

SEPTEMBER 2025 | ISSUE 9

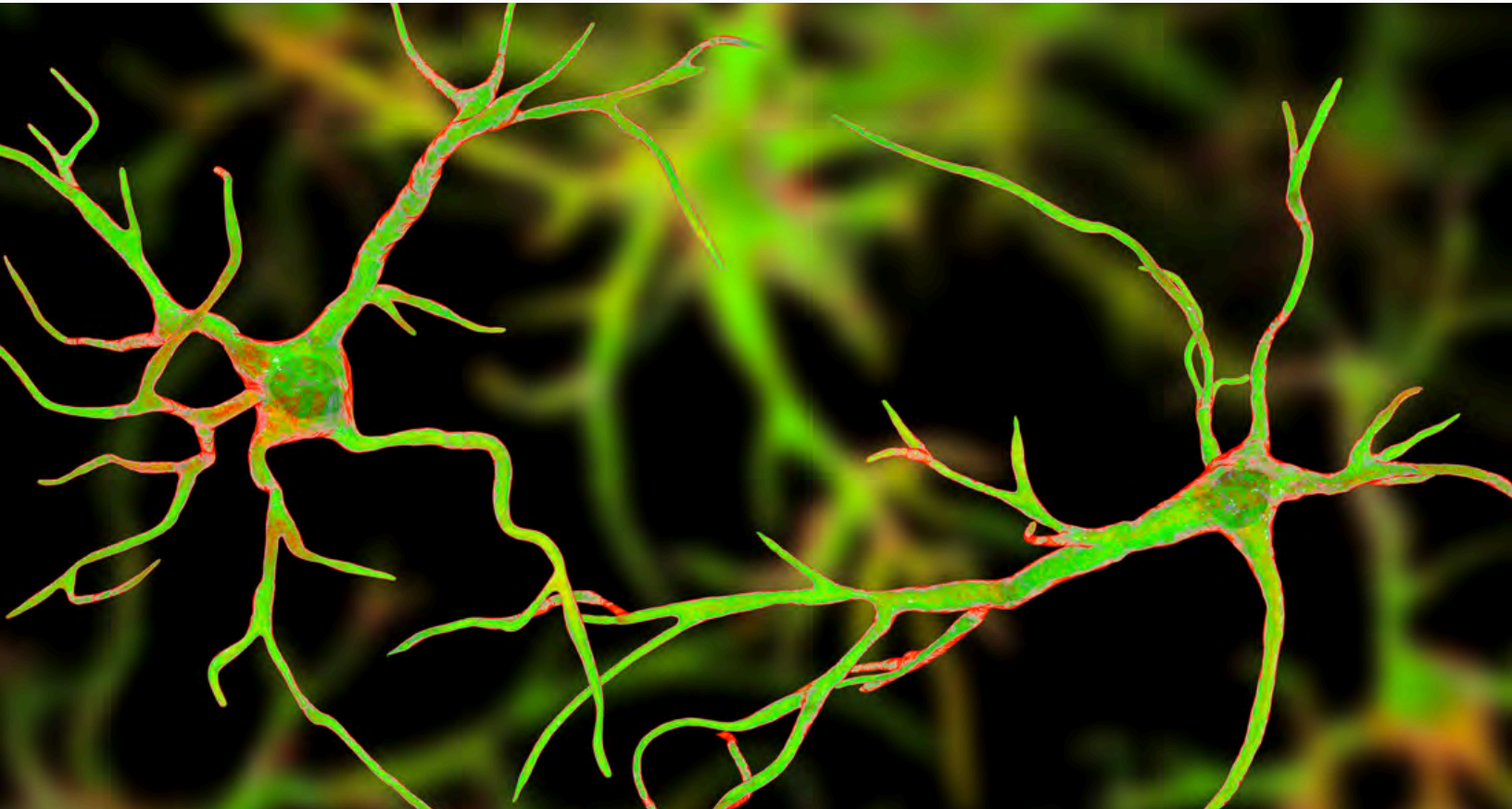
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# THE GEORGE WASHINGTON UNIVERSITY

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WASHINGTON, DC

The Clinical Neurosciences Newsletter



The GW Medical Faculty Associates  
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## A WELCOME MESSAGE

Dear Colleagues,

As we enter September, I am delighted to share some exciting updates from our Department of Neurology. We are thrilled to welcome outstanding physicians and advanced practice providers who are joining us at Cedar Hill Hospital, further strengthening our clinical and academic missions.

Our search for a Vice Chair for Research remains an important priority. We have had the privilege of interviewing truly remarkable candidates whose vision and expertise will help elevate our research enterprise to new heights.

Equally important, we continue to celebrate and nurture the warm, collegial, and supportive environment that defines our department. This spirit of one family—shared across Neurology and our GWU-MFA colleagues—anchors us to our organization and makes GW a true home for all of us.

On the educational front, our mission has never been stronger. New and exciting opportunities continue to flourish for our residents and students, ensuring that we remain at the forefront of training the next generation of neurologists.

Thank you for being part of our journey and for your continued dedication to our patients, learners, and each other.

With warm regards,

Mohamad Z. Koubeissi, MD, MA, FAAN, FAES

Professor and Chair, Department of Neurology & Rehabilitation  
Medicine



# OUR NEWS



Our Comprehensive Stroke Center has earned the 2025 American Heart Association's Get With The Guidelines-Stroke Gold Plus, Target: Stroke Honor Roll Elite Plus, and Target: Type 2 Diabetes Honor Roll awards for the 2023-2024 performance stroke data.



Dr. Mohamad Koubeissi's abstract titled "Gamma Synchrony Correlating with Less Autistic Severity in Epilepsy Patients: SEEG: Evidence from Amygdala-Hippocampal Coherence." was accepted at The 77<sup>th</sup> American Epilepsy Society Annual Meeting in Atlanta, GA. Dec. 2025.



Dr. Mohamad Koubeissi's abstract titled "Clinical Practice and Patient Burden Associated with Anti-Seizure Medication Titration: A Thematic Analysis." was accepted at The 77<sup>th</sup> American Epilepsy Society Annual Meeting in Atlanta, GA. Dec. 2025.



Dr. Ted Rothstein's COVID research presentation was accepted for "distinguished speaker presentation" at the International 2025 Advanced Immunology Conference in Berlin Germany, Sept 25, 2025.

Researchers at the George Washington University are looking for interested volunteers for a healthy control study to better understand an autoimmune, neuromuscular (disease affecting nerves and muscles) known as Myasthenia Gravis.

Faculty and staff are welcome to participate.

**PARTICIPATION INVOLVES:**  
One-time blood draw (You will have either 4 teaspoons (20 milliliters) or 10 teaspoons (50 milliliters) from an arm vein.



**YOU MAY QUALIFY IF YOU:**

- Don't have any autoimmune diseases
- No prednisone or corticosteroid use
- No vaccinations within a month

For more information, contact [goztosun@mfa.gwu.edu](mailto:goztosun@mfa.gwu.edu)



# WHAT'S NEW IN NEUROLOGY

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## WHAT'S NEW

Care for patients with multiple sclerosis continues to rapidly evolve. In 2024, the McDonald Criteria for the diagnosis of relapsing remitting multiple sclerosis (RRMS) and primary progressive multiple sclerosis (PPMS) were revised. The previous iteration of the diagnostic criteria, the 2017 McDonald Criteria, require the fulfillment of dissemination in space and time to establish a diagnosis of MS. Dissemination in space was previously defined as 2 or more lesions located in at least 2 specific locations for demyelination: periventricular, juxtacortical/cortical, infratentorial, or within the spinal cord.

Dissemination in time was defined as two or more unique relapses of typical demyelinating or CNS syndromes identified historically or on follow-up with the patient over time, development of new demyelinating lesions on serial MRIs, both enhancing and non-enhancing lesions on a single MRI, or the presence of CSF oligoclonal bands. Several key updates have been proposed in the 2024 criteria:

1. Lesions along the optic nerve can now be used to fulfill dissemination in space
2. Multiple lesions within the spinal cord can fulfill dissemination in space criteria in PPMS
3. New imaging modalities including central vein sign and paramagnetic rim lesions can be used to fulfill dissemination in space criteria for patients with only one lesion topography

## WHY IT MATTERS

The diagnostic criteria for MS have continued to evolve over time to allow for earlier diagnosis of patients and, therefore, earlier and more effective treatment. Implementation of the new criteria will potentially allow for a broader group of patients to be diagnosed with MS at an earlier stage. The updated criteria may also allow for diagnosis in cases where there may be uncertainty such as in patients over the age of 50 years old or in patients with significant vascular risk factors. As with previous iterations of the criteria, the criteria should be applied in typical cases—in patients who have presented with a classic demyelinating event. Other diagnoses and mimickers should be explored prior to establishing a diagnosis of MS.



Interview with  
**Dr. Kenna Peusner**



# Interview with

# Dr. Kenna Peusner

## Please tell us about your background

I received my degree in Anatomy from Harvard University. It's a medical science degree, so I enrolled for half my courses at Harvard Medical School and the other half in Cambridge with biology and chemistry doctoral students. The mix of coursework provided a broad foundation, but I found myself especially drawn to the medical school classes.

I never wanted to become a physician because working directly with sick patients made me feel sad. Instead, I was attracted to research, which I believed represented a more hopeful side of medicine, and that interest has remained with me throughout my career.

After graduating from Harvard, I accepted a faculty position at Jefferson Medical College in Philadelphia, where I stayed for several years before joining George Washington University (GW). I've spent the majority of my career here. Initially, I joined the Department of Anatomy, since my PhD is in Anatomy, and remained there until 2020. At that time, I realized my research would be better supported within the Department of Neurology, so I transitioned here. I'm now a Professor of Neurology.

## Please tell us about your current research

My work has focused on development of the vestibular system. My PhD thesis examined how vestibular nuclei neurons migrate, differentiate, and respond to lesions. Over the course of my career, I've continued exploring different aspects of vestibular compensation, the recovery of function from injury, from various perspectives.

About ten years ago, I noticed that congenital vestibular disorders were poorly understood. At conferences, I found there was virtually no research on these conditions beyond studies of the inner ear. This was partly due to lack of a good animal model. The only available one was a mouse model with CHD7 mutation used to study CHARGE syndrome. CHARGE syndrome involves an inner ear malformation that typically forms a sac-like inner ear with missing or shortened semicircular canals. However, the inner ear phenotype in the mutant mice is highly variable, with inconsistent structural defects.

For brain studies, a reproducible model is essential. I had extensive experience with chicken embryos and knew they could be manipulated to study ear development. Researchers had previously rotated the early developing inner ear, called the otocyst, to determine how different orientations affect development, but the results were inconsistent. When I systematically rotated the otocyst in specific anterior-posterior, medial-lateral, and dorsal-ventral axes, I found that a consistent pattern resulted, forming a sac-like structure with the semicircular canals missing or truncated like in congenital vestibular disorders. So, this is our model to study congenital vestibular disorders.

In 2021, the National Institute on Deafness and Other Communication Disorders (NIDCD) at NIH awarded me a five-year grant to pursue this work. I will submit a renewal application this November. My lab is small, mainly myself, a research assistant, undergraduate students, and several collaborators. I've tried recruiting neurology residents, but research interest among them has been limited. Still, the GW undergraduates should not be underestimated, since they are intelligent, hardworking, dedicated, and have made major contributions to my research. In fact, a recent paper we submitted on patch-clamp recordings performed on our congenital disorder chick model lists my research assistant, a recent college graduate, as first author.



# Interview with

# Dr. Kenna Peusner

## Please share more about your collaborations

Collaborations have been critical to my work. I collaborate with Dr. Anastas Popratiloff, Director of GW Nanofabrication and Imaging Center. He came to GW in 2000 as my postdoc, rose through the ranks to full professor, and is a superb imaging scientist. He is also a co-Principal Investigator on my NIH grant.

Internationally, I work with Dr. Mathieu Beraneck at the University of Paris, an expert in vestibulo-ocular reflexes. He set up our rotary and goniometer turntables and customized the computer programs to record eye movements in the hatchling chicken. We compare our hatchling chick model with malformed inner ears to normal chicks between 5 and 10 days old. I also collaborated recently with Dr. Rossella Conti, from the University of Paris, an expert on brain slice physiology who earned her PhD from Brandeis University. One of my closest collaborators, Dr. June Hirsch, sadly passed away this past April. She was an expert in patch-clamp electrophysiology, whom I met her during a sabbatical at Pasteur Institute in Paris, France. She made invaluable contributions to our work over many years. We have two upcoming papers that will be dedicated to her as a scientist with high ethical standards and her commitment to scientific excellence.

## How have research techniques and technology evolved over your career?

Imaging resolution has improved, and our ability to track specific proteins related to gene mutation in animal models is far more sophisticated now. However, the core remains the same. The main changes are in molecular targets that we can identify and the resolution we can achieve.

One area I'd like to see grow is the integration of human imaging into congenital vestibular disorder research. My goal is to collaborate with clinicians who could perform MRI studies of the vestibular nuclei and vestibular pathways in children with these disorders. While current MRI resolution can't reach the cellular level, improvements, perhaps using functional MRI, might allow us to detect size differences or structural abnormalities in the relevant brain regions.

## Where do you see the field heading in the future?

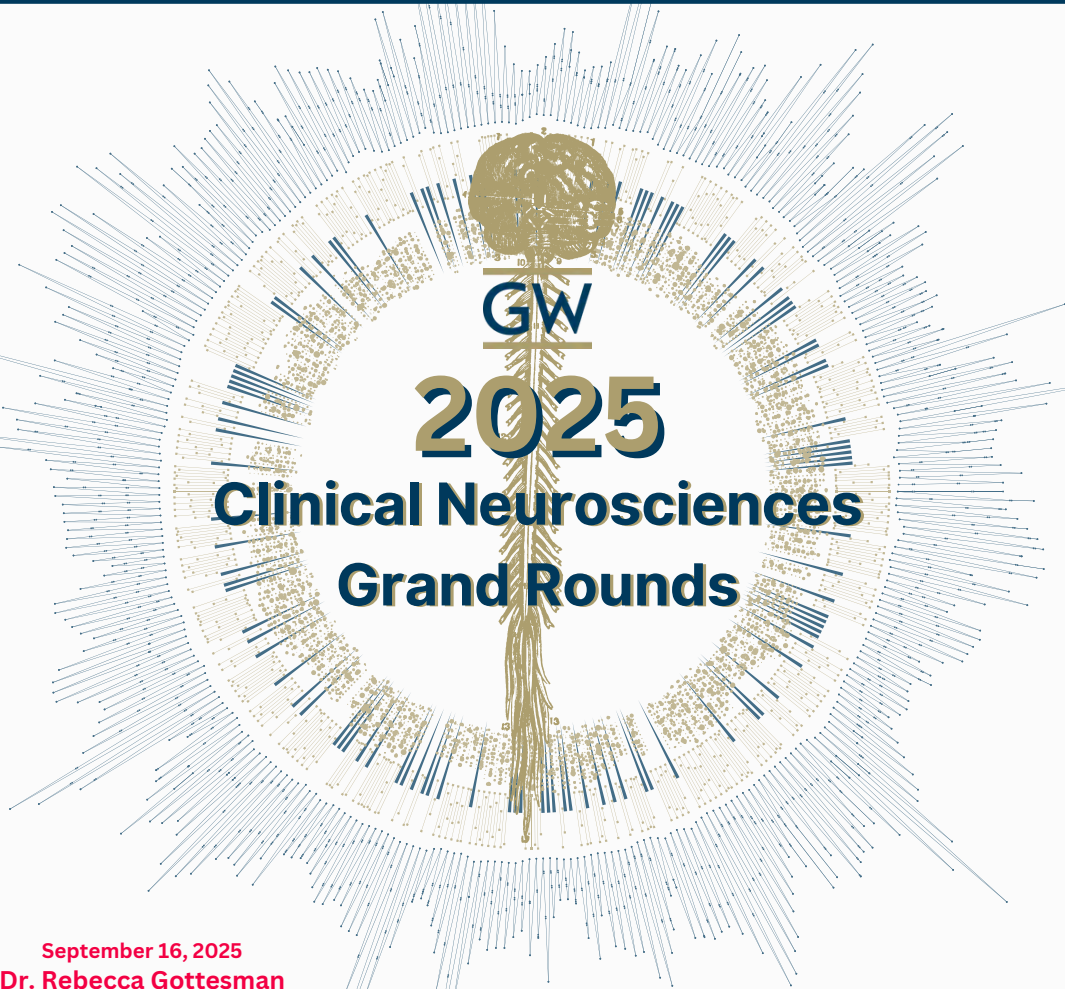
I think we need greater communication across fields studying neuronal degeneration. Whether it's autism, Parkinson's, or Alzheimer's, many share cellular-level changes in neuron loss, dendritic thinning, and reduced dendritic branching. A collective forum for researchers across these diseases could advance our understanding of shared mechanisms.

## Your message to the readers.

GW has an exceptional community of talented, collaborative scientists who are a pleasure to work with. I've spent most of my career here and have had the privilege of working with outstanding colleagues. That said, I believe our research services, particularly those supporting international collaborators, could be improved.

In terms of research, I'm proud that our lab continues to publish significant journal papers and move the field forward. I'm enthusiastic about our upcoming NIH grant proposal in November and excited for the discoveries ahead.





July 1, 2025  
**Dr. Alberto Espay**  
 University of Cincinnati  
 Title: The case for  $\gamma$ -secretase restoration and A $\beta$ 42 replacement in familial and sporadic Alzheimer's disease

July 8, 2025  
**Dr. David Goldstein**  
 NIH  
 Title: What is Autonomic Medicine?

July 15, 2025  
**Dr. Bernhard Steinoff**  
 Kork Epilepsy Center  
 Title: Monocenter Kork experiences with the latest antiseizure medications: The real word

July 22, 2025  
**Dr. Chia-Chun Chiang**  
 Mayo Clinic  
 Title: AI in Headache Medicine: Current and Future Applications

July 29, 2025  
**Dr. Gridihar Kalamaganam**  
 University of Florida  
 Title: TBD

August 5, 2025  
**Dr. Aarti Sarwal**  
 Virginia Commonwealth University  
 Title: TBD

August 12, 2025  
**Dr. Gordon Buchanan**  
 University of Iowa  
 Title: TBD

August 19, 2025  
**Dr. Tova Gardin**  
 Yale University  
 Title: TBD

August 26, 2025  
**Dr. Jon Stone**  
 University of Edinburgh  
 Title: Functional Neurological Disorder (FND) – past present future

September 2, 2025  
**Dr. Ahmet Hoke**  
 Johns Hopkins University  
 Title: TBD

September 9, 2025  
**Dr. Jaysingh Singh**  
 Ohio State University  
 Title: What have we learned from Thalamic Stereo-EEG data

September 16, 2025  
**Dr. Rebecca Gottesman**  
 NIH  
 Title: Vascular Dementia/Small Vessel Disease

September 23, 2025  
**Dr. Martijn Tannemaat**  
 Leiden University Medical Center  
 Title: Novel non-invasive methods to diagnose and monitor myasthenia gravis

September 30, 2025  
**Dr. Daniel King**  
 George Washington University  
 Title: TBD

October 7, 2025  
**Dr. Paul Nyquist**  
 Johns Hopkins University  
 Title: Subarachnoid Hemorrhage

October 14, 2025  
**Dr. Tobias Loddemkemper**  
 Boston Children's Hospital  
 Title: Detect, Predict and Prevent Acute Seizures – towards Digital Twins.

October 21, 2025  
**Dr. Carine Maurer**  
 Stony Brook Medical Center  
 Title: Understanding Functional Neurological Disorder: Diagnosis, treatment, and pathophysiology.

October 28, 2025  
**Dr. Xin Lyu**  
 George Washington University  
 Title: TBD

November 4, 2025  
**Dr. Matthew Edwardson**  
 Georgetown University Hospital  
 Title: Imaging and Molecular Biomarkers of Stroke Recovery

November 11, 2025  
**Dr. Lawrence Hirsch**  
 Yale University  
 Title: Tentative title - may change: Updates on ICU EEG monitoring and refractory status epilepticus, including NORSE/FIRES

November 18, 2025  
**Dr. Geet Paul**  
 George Washington University  
 Title: TBD

November 25, 2025  
**Dr. Alberto Serrano-Pozo**  
 Mass General Hospital  
 Title: TBD

December 2, 2025  
**Dr. Dana Harrar**  
 Children's National  
 Title: Acute Stroke Management in Children

December 9, 2025  
**Dr. Elaine Wirrel**  
 Mayo Clinic  
 Title: Etiology targeted therapies for DEE

December 16, 2025  
**Dr. Panagiotis Kassavetis**  
 George Washington University  
 Title: TBD



Connect with us



*Thank you*

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