

December 19, 2023

Dear Friends and Supporters of UAB's Department of Neurology,

As we come to the end of 2023, I want to thank you for your generous support of the UAB Department of Neurology. Your steadfast support of patient care and research related to Parkinson's disease and other neurological disorders has been vital to our progress and makes a great impact in the lives of not only the patients, but their friends and family and beyond.

Enclosed is an update on the encouraging progress our department has made in 2023. Your generosity allows our physicians and researchers to access the tools and resources that help us understand Parkinson's disease and discover novel and effective therapies for patients as highlighted in the attached research update. I am excited about the progress we have made so far and look forward to additional discoveries in 2024.

On behalf of the Department of Neurology, I wish you and your loved ones a very joyful holiday season and a peaceful and healthy New Year.

Sincerely,



David G. Standaert, M.D., Ph.D.  
John N. Whitaker Professor and Chair  
UAB Department of Neurology

**HEERSINK**  
SCHOOL OF MEDICINE  
Department of Neurology



UAB NEUROLOGY

## Committed to Shaping the Future

**Thank you for your partnership in our vision for the UAB Department of Neurology. 2023 was a busy year, and we have continued our commitment to providing care to the people of Alabama and discovering the treatments and cures of the future.**

Our hospital remains the only facility in the state with inpatient beds where neurologists supervise care directly, and the only Alabama hospital with hands-on neurological consultation available 24/7/365. We saw more than 55,000 patients at the Kirklin Clinic, both in person and through the new technology of video telemedicine. Using new technology, our stroke experts are providing care to patients at 22 other hospitals around the state, and we will continue to expand this in the coming years.

We are looking forward to the completion of a major expansion project in the coming year. The new UAB Memory Hub, a 20,000 sq ft space, will open in the Spring of 2024 and will house our Divisions of Behavioral Neurology and Neuropsychology as well as the NIH-funded Alzheimer Disease Research Center and the Evelyn F. McKnight Center, devoted to healthy brain aging. Together this will be a “one-stop shop” for the diagnosis and treatment of memory problems, research on Alzheimer’s disease and related disorders, and promoting health brain aging.

We have also launched a new Division of Comprehensive Neurology, led by Dr. Shruti Agnihotri. This brings together expertise across all the subspecialties of neurology with a focus on providing exceptional care, advancing education, and conducting groundbreaking research in neurology.

Research remains a top priority, and we have had great success. Our team now includes 20 National Institutes of Health (NIH)-funded investigators who have received more than \$10 million in research funding over the last year— 29th among all neurology departments in the United States, and in the top 10 among public universities. Clinical research is also very strong, with more than 170 research studies active or pending.

We are also teaching the next generation of neurologists. This year, another 14 students from the UAB Heersink School of Medicine class of 2023 chose a career as a neurologist. This is an extraordinary number, nearly 10% of the graduating class! In most medical schools, only 1-2% of students choose neurology. Our students are excited about what they see happening in UAB Neurology and their opportunity to be future leaders of the field.

Your support is helping the Department of Neurology to reach its best and highest purpose, offering first-rate care to thousands of patients and providing hope to countless more with each new discovery. We are grateful for all you do to support the Department. Our clinical and research efforts are greatly enhanced by your generosity. Here are a few of the achievements your support has helped to make possible in 2023:



The University of Alabama at Birmingham

## ALZHEIMER'S DISEASE AND MEMORY DISORDERS

The UAB Exploratory Alzheimer's Disease Research Center, led by Dr. Erik Roberson, completed its first three years as an NIH center, and is making plans to expand its work on disparities that lead to increased risk for Alzheimer's disease in the Deep South in the next five year funding period. The Center has emphasized engagement with the Black/African American community, which bears a disproportionate burden of Alzheimer's disease. The exploratory ADRC program successfully met the project goals, enrolling the most diverse participant sample in the NIH's ADRC program. Drs. Giovanna Pilonieta and David Geldmacher continued their work on differences in how dementia symptoms are perceived by members of different ethnic groups, presenting their findings at several international meetings. Division investigators, including Dr. Marissa Natelson Love continue to test a variety of new pharmacologic treatments for Alzheimer's disease, including clinical trials aimed at preventing the emergence of memory loss in at-risk persons. Over the course of 2023, the Division's Brain Aging and Memory Clinic program has been recognized among the leading academic medical centers in transitioning the first anti-Alzheimer's drug treatments from the research environment into clinical care.

The fight against Alzheimer's disease and related disorders is an international effort. The UAB Alzheimer's disease program continues its contribution to the major collaborative research efforts throughout the US and the world, including the Alzheimer's Clinical Trials Consortium, the Alzheimer's Disease Centers program, the Alzheimer's Disease Neuroimaging Initiative, the Dominantly Inherited Alzheimer's Network, and most recently an invitation to join the Diverse Vascular Contributions to Cognitive Impairment and Dementia (VCID) consortium studying the role of cerebrovascular disease and stroke in cognitive decline. Our investigators are also expanding their work related to understanding and treating other causes of memory loss and dementia including Frontotemporal Dementia, Progressive Supranuclear Palsy and Parkinson's related cognitive decline.

## PARKINSON DISEASE AND MOVEMENT DISORDERS

The focus of much of the Parkinson disease research is the NIH-funded Morris K. Udall Center of Excellence in Parkinson's Disease Research. One of 5 such centers in the US, the Alabama Udall Center is examining the question of how the immune system is involved in PD, and how treatments targeting this system might slow or prevent the disease. Over the last year, the Center has completed enrollment of 120 patients and controls into the study and has reported the initial results in this cohort, which show clear evidence of brain inflammation at a very early stage of the disease. This is important, because treatment of this inflammation might slow the progression of disease. We continue to follow the patients in the Udall study, and we are already partnering with pharma companies interested in developing therapies based on this approach.

Dr. Ashley Harms, Ph.D., published an important new study in the journal Nature Communications on "border-associated macrophages" in Parkinson's disease. These are a new class of brain cells that are stationed between the brain and rest of the body, and control immune signaling. Her work shows that these play a key role in the brain inflammation in Parkinson's, and that targeting these cells could be a way to slow or prevent neurodegeneration.

Dr. Briana De Miranda, Ph.D. has taken on an important new project exploring the link between environmental toxins and Parkinson's diseases. Funded by a grant from the Department of Defense, she is studying how exposure to trichloroethylene, or TCE, affects neurodegeneration and cognitive dysfunction in Parkinson's disease. TCE is a chemical contaminant that is found in many locations, particularly military bases, and is linked to increase risk of Parkinson's. The goal is to understand how TCE contributes to the disease and to find ways to prevent brain injury from this and similar environmental toxins.

## NEURO-ONCOLOGY

The Division of Neuro-oncology is dedicated to the care and management of patients with primary brain cancer, metastatic cancers to the brain, and effects of cancer therapy on the nervous system. The division has 4 physicians, 3 NPs, a research nurse coordinator, RN oncology Navigator, and social worker to address daily care needs. The division is supported by a program director II, additional staff and researchers seeking to improve outcomes for our patients. A full portfolio of clinical trials from industry sponsors, the NIH, and investigator-initiated efforts are available for patients as well as non-therapeutic studies examining cognition and the use of advanced imaging. The division seeks to improve therapy for patients with brain cancer and preserve neurological function.

## NEUROMUSCULAR

Our Neuromuscular Disease program, directed by Dr. Erobo Ubogu, has been designated as a Guillain-Barré Syndrome-Chronic Inflammatory Demyelinating Polyneuropathy (GBS-CIDP) Foundation International Center of Excellence. The Division of Neuromuscular Disease houses our American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM)-accredited electrodiagnostic laboratory (with Exemplary status, the highest possible), comprehensive autonomic



function testing laboratory (one of 8 in the United States), College of American Pathologists-certified Muscle and Nerve Histopathology laboratory and Muscular Dystrophy Association-funded Care Center that supports our clinical care of inherited and acquired neuromuscular diseases, including Lou Gehrig disease or Amyotrophic Lateral Sclerosis (ALS). Active basic science, translational science and clinical studies funded by the NIH, VA and industry are ongoing to discover novel insights focused on new treatments for chronic neuropathic pain, peripheral neuropathies such as CIDP, ALS, myasthenia gravis, and inflammatory muscle disease such as Inclusion Body Myositis.

Having received state funding to support Amyotrophic Lateral Sclerosis (ALS), UAB is able to expand its existing clinic to see more patients more often. Most patients will come every three months, and during their visit they will interact with their neurologist, physical and occupational therapists, a dietitian, speech therapist, psychologist, social workers, and respiratory therapists. The visit is facilitated by a nurse coordinator with experience working with ALS patients. Also, this funding will allow UAB to participate in more national or international clinical trials that shed new light on the disease and may lead to new knowledge about ALS that can point us toward new and innovative treatments.

## STROKE

Alabama has one of the highest rates of stroke in the nation, and the Stroke Division is critical to the health of our region. Our nine board-certified Vascular Neurologists provide around-the-clock access to urgent treatment with the latest technology such as telemedicine to reach underserved parts of Alabama, as well as long-term support for stroke recovery. UAB is a Joint Commission certified Comprehensive Stroke Center and is advancing stroke knowledge and treatment as one of 25 Regional Coordinating Centers for the National Institute of Neurological Disorders and Stroke. Dr. Toby Gropen is the recipient of an NIH grant that aims to implement an innovative trauma system-based model of emergency stroke care throughout Alabama to ensure that every patient has access to the right stroke care as quickly as possible.

## EPILEPSY

Epilepsy affects over 54,000 Alabamians. The UAB Epilepsy Center, designated a Level 4 Center, the highest possible, has a key role in providing care to all state residents affected by seizure disorders. Several new important NIH-funded studies were implemented or continued in 2023. These include a clinical trial of exercise as a cognitive intervention for memory improvement in patients with idiopathic generalized epilepsy, clinical trials of an intervention for the management of psychogenic non-epileptic seizures in children and adults, and trials of a novel approach to treating patients with Lennox Gastaut syndrome or idiopathic generalized epilepsy in which UAB is partnering with several other major epilepsy centers. We have also started new studies of emotion, cognition, and neuroimaging in patients with seizure disorders. Finally, UAB faculty were instrumental in testing a cannabis-based treatment for the management of seizures and in the writing and now implementing of the medical cannabis law in AL as part of the Alabama Medical Cannabis Commission.

## MS AND NEUROIMMUNOLOGY

The UAB Multiple Sclerosis Center delivers exceptional, personalized, multi-disciplinary medical care to patients with MS and other neuro-immunological disorders from across Alabama and beyond. For our commitment to clinical excellence, we have been recognized as a Comprehensive Center for MS Care as certified by the National MS Society, and we are members of the Consortium of MS Centers. In addition to our focus on clinical care, we are devoted to furthering innovative research on MS, and in training future generations of MS neurologists. We have a successful track record of recruiting post-graduate clinical Neuroimmunology/MS Fellows, and have recently received a three-year award from the National MS Society to continue this training program.

We remain committed to continued growth in research supported by grants from federal, nonprofit, industry, and philanthropic sources; to expanding the range of clinical care services provided to patients with MS and neuro-immunological diseases; and to training clinical specialists in MS and neuroimmunology for years to come.

## NEUROPSYCHOLOGY

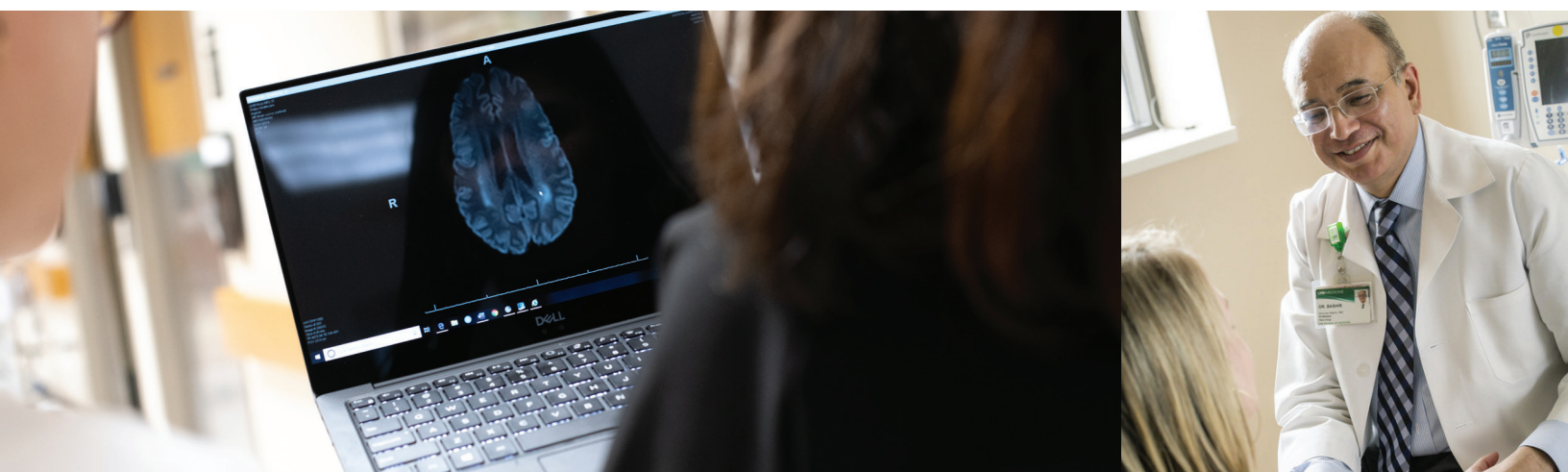
A healthy brain is critical for living a longer and fuller life. As we age, however, there is increasing compromise of neuronal activity that affects functions such as cognition, also making the brain vulnerable to disease. Once pathology-induced decline begins, few therapeutic options are available. Prevention is therefore paramount, and primary care can play a critical role. Based on the 2021 publication of the American Heart Association Scientific Statement “A Primary Care Agenda for Brain Health”, chaired by Dr. Ronald Lazar, director of the UAB McKnight Brain Institute, the Brain Health Advocacy Mission (BHAM) was integrated in 2022 into three clinics within UAB Family and Community Medicine. The goal is not medical decision-making, but rather to provide culturally tailored information and support to patients, enabling them to make proactive changes in their lifestyles.

A well-known cause of cognitive decline and dementia is hypertension. As we grow older, we lose important growth hormones including those responsible for producing capillaries which our body needs to maintain good blood circulation. This reduction in these very small blood vessels as we age makes the heart work harder, resulting in elevating blood pressure. Findings largely from animal studies suggest that exercise increases some growth hormones, which in turn may lead to lower blood pressure. In 2023, we received a grant from the McCance Center for Brain Health at Massachusetts General Hospital, matched by UAB McKnight, to determine if exercise among those who have a history of hypertension will result in a reduction in blood pressure. To confirm that the density of blood vessels has increased, we will use a non-invasive method to look at the retina in the back of the eye. All participants will be recruited from the BHAM project.

There is currently no basis for determining if a physician meets criteria for cognitive decline from aging, illness, or accident. In the first-of-its-kind study funded by the Health Services General Endowment Fund, a set of physician-based standards are being established by administering a comprehensive neuropsychological test battery to randomly selected UAB physicians, whose specialties range from general medical practice to surgery.

## COMPREHENSIVE NEUROLOGY

Our Comprehensive Neurology program was started in 2022. The program officially became a division in the department of neurology in the Fall of 2023, under the inaugural director, Dr. Shruti Agnihotri. The division includes five physicians and three advanced practice providers. Comprehensive Neurology provides state-of-the-art care to patients with varying neurologic conditions, facilitates the growth of the outpatient clinical initiatives in neurology, trains students and residents in a comprehensive approach to neurological evaluation and care and conducts a wide range of research relevant to the field. Various specialty clinics include neurologic care for transplant patients, mitochondrial disease clinic, headache clinic and neurologic care for cancer patients.



### FOR MORE INFORMATION

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