INNOVATION

New Research Finds Antibody Detects Alzheimer's Signals at Earliest Stages

March 2023; https://physician-news.umiamihealth.org/new-research-finds-antibody-detects-alzheimers-signals-at-earliest-stages/

The University of Miami highlighted this study in their research and Innovation news that includes the Evelyn F. McKnight Brain Institute's **Dr. Regina Vontell**. The researchers used a unique antibody (called IC 100), and other research tools, to detect inflammatory signals in early and mid-stage Alzheimer's disease in neurons and brain-specific immune cells called microglia. These findings could lead to more effective diagnostic tests, which could identify Alzheimer's at its earliest stages. IC 100 could also be used therapeutically. The study was recently published in the journal *Brain Pathology*.

Dr. Ramos's research published in the journal *Alzheimer's & Dementia* was featured in Healio News, an innovative health care communications company, on October 6th, 2023.

Longer sleep duration linked to lower brain volume in Hispanic/Latino population https://www.healio.com/news/neurology/20231006/longer-sleep-duration-linked-to-lower-brain-volume-in-hispaniclatino-population

VJ Neurology, the Video Journal of Neurology featured **Dr. Ramos** speaking about clinical approaches to evaluate circadian rhythm sleep disorders.

Clinical approaches to evaluate circadian rhythm sleep disorders
https://youtu.be/qjPxSIGygVs?feature=shared

Dr. Ramos
SOL-INCA MRI study: sleep duration and brain MRI biomarkers https://youtu.be/9Oauqs-bmeA?feature=shared

Dr. Ramos
AAN 2023 | Mapping sleep's oscillatory events as a biomarker of neurodegeneration https://youtu.be/fxMRaN-i7n0?feature=shared

Dr. Ramos
Sleep as a metric for heart and brain health https://youtu.be/knEaUTQQhyg?feature=shared

Dr. Ramos
Pathophysiology of REM sleep behavior disorder https://www.youtube.com/watch?v=p075W1vbv0M

Dr. James Galvin gets media attention throughout the year, especially when there is breaking news that requires an expert opinion. He has also been interviewed by CBS, PBS, AAN-TV and Instagram.

The Conversation
What the FDA's accelerated approval of a new Alzheimer's drug could mean for those with the disease – 5 questions answered about lecanemab

https://theconversation.com/what-the-fdas-accelerated-approval-of-a-new-alzheimers-drug-could-mean-for-those-with-the-disease-5-questions-answered-about-lecanemab-197460

Yahoo
https://www.yahoo.com/now/fdas-accelerated-approval-alzheimers-drug-133238246.html?soc_src=social-sh&soc_trk=ma

Health Day
https://consumer.healthday.com/physician-s-briefing-vascular-2659085727.html

Physicians Weekly
https://www.physiciansweekly.com/vascular-risk-factors-only-explain-part-of-alzheimer-disease-risk-for-blacks-hispanics/

Scripps/Morning Rush
https://miami.box.com/s/l6qem7giowt75w2a0pm5ipxgm95luq6w

Dr. Haq

NBC Miami "Miami CEO thrives despite Parkinson's diagnosis as new research promises faster detection" June 6th, 2023. https://tinyurl.com/3cvu7ynb

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Dr. Camargo

https://news.bloomberglaw.com/health-law-and-business/alzheimers-drug-safety-hinges-on-doctors-heeding-fda-warning

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Drs. Galvin, Besser, Kleiman and O'Shea

The Palm Beach Post published the article *University of Miami brain health experts to present latest findings at health symposium* "Hot Topics in Brain Health" that took place October 19, 2023.

https://www.palmbeachpost.com/story/news/local/2023/10/17/um-experts-to-talk-brain-health-at-thursday-symposium/71074372007/

WEBSITE

mbi-umiami.org

Over the past year, our efforts to increase engagement to the McKnight website have yielded an astounding **622.1% increase in user traffic** and an equally substantial increase in **user engagement at 605.9%**. The University of Miami Evelyn F. McKnight Brain Institute website has reached over 17k people in the year 2023.

We were able to achieve this growth by strategically amplifying the promotion of our in-person events across various social media platforms, fostering increased engagement in these channels by interacting with social media content produced by our local and scientific community partners.

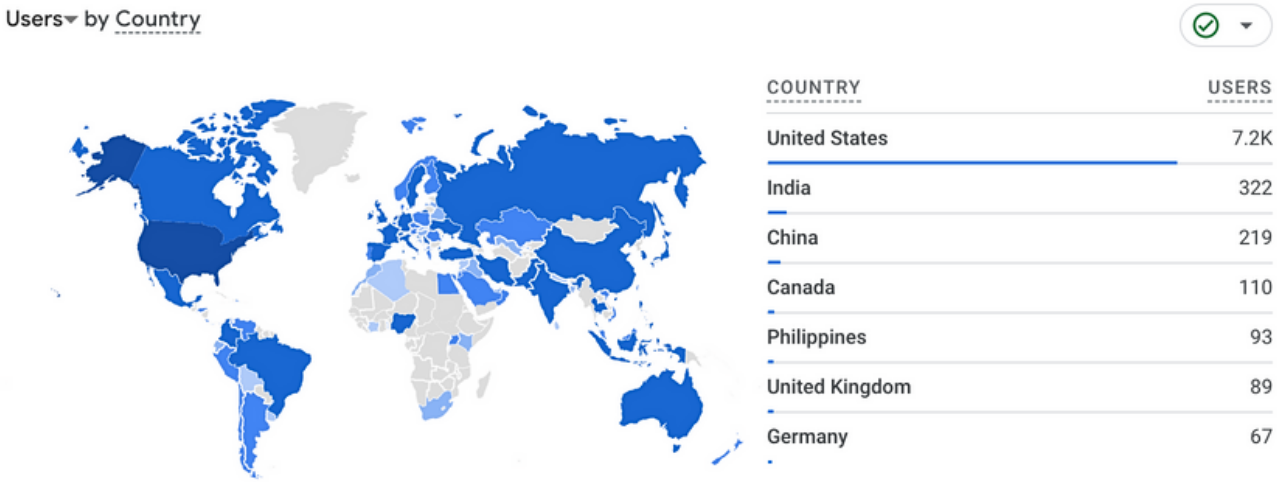
We have seen a notable surge in organic searches for our neurologists, particularly following their impactful presentations at community outreach events. For example, our neurologists **Dr. Christian Agudelo** and **Dr. Christian Camargo** have received a significant spike in profile views as a result of their community engagement and informative presentations in our *Age Like A Pro* series.

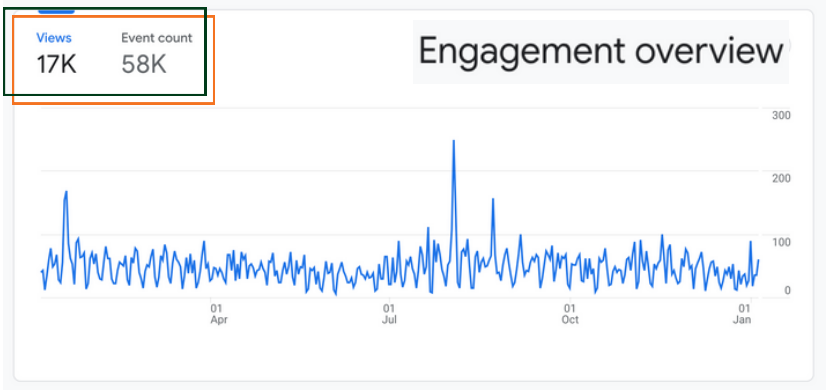
Views by Page Title

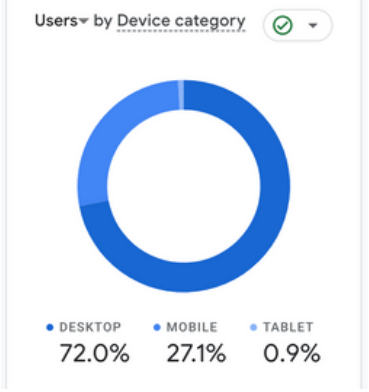
	Page title and screen class	VIEWS	
1	Home - U Miami McKnight Brain Institute	2.8K	↑665.3%
2	Research Areas - U Miami McKnight Brain Institute	965	↑884.7%
3	James E. Galvin, MD, MPH - U Miami McKnight Brain Institute	804	↑346.7%
4	Our Team - U Miami McKnight Brain Institute	508	↑265.5%
5	Contact - U Miami McKnight Brain Institute	575	↑745.6%
6	People - U Miami McKnight Brain Institute	577	-

Statistical Highlights & Milestones

- Increase in page views + 622.1%
- Increase in user engagement on page + 605.9%
- Almost 9k new users
- New insights to help improve user accessibility, such as the majority of organic traffic to the McKnight website is from a desktop, rather than a mobile device.
- The McKnight website has recently added Spanish translation capability to better accommodate our diverse community.

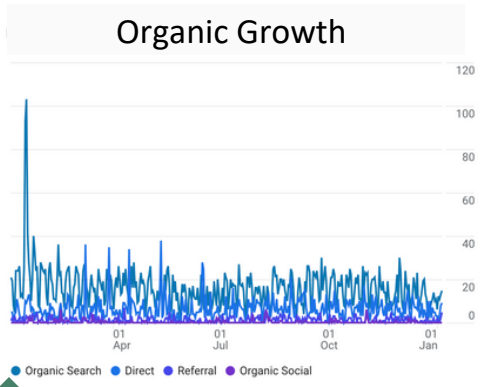

Users by Country
COUNTRY
USERS
United States 7.2K
India 322
China 219
Canada 110
Philippines 93
United Kingdom 89
Germany 67


Views 17K
Event count 58K
Engagement overview
300
200
100
0
01 Apr
01 Jul
01 Oct
01 Jan

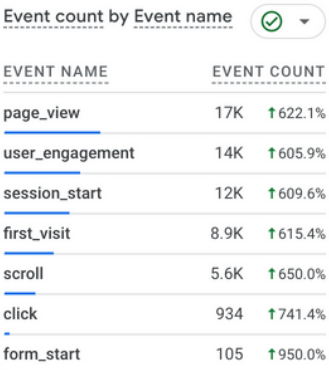

Users by Device category
DESKTOP 72.0%
MOBILE 27.1%
TABLET 0.9%


Users 9K
New users 8.9K
Acquisition overview
150
100
50
0
01 Apr
01 Jul
01 Oct
01 Jan


Views by Page title and scree...
PAGE TITLE AND S...
VIEWS
Home - U Miami McK... 2.8K ↑665.3%
Research Areas - U ... 965 ↑884.7%
James E. Galvin, MD,... 804 ↑346.7%
People - U Miami Mc... 508 ↑265.5%
Contact - U Miami M... 575 ↑745.6%
Our Team - U Miami ... 577 -
Oliver Bracko, PhD - ... 434 ↑442.5%


Organic Growth
120
100
80
60
40
20
0
01 Apr
01 Jul
01 Oct
01 Jan
Organic Search
Direct
Referral
Organic Social

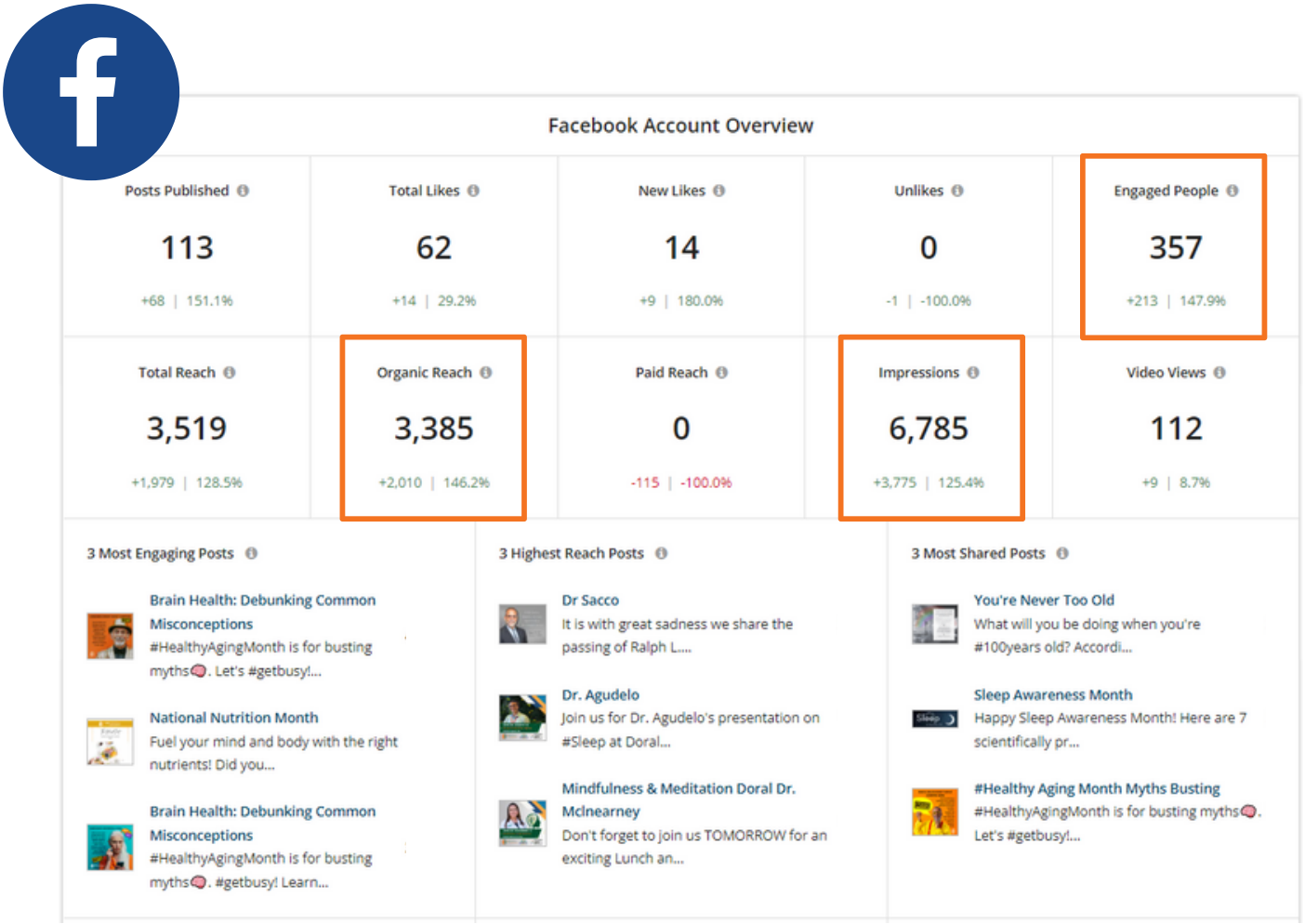

New users by First user default channel group
Organic Search
Direct
Referral
Organic Social
0
2K
4K
6K


Event count by Event name
EVENT NAME
EVENT COUNT
page_view 17K ↑622.1%
user_engagement 14K ↑605.9%
session_start 12K ↑609.6%
first_visit 8.9K ↑615.4%
scroll 5.6K ↑650.0%
click 934 ↑741.4%
form_start 105 ↑950.0%

Social Media Growth

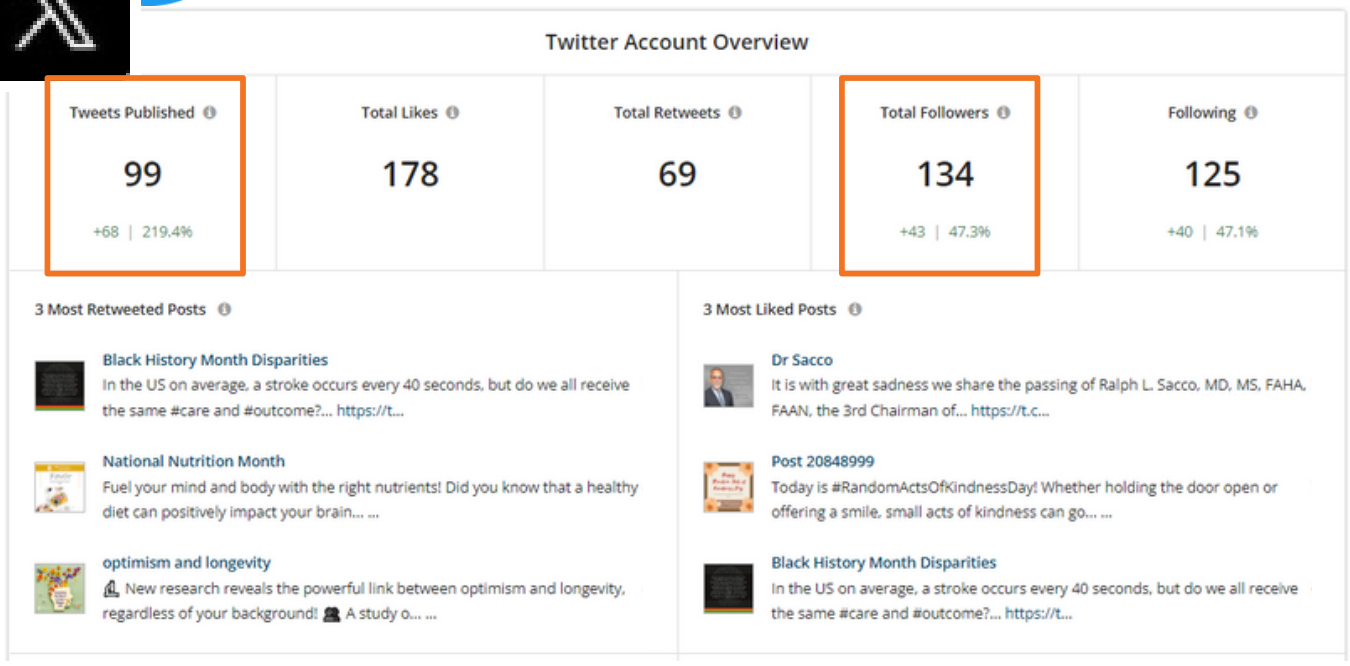
With the use of Loomly, we are now able to get more advanced analytics of our channels and easily compare trends so that we can learn more about our audience and better tailor our content to the interests of our community. We are working on increasing our post volume so that social media algorithms are more likely to pick up our content, but we need to work on creating more interactions as well. Loomly also allows targeted posting so that our posts are more likely to be seen by our chosen demographics, and in the areas we are trying to reach.

Some highlights from this year are a large increase in Facebook impressions, organic reach, and engagement.

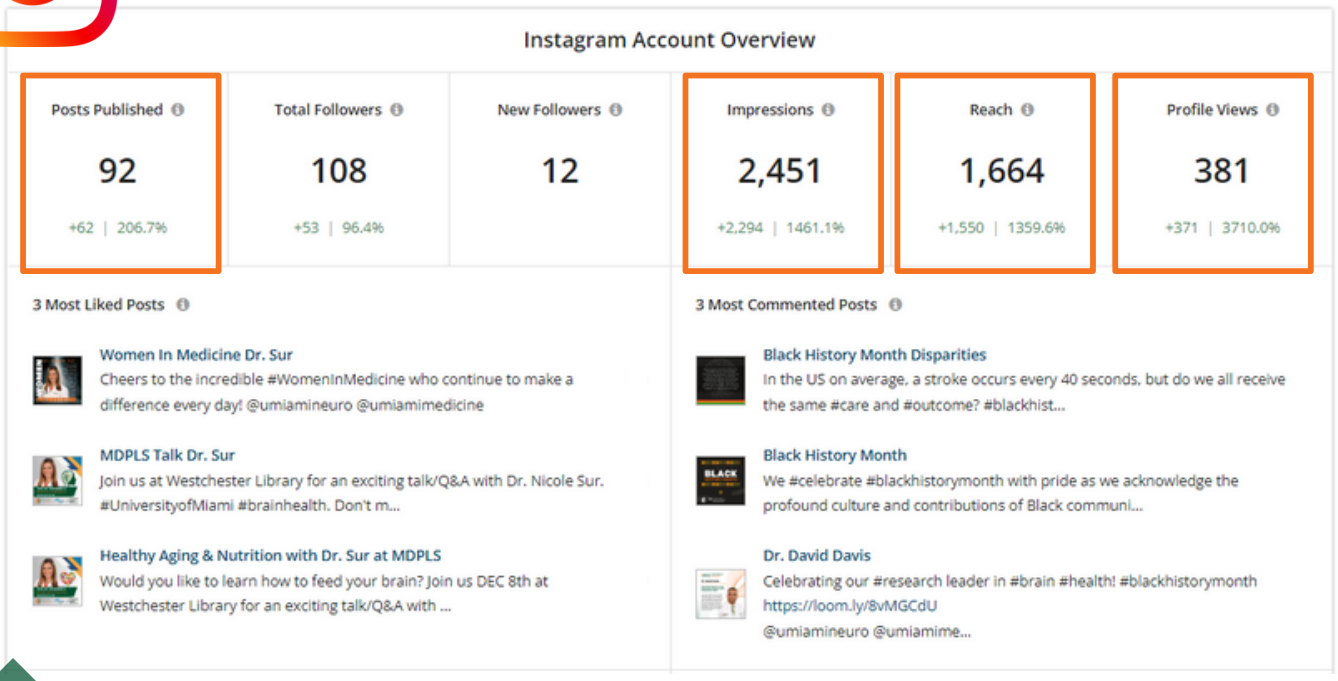


We will continue to work towards creating posts with more value to increase our followers and engagement. Using social media to announce the *Age Like a Pro* events will be a good way to provide valuable information to our followers, and hopefully this will help build our channels further.

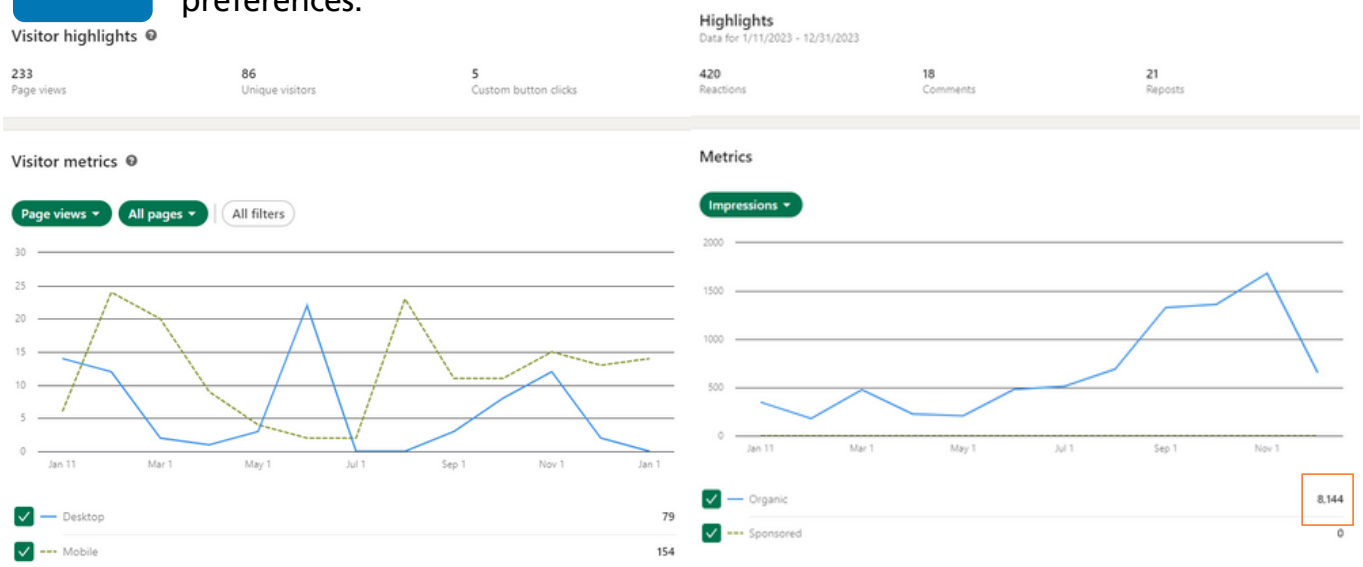
Despite all the controversy around Twitter after its acquisition and rebranding to **X** and the exodus of users, we still had quite a bit of growth there as well, with a 47% increase in followers.



Notably, our Instagram has experienced remarkable growth. Our Impressions, Reach, and Profile Views have all seen drastic increases as shown below.



We've observed a consistent presence on LinkedIn with our organic traffic at 8,144, but we are planning to elevate our profile by implementing a more strategic approach. To increase our engagement, we plan to create more tailored content that resonates with LinkedIn's professional audience. Recognizing their inclination towards scientific and work-related topics, we aim to foster engagement through content that aligns with these preferences.



Social Media

FACEBOOK
University of Miami
McKnight Brain Institute

TWITTER
@UMiamiMBI

INSTAGRAM
umiamimbi

LINKEDIN
University of Miami Evelyn
F. McKnight Brain Institute

WEB
mbi-umiami.org

APPENDIX

5

Financial reports and budget

BUDGET for June 1, 2023 - May 31, 2024

Revenue from Endowment			737,121.00
Revenue for Scholar*			120,000.00
Total Revenue			857,121.00
Personnel			
Faculty	*Role In Project*	*Effort*	
Tatjana Rundek, MD, PhD	Director	25%	
Christian Agudelo, MD	Education Director	15%	
Xiaoyan Sun, MD, PhD	Director Brain Bank	5%	
Bonnie Levin, PhD	Neuropsychology	25%	
Kunjan Dave, PhD	Neurology -Basic Science	5%	
Noam Alperin, PhD	Radiology	5%	
Hong Jiang, MD, PhD	Neurology	5%	
Jianhua Wang, MD, PhD	Neurology	5%	
Sonya Kaur, PhD	Neuropsychology	20%	
Anita Saporta, MD	Neurology	5%	
Christian Camargo, MD	Neurology	5%	
James Galvin, MD, MPH	Neurology	25%	
Lilah Besser, MD	Neurology	5%	
Subtotal Faculty Salary and CFB			*396,469.00*
Nicole Sur - McKnight Fellow	Neurology		*120,000.00*
Staff	*Role in Project*	*Effort*	
Stacy Merritt	Director, Research Admin	80%	
Sang Lee	Radiology	5%	
Marti Flothmann	Manager, Digital Engagement	20%	
Taylor Ariko	Neurology/BioMed PHD Student	100%	
Marisa Modjeski	Clinical Research Coordinator	50%	
Susan Fox-Rosellini	Exec. Director, Engagement and Adn	40%	
Botagoz Aimagambetova	Neurology/MS Student	10%	
NeuroPsych Post Doc	Neuropsychology	25%	
NeuroPsych Post Doc	Neuropsychology	25%	
NeuroPsych Post Doc	Neuropsychology	25%	
NeuroPsych Post Doc	Neuropsychology	25%	
Subtotal Staff and CFB			309,414.00
Total Personnel			*825,883.00*
Non Personnel Expenses			
SC08818 - Publication Costs (Excluding Copying)			
SC08801 - Registration Conferences & Seminars			
SC08803 - Dues & Memberships - Other			
SC08611 - Employee Domestic Travel			

SC08619 - Meetings - Subsistence			
SC08624 - Entertainment - F&B, Recep			
SC08852 - Monthly - Lines & Sets & SC08858 - Monthly - Voice Mail			
SC08103 - Advertising - Other			
SC08024 - Interdepart/ Intercomp - Service			
SC08235 - Computer Hardware & Software Non-Capital			
SC08218 - Clerical Supplies			
SC08219 - Instructional Supplies			
SC08229 - Photocopy, Publishing, & Print Supplies			
SC08200 - Chemicals/blood samples store/ship			
SC08011 - Interdepartmental / Intercompany - Animal Care Services - Internal			
SC08225 - Technical Supplies - Other			
Total Non Personnel Expenses			*31,238.00*
Grand Total Expenses			857,121.00

*$20K of the excess FY23 Scholar funds are being used in FY2024 and $20K will be used in FY25

Annual Report

McKnight Brain Research Foundation
Sponsored Institutes and Research Programs
(Include activity of all McKnight supported faculty and trainees)
Report Period: May 31, 2023

Financial Summary

Evelyn F. McKnight Brain Institute at the University of Miami Miller School of Medicine

Summary for 12 months ended May 31, 2023

Account Name: 2002 Gift

A.	Beginning Balance on 6/1/2022	$ 13,582,685
B.	Investment Growth	$ 88,253
C.	Distributions	$ 539,093
D.	Additional Contribution*	$ 1,000,000
E.	Ending Balance on 5/31/2023	$ 13,955,336
F.	Unmatched Balance (if applicable)	NA

Account Name: 2014 Gift

A.	Beginning Balance on 6/1/2022	$ 4,989,390
B.	Investment Growth	$ 32,670
C.	Distributions	$ 198,028
D.	Additional Contribution	$ 0
E.	Ending Balance on 5/31/2023	$ 4,758,692
F.	Unmatched Balance (if applicable)	NA
	TOTAL ENDING BALANCE ON 5/31/2023	**$ 18,714,028**

Account Name: Evelyn F. McKnight Neurocognitive Scholar

A.	McKnight Scholar Gift	$ 50,000
B.	Match Gift **	$ 70,000

*Additional endowment gift received creating the Schoninger-Goldberg Professorship - held by Bonnie Levin, Ph.D. Spending distribution will be expected in FY25.

** Half remaining FY23 funding used this year and half will be used in FY25

UNIVERSITY OF MIAMI
MILLER SCHOOL OF MEDICINE

EVELYN F. McKNIGHT
BRAIN INSTITUTE

1120 NW 14th St, Miami, FL 33136