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144<sup>TH</sup> ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION

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# ANA

# OCTOBER 13-15, 2019

# 2019

MARRIOTT ST. LOUIS GRAND • ST. LOUIS, MO  
PRE-MEETING SYMPOSIUM: OCTOBER 12, 2019

## Advance Program



AMERICAN  
NEUROLOGICAL  
ASSOCIATION  
INNOVATORS IN DISCOVERY,  
EDUCATION, AND CARE

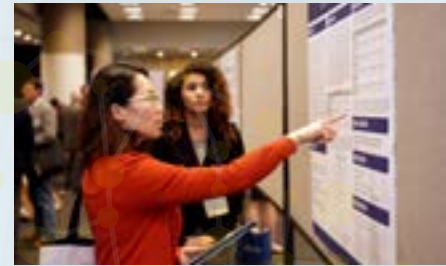
[2019.myana.org](http://2019.myana.org)

# 144<sup>TH</sup> ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION

Enjoy scientific symposia highlighting cutting-edge research in neurology, poster sessions packed with the latest emerging science, and professional development programs to help neurologists at all career levels connect and excel at ANA2019, to be held October 13-15, 2019 in St. Louis, MO. The Pre-Meeting Symposium, “Brain Computer Interfaces in Neurological Disease” will take place on October 12.

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# Dear Colleagues,



M. Elizabeth Ross, MD, PhD Chair,  
Scientific Program Advisory  
Committee

Welcome to the 144th Annual Meeting of the American Neurological Association (ANA). On behalf of the Board of Directors, Scientific Program Advisory Committee (SPAC), ANA President David Holtzman, and the Local Arrangements Subcommittee here in St. Louis, we're delighted that you have come to share in the exceptional program that we, in concert with our colleagues throughout the academic community, have worked tirelessly (but enthusiastically!) to produce.

In this exciting year for the neurological sciences, you'll

find outstanding talks and poster presentations that represent the latest advances in translational neuroscience, neurobiology of disease, and academic and global neurology. A recurring theme in this year's symposia is the science behind recent breakthroughs in our understanding and treatment of neurological disorders across a broad etiological spectrum. Subjects include the emerging recognition of the microbiome's impact on neurological disorders from Stroke to MS to neurodegenerative disease; advances in regenerative medicine with a focus on synaptic plasticity and neural repair after injury; language development and dysfunction as a component of many neurological diseases and the latest therapeutic approaches spanning neurobehavioral interventions to non-invasive brain stimulation; and strategies for optimizing clinical trials including cutting edge methods for trial design and measuring outcomes. Each of the plenary sessions is interlaced with poster blitz-talks that highlight the scientific contributions of young investigators, selected from submitted abstracts, while the Derek Denny-Brown symposium showcases ground-breaking research from the emerging generation of leaders in neurology.

Don't miss the Presidential Symposium that features the latest research into risks, diagnosis and treatment of inherited and late onset Alzheimer's Disease. During the session, our keynote speaker Kim Campbell, widow

of musician, songwriter and actor Glen Campbell, will share her insights into the profound toll this disorder takes on patients and family.

The Pre-Meeting Symposium on October 12<sup>th</sup> offers a unique view from academic and industry leaders in the field of Brain-Computer Interfaces toward the creation of prosthetics to serve speech, vision processing, and motor control.

This year's meeting is packed with opportunities for professional networking and education through lively poster sessions, breakout Special Interest Group (SIG) Sessions across 17 disciplines, and Interactive Lunch Workshops (ILWs). These are designed to provide the latest emerging information affecting neurological care and education. Additional sessions offer insights from leaders in the field regarding career development issues at all levels of academic neurology, especially those encountered early in the profession.

Finally, the ANA continues its dedication to welcoming our international colleagues, this year from the Korean Neurological Society. Our intent is to promote and extend collaborations in neurological education and research among academic neurologists across the globe. I join the ANA members of the Board of Directors, SPAC, ILW and Career Development and Awards Committees in inviting you to take advantage of all this vibrant meeting and Association have to offer.

Welcome to St. Louis!

With warmest wishes,

M. Elizabeth Ross, MD, PhD

A handwritten signature in black ink that reads "M. Elizabeth Ross". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Chair, Scientific Program Advisory Committee (SPAC)  
Nathan Cummings Professor and Head, Laboratory  
of Neurogenetics and Development  
Director, Center for Neurogenetics  
Chair, Neuroscience Graduate Program,  
Weill Cornell Medicine



# ANA OCTOBER 2019 13-15, 2019

MARRIOTT ST. LOUIS GRAND • ST. LOUIS, MO  
PRE-MEETING SYMPOSIUM: OCTOBER 12, 2019



## SCHEDULE AT A GLANCE

### FRIDAY, OCTOBER 11, 2019

7:15 AM – 8:45 PM **NINDS** *(by invitation only)*  
ANA-NINDS Career  
Development Symposium

### SATURDAY, OCTOBER 12, 2019

7:15 AM – 5:15 PM **NINDS** *(by invitation only)*  
ANA-NINDS Career  
Development Symposium

3:00 PM – 7:00 PM **Registration**

5:00 PM – 6:30 PM **Junior Membership Task Force**  
*(non-CME activity)*  
Reception & Dinner

6:00 PM – 9:00 PM **Pre-Meeting Symposium**  
6:00 PM – 6:30 PM Reception & Buffet Dinner *(non-CME activity)*  
6:30 PM – 9:00 PM Brain-Computer Interfaces in  
Neurological Disease *(non-CME activity)*

### SUNDAY, OCTOBER 13, 2019

6:00 AM – 5:45 PM **Registration**

7:00 AM – 9:00 AM **Breakfast**

7:00 AM – 7:30 AM **Trainee Breakfast with ANA  
Board of Directors** \*

7:30 AM – 9:00 AM **Professional Development Courses**  
Students, Residents, Trainees, PostDoc  
Fellows  
Landing Your First Faculty Position  
Early to Mid-Career  
Building Public-Private Partnerships,  
Public Policy Partnerships For  
Translational Research and Innovation  
Chair Career Level  
Difficult Conversations

9:00 AM – 9:15 AM **Break**

9:15 AM – 11:30 AM **Plenary Session**  
Presidential Symposium: Dominantly  
Inherited and Late-Onset Alzheimer's  
Disease: Genetics, Biomarkers,  
Timecourse, and Treatments

11:30 AM – 11:45 AM **Break**

11:45 AM – 1:00 PM **Lunch**

12:00 PM – 7:00 PM **Poster Viewing** \* *(non-CME activity)*

### SUNDAY, OCTOBER 13, 2019 CONTINUED

11:45 AM – 1:00 PM **Interactive Lunch Workshops** *(These  
workshops are "Lunch and Learns")*  
Meet the Editors \*  
Sleep Clocks, Disorders and  
Neurodegenerative Disease  
Meet the NINDS \*  
An Update on Migraine  
Pathophysiological Mechanisms  
and Emerging Treatments  
Precision Medicine in Neurology

11:45 AM – 1:00 PM **Additional Lunch Workshops**  
19th Annual Women of the  
ANA Lunch Program \*

1:00 PM – 1:15 PM **Break**

1:15 PM – 3:15 PM **Plenary Session**  
Derek Denny-Brown Young  
Neurological Scholar Symposium

3:15 PM – 3:30 PM **Break**

3:30 PM – 5:30 PM **Special Interest Groups**  
Autoimmune Neurology  
Clinical Logic  
Dementia and Aging  
Epilepsy  
Health Services Research  
Neurocritical Care  
Recent Randomized Clinical Trials in  
Neurocritical Care: Lesson Learned  
Neuromuscular Disease  
Traumatic Brain Injury

5:30 PM – 7:00 PM **Poster Presentations &  
Reception** \* *(non-CME activity)*

6:30 PM – 8:30 PM **Career Fair** \* *(non-CME activity)*

### MONDAY, OCTOBER 14, 2019

6:00 AM – 5:45 PM **Registration**

7:00 AM – 9:00 AM **Breakfast**

Note: The American Board of Psychiatry and Neurology has reviewed the 144th Annual Meeting of the American Neurological Association and has approved this program as part of a comprehensive CME program, which is mandated by the ABMS as a necessary component of Maintenance of Certification.

\* This session is not available for AMA PRA Category I Credit(s)™

**MONDAY, OCTOBER 14, 2019** *CONTINUED*

7:00 AM – 8:30 AM	<b>Professional Development Courses</b> Students, Residents, Trainees, PostDoc Fellows T to K Transition: Preparing Your K Application Early to Mid-Career Quantifying Your Success for Promotion: Advice for both Clinician-Educators and Researchers at the K to R Transition Chair Career Level Immigration Law
8:30 AM – 8:45 AM	<b>Break</b>
8:45 AM – 10:45 AM	<b>Plenary Session</b> Advances in Regenerative Medicine: Cellular Memory Systems in Brain Repair
10:45 AM – 11:15 AM	<b>Executive Session of Membership</b> * (non-CME activity)
11:15 AM – 12:00 PM	<b>Lunch</b>
11:30 AM – 12:30 PM	<b>Interactive Lunch Workshops</b> (These workshops are "Lunch and Learns") Neurological Rare Diseases & Neglected Tropical Diseases: Can Shared Challenges Inform Common Solutions? Meet the Chairs * Small-Fiber Polyneuropathy: A Growing Neurological Problem Neuro-Ophthalmological Features of Neurodegenerative Diseases
11:30 AM – 12:30 PM	<b>Additional Lunch Workshops</b> (non-CME activity) American Board of Psychiatry and Neurology (ABPN) Maintenance of Certification (MOC) *
12:00 PM – 6:30 PM	<b>Poster Viewing</b> (non-CME activity)
12:30 PM – 12:45 PM	<b>Break</b>
12:45 PM – 2:45 PM	<b>Plenary Session</b> Language Disorders Across the Lifespan
2:45 PM – 3:00 PM	<b>Break</b>
3:00 PM – 5:00 PM	<b>Special Interest Groups</b> Behavioral Neurology Lesion Analysis Meets Systems Neuroscience Cerebrovascular Disease & Interventional Neurology Education Burnout in Academic Neurology: What are we Doing to Avoid it? Global Neurology Sustainable Partnerships and Equity in Global Health

**MONDAY, OCTOBER 14, 2019** *CONTINUED*

3:00 PM – 5:00 PM	ANA-AHS Headache (Sponsored by the American Headache Society) Movement Disorders Multiple Sclerosis MS Treatment Across the Lifespan Neuro-Oncology Immunotherapy: The Neuro-Oncologist's Friend or Foe? Sleep Disorders and Circadian Rhythms
5:00 PM – 6:30 PM	<b>Poster Presentations &amp; Reception</b> * (non-CME activity)
7:00 PM – 7:30 PM	<b>New Member Meet &amp; Greet</b> * (non-CME activity)
7:30 PM – 9:00 PM	<b>President's Reception</b> * (non-CME activity)
<b>TUESDAY, OCTOBER 15, 2019</b>	
6:30 AM – 2:00 PM	<b>Registration</b>
7:00 AM – 8:45 AM	<b>Breakfast</b>
7:00 AM – 8:30 AM	<b>Professional Development Courses</b> Students, Residents, Trainees, Post-Doc Fellows Meet the NIH, NIA, NICHD and DOD Early to Mid-Career Meet the NIH, NIA, NICHD and DOD Chair Career Level Philanthropy - Lessons Learned
8:30 AM – 8:45 AM	<b>Break</b>
8:45 AM – 10:45 AM	<b>Plenary Session</b> Emerging Role of Microbiome in Neurological Disease
10:45 AM – 11:00 AM	<b>Break</b>
11:00 AM – 12:00 PM	<b>Lunch</b>
11:00 AM – 12:00 PM	<b>Interactive Lunch Workshops</b> (These workshops are "Lunch and Learns") Recent Advances in SUDEP Advocacy in Action: The Role of Academic Neurologists and Neuroscientists Functional Neurologic Disorders
11:00 AM – 12:00 PM	<b>Additional Lunch Workshops</b> (non-CME activity) Media Roundtable * AUPN's Networking Lunch for Small Academic Departments * (non-CME activity)
12:00 PM – 12:15 PM	<b>Break</b>
12:15 PM – 2:15 PM	<b>Plenary Session</b> Optimizing Clinical Trial Design
2:15 PM	<b>Meeting Adjourns</b>

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## ANA2019 ANNUAL MEETING HIGHLIGHTS

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### PRE-MEETING SYMPOSIUM

The 2019 Pre-Meeting Symposium, **Brain-Computer Interfaces in Neurological Disease**, will take place on October 12, 2019, from 6:30 PM - 9:00 PM the evening before the official start of the Annual Meeting. Be sure to register for this unparalleled scientific discussion!

Chair: **Steven Small, MD, PhD**

University of California, Irvine

Co-Chair: **An Do, MD**

University of California, Irvine

Speakers:

**An Do, MD**

University of California, Irvine

**Sheila Nirenberg, PhD**

Professor, Weill Cornell University

**Leigh Hochberg, MD, PhD**

Professor, Massachusetts General Hospital

**Karunesh Ganguly, MD, PhD**

Associate Professor, University of California, San Francisco

### POINTS OF INTEREST

#### WHO SHOULD ATTEND

The ANA Annual Meeting has something to offer for everyone: medical students, residents, academic neurologists in their first faculty position, mid-level professionals and department chairs. ANA2019 is the ideal meeting for any clinician-scientist looking to learn about cutting-edge research in the field and exchange ideas with thought leaders in academic neurology.

Neurology students and residents can benefit from the insight of senior investigators, while experienced academic neurologists can meet up-and-coming talent in the field. The Annual Meeting also features professional development sessions that offer strategies for achieving career success, whether you are a student deciding which subspecialty to pursue or a department chair seeking best practices in administration.

#### PLENARY SESSIONS

- **Presidential Symposium: Dominantly Inherited and Late-Onset Alzheimer's Disease: Genetics, Biomarkers, Timecourse, and Treatments**
- **Optimizing Clinical Trial Design**
- **Advances in Regenerative Medicine: Cellular Memory Systems in Brain Repair**
- **Language Disorders Across the Lifespan**
- **Emerging Role of Microbiome in Neurological Disease**
- **Derek Denny-Brown Young Neurological Scholar Symposium**

## POINTS OF INTEREST

### SPECIAL INTEREST GROUP (SIG) SESSIONS

- Autoimmune Neurology
- Behavioral Neurology
- Clinical Logic (previously Case Studies)
- Cerebrovascular Disease and Interventional Neurology
- Dementia and Aging
- Education
- Epilepsy
- Global Neurology
- Headache
- Health Services Research
- Movement Disorders
- Multiple Sclerosis
- Neurocritical Care
- Neuromuscular Disease
- Neuro-oncology
- Sleep Disorders and Circadian Rhythm
- Traumatic Brain Injury

### INTERACTIVE LUNCH WORKSHOPS

- Advocacy in Action: The Role of Academic Neurologists and Neuroscientists
- An Update On Migraine Pathophysiological Mechanisms and Emerging Treatments
- Functional Neurologic Disorders
- Meet the Chairs\*
- Meet the Editors\*
- Meet the NINDS\*
- Neurological Rare Diseases & Neglected Tropical Diseases: Can Shared Challenges Inform Common Solutions?
- Neuro-Ophthalmological Features of Neurodegenerative Diseases
- Precision Medicine in Neurology
- Recent Advances in SUDEP
- Sleep Clocks, Disorders and Neurodegenerative Disease
- Small-Fiber Polyneuropathy, a Growing Neurological Problem

### ADDITIONAL LUNCH WORKSHOPS\*

- 19th Annual Women of the ANA Lunch Program
- American Board of Psychiatry and Neurology (ABPN) Maintenance of Certification (MOC) Program
- AUPN's Networking Lunch for Small Academic Departments of Neurology

### PROFESSIONAL DEVELOPMENT COURSES

#### Students, Residents, and PostDoc Fellows-Career Level Courses:

- Course 1: Landing Your First Faculty Position
- Course 2: T to K Transition: Preparing Your K Application
- Course 3: Meet the NIH, NIA, NICHD, and DOD

#### Early-to Mid-Career Level Courses:

- Course 1: Building Public-Private Partnerships, Public Policy Partnerships For Translational Research and Innovation
- Course 2: Quantifying Your Success For Promotion, K to R Transition
- Course 3: Meet the NIH, NIA, NICHD, and DOD

#### AUPN Chair-Career Level Courses:

- Course 1: Difficult Conversations
- Course 2: Immigration Law for Neurology Chairs
- Course 3: Philanthropy—Lessons Learned

*\*This session is not available for AMA PRA Category I Credit(s)™*



# ANA2019 | Detailed Program

## FRIDAY, OCTOBER 11, 2019

7:15 AM – 8:45 PM

### NINDS

#### **ANA-NINDS Career Development Symposium** *(by invitation only)*

This symposium is a joint collaborative effort between ANA and NINDS which is designed for clinician-scientists with NIH career development awards (K08 and K23) and is chaired by senior neurologists and neuroscientists who have proven success in career building and navigation, scientific grant writing, networking, and balancing clinical and research efforts.

## SATURDAY, OCTOBER 12, 2019

7:15 AM – 5:15 PM

### NINDS

#### **ANA-NINDS Career Development Symposium** *(by invitation only)*

This symposium is a joint collaborative effort between ANA and NINDS which is designed for clinician-scientists with NIH career development awards (K08 and K23) and is chaired by senior neurologists and neuroscientists who have proven success in career building and navigation, scientific grant writing, networking, and balancing clinical and research efforts.

3:00 PM – 7:00 PM

### Registration

5:00 PM – 6:30 PM

### Junior Membership Task Force

#### **Reception & Dinner** *(non-CME activity)*

Learn how to make the most of your ANA Meeting. Join the members of the Junior Membership Task Force for a reception and dinner to discuss how to take advantage of the ANA, identify mentors and discuss career tracks in academic neurology.

**CHAIR:** Jennifer Orthmann Murphy, MD, PhD, University of Pennsylvania



*\*This session is not available for AMA PRA Category I Credit(s)\**



**SATURDAY, OCTOBER 12, 2019** *continued***6:00 PM – 9:00 PM****Pre-Meeting Symposium****Reception & Buffet Dinner** *(non-CME activity)***6:30 PM – 9:00 PM****Brain-Computer Interfaces in Neurological Disease** *(non-CME activity)*

Brain-computer interfaces (BCI) are an emerging class of medical devices that translate brain signals into the control of external devices or convert external stimuli into the activation of brain areas. As such, they carry the potential to replace lost motor and sensory functions due to neurological injuries either by enabling direct brain control of prostheses or by delivering artificial sensation. After decades of research and development in neuroscience and biomedical engineering labs around the world, BCI technology is maturing and such devices have started to enter human clinical studies and clinical trials as a novel means to address neurological deficits. Examples of clinical BCI applications have included the replacement or augmentation of arm, leg, and speech function, as well as of vision and tactile sensation. This symposium will illustrate notable examples of BCI devices, their underlying physiological basis of operation, and how they may change the clinical practice of neurology in the near future.

**Learning Objectives:**

- Participants will understand the physiological basis of BCI devices.
- Participants will become familiar with how BCI systems can potentially help replace lost motor and sensory functions.
- Participants will become familiar with how BCI systems may augment residual function in those with partial neurological deficits.

**CHAIR:** Steven Small, MD, PhD, University of California, Irvine**CO-CHAIR:** An Do, MD, University of California, Irvine**Brain-Computer Interface in Lower Extremity Rehabilitation****SPEAKER:** An Do, MD, University of California, Irvine**A Systems Neuroscience Approach to Motor Recovery After Stroke****SPEAKER:** Karunesh Ganguly, MD, PhD, University of California, San Francisco**Talking to The Brain in Its Own Language****SPEAKER:** Sheila Nirenberg, PhD, Weill Cornell Medical College**Intracortical Brain-Computer Interfaces: Toward the Restoration of Communication and Mobility****SPEAKER:** Leigh Hochberg, MD, PhD, Brown University**SUNDAY, OCTOBER 13, 2019****6:00 AM – 5:45 PM****Registration****7:00 AM – 9:00 AM****Breakfast****7:00 AM – 7:30 AM****Trainee Breakfast****Trainee Breakfast with ANA Board of Directors \***

The ANA Board of Directors is composed of academic neurologists at every level, representing all subspecialties from every region of the country. Join the Board for breakfast and an informal discussion on preparing for, entering, and succeeding in a career in academic neurology. This is a wonderful opportunity to interact with leading academics and discuss the selection of an academic path, areas of research focus, or how to navigate the faculty position seeking process.

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*\* This session is not available for AMA PRA Category I Credit(s)™*

**SUNDAY, OCTOBER 13, 2019** *continued***7:30 AM – 9:00 AM****Professional Development Courses  
Students, Residents, Trainees, PostDoc Fellows  
Landing Your First Faculty Position****Early to Mid-Career  
Building Public-Private Partnerships, Public Policy Partnerships For  
Translational Research and Innovation****Chair Career Level  
Difficult Conversations**

As Neurology Chairs, we frequently need to tell a faculty member, trainee, or staff member that their work is inadequate, that they have done something wrong, or that their services are no longer needed. We are called on to investigate real or imagined infractions, or mediate between conflicting personnel. These interactions are collectively known as “Difficult Conversations.” Despite years of medical and research training, we get no training in how to do manage these interactions effectively. This session will provide guidance from Dr. Henry Kaminski, a senior Neurology chair who will share what he has learned about how to approach a difficult or contentious topic, how to mediate between warring parties, when to take sides, how to fire an employee, and other challenging topics. We recommend several good books on the topic, including “Difficult Conversations” by Douglas Stone and Bruce Patton, and “Crucial Conversations” by Kerry Patterson et al.

**MODERATOR:** L. John Greenfield, MD, PhD, UConn Health

**9:00 AM – 9:15 AM****Break**

*\* This session is not available for AMA PRA Category I Credit(s)™*

**SUNDAY, OCTOBER 13, 2019** *continued***9:15 AM – 11:30 AM****Plenary Session****Presidential Symposium: Dominantly Inherited and Late-Onset Alzheimer's Disease: Genetics, Biomarkers, Timecourse, and Treatments**

Alzheimer's disease (AD) is the most common cause of dementia. Age and genetics are the 2 most important risk factors. There have been tremendous advances in our understanding of the key molecules and genes that contribute to the pathogenesis of both dominantly inherited as well as late onset-Alzheimer's disease. In this symposium, the genetics that underlie both forms of the disease will be reviewed and the latest advances in fluid and neuroimaging related biomarkers will be described. The biomarkers, pathology, and clinical features that characterize both forms of AD will be compared. AD pathological changes begin to occur in the brain about 20 years prior to symptom onset in both dominantly inherited and late-onset AD with many similarities and a few differences. These changes have facilitated the design of novel prevention trials in dominantly inherited AD that will be described and discussed.

**Learning Objectives:**

- To understand the clinical similarities and differences between early and late onset AD.
- To understand the biomarker and pathological differences between early and late-onset AD.
- To understand the genetic differences between early and late-onset AD.

**CHAIR:** David Holtzman, MD, Washington University in St. Louis**CO-CHAIR:** John Morris, MD, Washington University in St. Louis**Genetics of Alzheimer's Disease: Similarities and Differences Between Dominantly Inherited and Late Onset Alzheimer's Disease****SPEAKER:** Allison Goate, DPhil, Icahn School of Medicine at Mt. Sinai**Molecular Imaging in Alzheimer's Disease: Insights into Disease Pathogenesis****SPEAKER:** Gil Rabinovici, MD, University of California, San Francisco**Dominantly Inherited and Late-Onset Alzheimer's Disease: Genetics, Biomarkers, Timecourse, and Treatments****SPEAKER:** Randall Bateman, MD, Washington University School of Medicine in St. Louis**Biomarker and Clinical Characterization of Dominantly Inherited Alzheimer's Disease****SPEAKER:** Yakeel Quiroz, PhD, Massachusetts General Hospital**Widow of Glen Campbell & Alzheimer's Advocate****KEYNOTE SPEAKER:** Kim Campbell**11:30 AM – 11:45 AM****Break****11:45 AM – 1:00 PM****Lunch**

Boxed lunches will be available to take into the Interactive and Additional Lunch Workshops

**12:00 PM – 7:00 PM****Poster Viewing** \* (non-CME activity)

Poster presenters will be in attendance from 5:30 PM - 7:00 PM

\* This session is not available for AMA PRA Category I Credit(s)<sup>™</sup>

**SUNDAY, OCTOBER 13, 2019** *continued***11:45 AM – 1:00 PM****Interactive Lunch Workshops (These workshops are “Lunch and Learns”)  
Meet the Editors \*****Sleep Clocks, Disorders and Neurodegenerative Disease**

A strong association exists between disorders of sleep (e.g., REM-behavior disorder) and neurodegenerative conditions, particularly synucleinopathies. The appearance of sleep disturbances may precede other symptoms by decades. Recognition of this connection is important in patient care for management, surveillance, and future research.

**CHAIR:** Raman Malhotra, MD, Washington University in St. Louis

**CO-CHAIR:** Lana Chahine, MD, University of Pittsburgh

**Meet the NINDS \*****An Update on Migraine Pathophysiological Mechanisms and Emerging Treatments**

Recent advances in our understanding of the pathophysiology of migraine have translated into successful clinical trials and clinical availability of new treatments. The goal of this session is to provide attendees with an overview and update of recent preclinical and clinical advances in the understanding of the neurobiology of migraine and novel therapeutic interventions.

**CHAIR:** Andrew Charles, MD, University of California, Los Angeles

**CO-CHAIR:** Todd Schwedt, MD, MS, Mayo Clinic

**Precision Medicine in Neurology**

NIH Precision Medicine program (ALL of US) has launched since May 2018. It has stimulated a strong wave of phenotypic and genotypic data collection across the nation. While this effort may bring exciting findings, the following questions have been raised:

- What is the definition of Precision Medicine?
- How should the quality of phenotypic data be well guarded? What would the best way for neurologists to be a part of the endeavor?
- How can we prepare our next generation neurologists to utilize and interpret the data to be available from ALL of US?

During this workshop, attendees will utilize this platform to discuss these critical issues.

**CHAIR:** Jun Li, MD, PhD, Wayne State University

**CO-CHAIR:** Katherine Rankin, PhD, University of California, San Francisco

**11:45 AM – 1:00 PM****Additional Lunch Workshops  
19th Annual Women of the ANA Lunch Program \***

**CHAIR:** Lesli E. Skolarus, MD, MS, University of Michigan

**1:00 PM – 1:15 PM****Break****1:15 PM – 3:15 PM****Plenary Session****Derek Denny-Brown Young Neurological Scholar Symposium**

The Derek Denny-Brown Young Neurological Scholar Symposium is an opportunity for young researchers to share groundbreaking research in the field of Neurology. This symposium will feature presentations from the 2019 Derek Denny-Brown awardees, the Wolfe Neuropathy Research Prize and the Grass Foundation-ANA Award in Neuroscience recipients.

**3:15 PM – 3:30 PM****Break**

*\* This session is not available for AMA PRA Category I Credit(s)™*



**SUNDAY, OCTOBER 13, 2019** *continued***3:30 PM – 5:30 PM****Special Interest Groups****Autoimmune Neurology**

Autoimmune Neurology encompasses the diagnosis and treatment of neurological disorders with an autoimmune basis. The last decade has seen a dramatic increase in the discovery of neural-specific autoantibodies and their target antigens. This SIG will explore advances in the field ranging from clinical practice to novel insights and immunologic mechanisms of injury.

**CHAIR:** Eric Lancaster, MD, PhD, University of Pennsylvania

**CO-CHAIR:** Anusha Yeshokumar, MD, Ichan School of Medicine at Mt. Sinai

**Clinical Logic**

This SIG will be case based emphasizing general neurology and neuro-ophthalmology. The case studies will be selected from patients seen in consultation. The cases will be presented as unknowns to the audience including their history, examination and the diagnostic testing that was performed. Attendees will be encouraged to participate in the case discussions as they unravel. Lessons learned and the sources of diagnostic and management error will be emphasized.

**CHAIR:** Raymond Price, MD, University of Pennsylvania

**CO-CHAIR:** Steven Galetta, MD, NYU Langone Medical Center

**Dementia and Aging**

Although Alzheimer and related dementias of aging have signature, misfolded proteins that distinguish the pathologic hallmarks of the diseases there remain no disease modifying therapies for most. Increasingly, it is recognized that there are multiple potential modulators of the disease expression that may hold promise as therapeutic targets. During this session the presenters will explore how the study of vascular mechanisms, sleep and genetic-proteomic pathway analyses studies of richly phenotyped populations are identifying important contributors to disease risk and expression. These modulators will be discussed in relation to how they affect amyloid and tau as well as the clinical expression of the disease.

**CHAIR:** Eric McDade, DO, Washington University in St. Louis

**CO-CHAIR:** Jasmeeer Chhatwal, MD, PhD, Massachusetts General Hospital

**Epilepsy**

**CHAIR:** Frances E. Jensen, MD, FACP, University of Pennsylvania

**Health Services Research**

**CHAIR:** Nabila Dahodwala, MD, University of Pennsylvania

**CO-CHAIR:** Benzi Kluger, MD, MS, University of Colorado

*(Special Interest Groups continued on page 13)*

\* This session is not available for AMA PRA Category I Credit(s)™

**SUNDAY, OCTOBER 13,** *continued***Neurocritical Care****Recent Randomized Clinical Trials in Neurocritical Care: Lesson Learned**

The most common conditions requiring neurocritical care are intracerebral hemorrhage, aneurysmal subarachnoid hemorrhage and ICU-encephalopathy (delirium) but the wide practice variability exist in the care these patients in the Neurocritical care units. Recent randomized clinical trials addressing key management questions have been completed in these areas. While the results of these trials were negative or inconclusive much can be learned from them. What can be learned from these trials to inform our current management strategies? How can we use the evidence from clinical trials and other standards to improve patient care and outcomes? What are the challenges and approaches to clinical research trials in the ICU population?

**CHAIR:** Romergryko G. Geocadin, MD, Johns Hopkins University

**CO-CHAIR:** Nerissa Ko, MD, MAS, University of California, San Francisco

**Neuromuscular Disease**

This session will cover the latest development in key areas of research, diagnostics and treatment in the field of neuromuscular diseases to highlight the latest developments. The field of neuromuscular medicine has witnessed a remarkable advance in knowledge, diagnostics and therapeutics, in both genetic and autoimmune disorders, leading to individualized patient care. Gene therapy targeting not only specific genes, but even specific mutations (e.g. Duchenne muscular dystrophy), has become a reality. This has resulted in the survival of patients affected by disabling disorders who in the past would have died in infancy. Such novel treatments have improved quality of life of many patients with hereditary neuromuscular diseases. In the arena of immune-mediated neuromuscular disorders, immunotherapy targeting the disease mechanism underlying a specific autoimmune neuromuscular disease has allowed to optimize the treatment of pharmacologically-resistant patients. For example, drugs designed to inhibit complement are now available to treat myasthenia gravis, a disease in which complement plays a crucial role in the pathogenesis of the weakness and fatigability. Now, much more than before, the full characterization of a specific neuromuscular disease is necessary to offer up-to-date treatment.

**CHAIR:** Margherita Milone, MD, PhD, Mayo Clinic

**CO-CHAIR:** Vern Juel, MD, Duke University

**Traumatic Brain Injury**

Traumatic brain injury (TBI) affects 1-2 million people in US each year, causing lifelong functional deficits in cognition and behavior. TBI is a series of different pathophysiological disorders that strikes across all demographics with a broad range of injury severities. This session will cover topics in basic, translational and clinical perspectives on this complex problem.

**CHAIR:** Dongming Cai, MD, PhD, Icahn School of Medicine at Mt. Sinai

**CO-CHAIR:** David Brody, MD, PhD, The Uniformed Services University of the Health Sciences

**5:30 PM – 7:00 PM**

**Poster Presentations & Reception** \* (non-CME activity)

**6:30 PM – 8:30 PM**

**Career Fair** \* (non-CME activity)

*\* This session is not available for AMA PRA Category I Credit(s)™*

**MONDAY, OCTOBER 14, 2019****6:00 AM – 5:45 PM**      **Registration****7:00 AM – 9:00 AM**      **Breakfast****7:00 AM – 8:30 AM**      **Professional Development Courses**  
**Students, Residents, Trainees, PostDoc Fellows**  
**T to K Transition: Preparing Your K Application****Early to Mid-Career**  
**Quantifying Your Success for Promotion: Advice for both Clinician-Educators and Researchers at the K to R Transition****Chair Career Level**  
**Immigration Law**

Our Neurology workforce depends heavily on the recruitment and retention of physicians from outside the continental US, who train in our residency programs and join our faculties under the auspices of a variety of visa programs. Understanding how these programs work is vitally important to Chairs who need to navigate the legal, social and financial issues raised by immigration. Dr. Erica Schuyler, residency program Director at the UConn/Hartford Healthcare program and President-elect of the Consortium of Program Directors, will provide an overview of how the various visa programs, Conrad waivers, and other immigration mechanisms can be used to facilitate recruitment and retention of residents and faculty from abroad. She will also discuss some of the problems that trainees and new faculty face when integrating into medical and social systems that are often significantly different than the ones in which they were born and raised.

**MODERATOR:** L. John Greenfield, MD, PhD, UConn Health**8:30 AM – 8:45 AM**      **Break**


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*\* This session is not available for AMA PRA Category I Credit(s)™*

**MONDAY, OCTOBER 14, 2019** *continued***8:45 AM – 10:45 AM****Plenary Session****Advances in Regenerative Medicine: Cellular Memory Systems in Brain Repair**

Recovery after acute brain injury involves adaptation, plasticity and change in spared neural circuits. The mechanisms of plasticity in the brain after injuries such as stroke and head trauma are not well defined, and represent a significant unmet need in neurology. Recent evidence indicates that the cellular mechanisms that mediate synaptic plasticity in learning and memory formation may play a role in neural repair and recovery in stroke and TBI. These provide drug targets for clinical trial in these two diseases, with several underway at present. This symposium will discuss cellular systems involved in learning and memory and how these have been identified as having roles in recovery in stroke and TBI. Dr. Alcino Silva will review molecular memory systems, their common signaling pathways and effects and how these relate to neurodevelopmental and adult neurological diseases. Dr. S. Thomas Carmichael will review three molecular systems originally identified in memory formation, which have been now also shown to play a role in stroke and TBI recovery: CREB, CCR5 and tonic GABA signaling. Dr. Mark Tuszynski will describe molecular and cellular changes that underlie learning in motor and premotor cortex and how these changes can be targeted for therapies in brain injury. Dr. Nicole Calakos will discuss mechanism of synaptic plasticity in the striatum and how these influence habit behaviors and lead to disorders, such as obsessive compulsive disease.

**Learning Objectives:**

- Understand the normal process of recovery after stroke.
- Understand the mechanisms of learning and memory in the brain.
- Identify mechanisms in the brain that lead to improved recovery after stroke.

**CHAIR:** S. Thomas Carmichael, MD, PhD, University of California, Los Angeles**CO-CHAIR:** Lauren Sansing, MD, MS, Yale University**Molecular Memory Systems in Recovery after Stroke****SPEAKER:** S. Thomas Carmichael, MD, PhD, University of California, Los Angeles**Common Molecular Mechanisms in Learning and Cortical Repair****SPEAKER:** Mark Tuszynski, MD, PhD, University of California, San Diego**Pathways Regulating Synaptic Plasticity as Targets for Neurological Disease – Too much of a good thing?****SPEAKER:** Nicole Calakos, MD, PhD, Duke University**Genetic Manipulations of CCR5 and the Multifaceted Molecular Cellular and Circuit Mechanisms of Cognitive Enhancement: A Caution****SPEAKER:** Alcino Silva, PhD, University of California, Los Angeles**10:45 AM – 11:15 AM****Executive Session of Membership** \* *(non-CME activity)***11:15 AM – 12:00 PM****Lunch**

Boxed lunches will be available to take into the Interactive and Additional Lunch Workshops

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*\* This session is not available for AMA PRA Category I Credit(s)™*



**MONDAY, OCTOBER 14, 2019**, *continued***11:30 AM – 12:30 PM****Interactive Lunch Workshops (These workshops are “Lunch and Learns”)  
Neurological Rare Diseases & Neglected Tropical Diseases: Can Shared Challenges Inform Common Solutions?**

The neurological burden of disease due to rare diseases (aggregated) and neglected tropical diseases (NTDs) affect millions globally yet both entities are largely grossly under-resourced in terms of the capacity for reasonable clinical care provision proximate to the patients and funding to improve diagnostics, delineate optimal care models and drive the development of much-needed therapies. The US Food and Drug Administration has special programs aimed at stimulating/facilitating treatments for rare diseases and NTDs that have already yielded benefits. Shared challenges in our efforts to advance the understanding of and care for these conditions include the imperative to engage a broad group of stakeholders, including other scientists, regarding the associated neurological burdens and the need to stimulate investment in discovery where traditional market forces fail. In this session we will explore the burdens associated with rare diseases and NTDs with a special emphasis on shared challenges and possible common solutions.

**CHAIR:** Michelle Kvalsund, DO, Michigan State University**CO-CHAIR:** Jonathan Mink, MD, PhD, FAAN, FANA, FAAP, University of Rochester**Meet the Chairs \*****Small-Fiber Polyneuropathy: A Growing Neurological Problem**

Recent studies suggest that small-fiber polyneuropathy may be one of the most common neurological conditions. More and more of its medical causes are treatable with targeted therapies that surpass mere symptom palliation. This session reviews the latest studies, and diagnostic and treatment implications.

**CHAIR:** Anne Louise Oaklander, MD, PhD, Massachusetts General Hospital**CO-CHAIR:** Steven Scherer, MD, PhD, University of Pennsylvania**Neuro-Ophthalmological Features of Neurodegenerative Diseases**

The presence of different forms of eye involvement guides neurologists in the diagnosis of many neurodegenerative disorders, significantly affecting quality of life and being often included in clinical rating scales. The goal of this session is to provide an update on the neuro-ophthalmological features and ongoing research efforts in this field for various neurodegenerative conditions.

**CHAIR:** Laura Balcer, MD, NY Langone Health**CO-CHAIR:** Greg Van Stavern, MD, Washington University School of Medicine in St. Louis**11:30 AM – 12:30 PM****Additional Lunch Workshops****American Board of Psychiatry and Neurology (ABPN) Maintenance of Certification (MOC) \* (non-CME activity)****12:00 PM – 6:30 PM****Poster Viewing (non-CME activity)**

Poster presenters will be in attendance from 5:00 PM - 6:30 PM.

**12:30 PM – 12:45 PM****Break***\* This session is not available for AMA PRA Category I Credit(s)™*

**MONDAY, OCTOBER 14, 2019**, *continued***12:45 PM – 2:45 PM****Plenary Session****Language Disorders Across the Lifespan**

Language disorders can arise during development or can be acquired after development of normal language, due to neurodegenerative disease, stroke, or other brain injury. Recent advances in imaging, genetics, and clinical assessment have provided new insights into the nature of these disorders and their association. Dr. Yeatman will describe how structural and functional neuroimaging studies of developmental dyslexia have led to a greater understanding of the nature of the disorder, and plasticity associated with a successful intervention. Dr. Gorno-Tempini will provide evidence that developmental dyslexia and Primary Progressive Aphasia may reflect shared vulnerabilities. Dr. Mesulam will report on new insights related to language and dementia that have come out of research on Primary Progressive Aphasia. Dr. Hillis will then discuss novel treatment strategies to improve language and communication in Primary Progressive Aphasia and post-stroke aphasia.

**Learning Objectives:**

- Describe the neurobiological underpinnings of developmental dyslexia and how an intervention can modify brain circuits
- Describe clinical manifestations of Primary Progressive Aphasia and impact of learning differences across ages.
- Present results of recent trials showing the effects of various interventions for improving language in aphasia.

**CHAIR:** Gil Rabinovici, MD, University of California, San Francisco**CO-CHAIR:** Argye Hillis, MD, Johns Hopkins University**Novel Treatments for Primary Progressive Aphasia and Post-Stroke Aphasia****SPEAKER:** Argye Hillis, MD, Johns Hopkins University**Developmental Language Disorders and Primary Progressive Aphasia: Associations and Implications****SPEAKER:** Maria Luisa Gorno-Tempini, MD, PhD, University of California, San Francisco**Neural Plasticity in Developmental Dyslexia****SPEAKER:** Jason Yeatman, PhD, University of Washington**Recent Advances in PPA****SPEAKER:** Marek-Marsel Mesulam, MD, Northwestern University**2:45 PM – 3:00 PM****Break**


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*\* This session is not available for AMA PRA Category I Credit(s)™*

**MONDAY, OCTOBER 14, 2019**, *continued***3:00 PM – 5:00 PM****Special Interest Groups****Behavioral Neurology****Lesion Analysis Meets Systems Neuroscience**

Focal lesions studies have long played a central role in our understanding of the human brain by revealing which structures are critical for specific functions. But focal lesion studies have important limitations, including remote effects of a lesion on other brain regions, compensation during the chronic phase, and injuries to fibers passing through the lesion boundaries. In recent years, new approaches to understanding distributed and complex brain functions and neurological symptoms have emerged, providing exciting new insights and avenues for future research. In this session, speakers will discuss modern lesion analyses, which integrate multimodal structural and functional brain imaging with other physiological approaches and leverage emerging frameworks from systems neuroscience. Domains of cognitive function discussed will include arousal/consciousness, language, emotion, and others.

**CHAIR:** William Seeley, MD, University of California, San Francisco

**CO-CHAIR:** Joel Geerling, MD, PhD, University of Iowa

**Cerebrovascular Disease & Interventional Neurology**

Each year, more than 795,000 people in the United States have a stroke. Stroke is the fifth leading cause of death for Americans, and the leading cause of permanent disability. About 85% of all strokes are ischemic, and 15% are hemorrhagic. Recent years have witnessed significant progress in our understanding of the mechanisms underlying injury and recovery after stroke, sex differences in stroke outcome, and the development of innovative endovascular and surgical treatments for this devastating condition. This session will cover important up-to-date and timely topics in stroke research, endovascular management of acute ischemic stroke, role of minimally invasive surgery for intracerebral hemorrhage, sex differences in stroke management, and brain networks implicated in recovery after stroke.

**CHAIR:** Mandy Selim, MD, PhD, Beth Israel Deaconess Medical Center

**CO-CHAIR:** Diogo C. Haussen, MD, Emory University

**Education****Burnout in Academic Neurology: What are we Doing to Avoid it?**

Burnout amongst physicians is a major issue today. Neurologists, both practicing and those in training, are at risk. A recent survey demonstrated that approximately 73% of neurology residents had one symptom of burnout. Over the last few years, medical governing bodies have developed guidelines to help recognize and mitigate burnout. This SIG will explore the current state of where we are in avoiding burnout in our trainees and discuss possible future interventions.

**CHAIR:** Guillermo Solorzano, MD, University of Virginia Health System

**CO-CHAIR:** Kathryn Nevel, MD, Indiana University

*(Special Interest Groups continued on page 19)*

*\*This session is not available for AMA PRA Category I Credit(s)\**

**MONDAY, OCTOBER 14, 2019**, *continued***Global Neurology****Sustainable Partnerships and Equity in Global Health**

Sustainable and equitable partnerships are the most critical feature of the highest quality global health programs, whether education or research focused. While many well-meaning students, faculty and researchers frequently engage in short-term projects in resource-limited settings, there is a limited understanding of the minimal value and even burden these efforts often pose for the receiving institution and partnering faculty. This problem is compounded because the voices of collaborators in resource-limited settings are not often heard directly by senior academic leaders in neurology. This session will bring together a diverse group of experienced and emerging leaders in global health and neurology to discuss: (1) What are the key features of a sustainable and equitable partnership? (2) What are the needs of partnering institutions and faculty in resource-limited settings? (3) What strategies have programs/individual employed to obtain support for their efforts (from international funding bodies, local and regional governments and institutions)? (4) How do sustainable and equitable partnerships lead to improvements in research, education and care for patients with neurological disorders in resource limited settings?

**CHAIR:** Ana-Claire Meyer, MD, Yale University**CO-CHAIR:** Aaron Berkowitz, MD, PhD, Brigham and Women's Hospital**ANA-AHS Headache (Sponsored by the American Headache Society)****CHAIR:** Andrew Charles, MD, University of California, Los Angeles**CO-CHAIR:** Todd Schwedt, MD, MS, Mayo Clinic**Movement Disorders**

Movement Disorders is a rapidly developing subspecialty of Neurology, with a number of recent exciting developments in diagnostic biomarkers, genetic characterization, and novel therapies. This SIG will focus on neurodegenerative movement disorders, particularly the atypical parkinsonian disorders (Lewy Body Disease, Progressive Supranuclear Palsy, Corticobasal syndrome/degeneration, and Multiple System Atrophy). The prevalence of these disorders is expected to rise as the general population ages. Several recent lines of evidence suggest that the spread of proteinopathy in several of these disorders may occur in a prion-like manner. The attendees will be updated on recent developments in basic research, diagnostic techniques, and management of these diseases.

**CHAIR:** Alexander Pantelyat, MD, John Hopkins University**CO-CHAIR:** Anne-Marie Willis, MD, MPH, Massachusetts General Hospital**Multiple Sclerosis****MS Treatment Across the Lifespan**

This SIG will focus on MS in aging patients, pregnancy, and pediatric MS; in addition to epidemiologic evidence regarding the use of DMTs and overall clinical management across the lifespan. Data from randomized controlled trials in MS will be presented.

**CHAIR:** Justin McArthur, MBBS, MPH, Johns Hopkins University**CO-CHAIR:** Ellen Mowry, MD, Johns Hopkins University*(Special Interest Groups continued on page 20)**\* This session is not available for AMA PRA Category I Credit(s)™*



**MONDAY, OCTOBER 14, 2019** *continued***Neuro-Oncology****Immunotherapy: The Neuro-Oncologist's Friend or Foe?**

The use of anti-cancer immunotherapies has dramatically increased and is an area of active investigation in patients with primary brain tumors. Agents span immune checkpoint inhibitors, CAR-T cells and vaccines. Some of these agents interrupt mechanisms involved in prevention of auto-immunity or have pro-inflammatory properties. As a result, a wide-ranging spectrum of neurologic inflammatory adverse events have emerged posing diagnostic and therapeutic challenges that neurologists need to address. This session will review advances in immunotherapy of primary brain tumors and discuss neurologic complications of immunotherapy including encephalitis, myelitis, peripheral neuropathies, radiculopathies, neuro-muscular junction disorders and myositis. The rationale for targeting the immune system in brain tumor therapy and the results of ongoing trials will be discussed. The mechanisms underlying neurologic adverse effects, and their diagnosis and management will be reviewed.

**CHAIR:** Santosh Kesari, MD, PhD, John Wayne Cancer Institute

**CO-CHAIR:** Jan Drappatz, MD, University of Pittsburgh

**Sleep Disorders and Circadian Rhythms**

Sleep and circadian biology plays an integral, and often critical, role in the pathogenesis, manifestation, and treatment of neurological disorders. This SIG will feature both junior and senior clinician-scientists at the forefront of sleep and circadian rhythms research. The session will highlight new advances in the field, spanning from basic neurobiology to clinical management of sleep and circadian rhythm disorders.

**CHAIR:** David Raizen, MD, PhD, University of Pennsylvania

**CO-CHAIR:** Yo-El Ju, MD, Washington University in St. Louis

**5:00 PM – 6:30 PM**

**Poster Presentations & Reception** \* (non-CME activity)

**7:00 PM – 7:30 PM**

**New Member Meet & Greet** \* (non-CME activity)

This will be held at the iconic St. Louis Gateway Arch

**7:30 PM – 9:00 PM**

**President's Reception** \* (non-CME activity)

This will be held at the iconic St. Louis Gateway Arch

**TUESDAY, OCTOBER 15, 2019**

**6:30 AM – 2:00 PM**

**Registration**

**7:00 AM – 8:45 AM**

**Breakfast**



*\* This session is not available for AMA PRA Category I Credit(s)™*

**TUESDAY, OCTOBER 15, 2019** *continued***7:00 AM – 8:30 AM****Professional Development Courses****Students, Residents, Trainees, Post-Doc Fellows  
Meet the NIH, NIA, NICHD and DOD****Early to Mid-Career****Meet the NIH, NIA, NICHD and DOD****Chair Career Level****Philanthropy - Lessons Learned**

Our Neurology Departments are increasingly dependent on alternative sources of revenue to support research, education and other “unfunded missions.” For many, philanthropy plays an increasingly important role in providing such support. This session will tap the collective wisdom of department chairs who have been successful in obtaining support for their programs through private or public donations. This session will take a “data blitz” approach to address a variety of questions. How do you identify patients who might have the resources to give to your department? How have you approached donors, and what strategies do you find successful? Do you have “war stories” of what has or has not worked? How do you use philanthropic contributions to subsidize your clinical, education or research programs? Do you find that your foundation officers are helpful or do they poach prospective donors for other projects?

**MODERATOR:** L. John Greenfield, MD, PhD, UConn Health**8:30 AM – 8:45 AM****Break**

*\* This session is not available for AMA PRA Category I Credit(s)™*

**TUESDAY, OCTOBER 15, 2019** *continued***8:45 AM – 10:45 AM****Plenary Session****Emerging Role of Microbiome in Neurological Disease**

The last 10 years has seen a rapid advance in our knowledge of our partner organisms, the microbiome. The microbiome is now emerging as an important player across a range of human diseases, especially in neurological disease. Thus clinicians, researchers and patients are motivated to understand the complex nature of the microbiota, and its influence on human metabolism and immunity.

Several lines of evidence indicate that gut bacteria play a role in age-related neurodegeneration: the early onset of constipation in Parkinson's disease (PD), the early onset of olfactory dysfunction in both PD and Alzheimer's (AD), the occurrence of Lewy body pathology in gut neurons, the early involvement of the dorsal motor nucleus of the vagus in PD, the influence of bacterial amyloid on Alpha synuclein (AS) aggregation and neuroinflammation, the presence of AS aggregates in the appendix, the protective effect of antibiotics on AD phenotype in transgenic mice, the diminished disease presentation in germ-free animals bearing pathogenic PD and AD mutations, and evidence that amyloid beta is an highly conserved effector molecule of innate immunity. This session will present data suggesting the molecular mechanisms of these effects not only in neurodegeneration, but in multiple sclerosis and stroke. We will review the gut-brain microbiome axis and present evidence demonstrating the molecular mechanisms of these effects. The diverse approaches which are being explored for prevention and treatment based on bacterial influences on the brain will be discussed.

**Learning Objectives:**

- To understand the complex nature of the microbiota, and its influence on human metabolism and immunity.
- Understand leading research in the microbiome in neurodegenerative disease (especially PD and AD), multiple sclerosis and stroke.
- Become familiar with diverse approaches being explored for prevention and treatment based on bacterial influences on the brain.

**CHAIR:** Rachel Sanders-Pullman, MD, MPH, Ichan School of Medicine at Mt. Sinai

**CO-CHAIR:** Robert Friedland, MD, MPH, University of Louisville

**Gut Microbiota and Inflammatory CNS Diseases**

**SPEAKER:** Emmanuelle Waubant, MD, PhD, University of California, San Francisco

**Microbiome and Stroke: The Hidden Factor**

**SPEAKER:** Louise McCullough, MD, PhD, University of Texas Health

**Microbes Modulate Host Oxytocin and Multigenerational Health**

**SPEAKER:** Susan Erdman, DVM, MPH, Massachusetts Institute of Technology

**A Role for Gut Microbes in Neurodegenerative Disease**

**SPEAKER:** Timothy Sampson, PhD, Emory University

**10:45 AM – 11:00 AM****Break****11:00 AM – 12:00 PM****Lunch**

Boxed lunches will be available to take into the Interactive and Additional Lunch Workshops

*\* This session is not available for AMA PRA Category I Credit(s)™*

**TUESDAY, OCTOBER 15, 2019** *continued***11:00 AM – 12:00 PM****Interactive Lunch Workshops (These workshops are “Lunch and Learns”)  
Recent Advances in SUDEP**

Significant progress has been made in our understanding of the mechanisms underlying SUDEP and its epidemiology, leading to ongoing changes in clinical practice. This session aims to update neurologists and neuroscientists on the current hypothesis of the basic mechanisms underlying SUDEP, its prevalence, risk factors, prevention strategies and topics of current basic and clinical research.

**CHAIR:** Mark Wainwright, MD, PhD, FAAN, University of Washington

**CO-CHAIR:** George Richerson, MD, MPH, University of Iowa

**Advocacy in Action: The Role of Academic Neurologists and Neuroscientists**

The participation of neurologists and neuroscientists in advocacy has become crucial. During this workshop, attendees will learn how they can impact legislation from the perspective of an academic neurologist, patient advocate and lobbyist.

**CHAIR:** Barbara Giesser, MD, University of California, Los Angeles

**CO-CHAIR:** Luigi Maccotta, MD, PhD, Washington University in St. Louis

**Functional Neurologic Disorders**

An update on functional neurologic disorders, FND, which would include a review of their pathophysiology, diagnostic criteria and an approach to treatment of these common disorders. The interactive session will also include how experts deliver the diagnosis, engage the patient in treatment and their approach to integration of care.

**CHAIR:** Mark Hallett, MD, National Institute of Neurological Disorders and Stroke (NINDS)

**CO-CHAIR:** Barbara Dworetzky, MD, Brigham and Women’s Hospital

**11:00 AM – 12:00 PM****Additional Lunch Workshops  
Media Roundtable \* (non-CME activity)****AUPN’s Networking Lunch for Small Academic Departments \* (non-CME activity)**

While all Neurology departments share some common attributes, there are challenges unique to smaller academic departments, including handling teaching and clinical service responsibilities, while protecting time for research and faculty development. This lunch, sponsored by the AUPN and hosted by Gretchen E. Tietjen, MD, Chair of Neurology at the University of Toledo since 1998, provides an opportunity for chairs of smaller departments to meet, discuss issues and share strategies.

**12:00 PM – 12:15 PM****Break**

*\* This session is not available for AMA PRA Category I Credit(s)™*

**TUESDAY, OCTOBER 15, 2019** *continued***12:15 PM – 2:15 PM****Plenary Session****Optimizing Clinical Trial Design**

Clinical trials are designed to detect a therapeutic effect in a specific patient population. However, it has become clear that careful assessment of the clinical trial design is as important as the therapeutic intervention. Specifically, identifying an appropriate outcome measure or utilizing an adaptive trial design may improve the likelihood of trial success. Moreover, understanding the heterogeneity of your trial population with regard to factors such as gender, ethnicity and even genetic background should be explored prior to trial enrollment. As the pace of neurotherapeutics increases, creative and innovative clinical trials with regard to enrollment, design and outcomes are necessary.

- Recognize the use of patient reported outcomes, novel clinical outcome measures and adaptive trial design.
- Judge the limitations of clinical trial data with regard to efficacy.
- Compare the benefits and pitfalls of adaptive trial design, patient reported outcomes and novel clinical outcomes.

**CHAIR:** Conrad Wehl, MD, PhD, Washington University at St. Louis

**CO-CHAIR:** Craig Zaidman, MD, Washington University at St. Louis

**Design of Patient Reported Outcomes in Neurological Disease**

**SPEAKER:** Nicholas Johnson, MD, MSCI, Virginia Commonwealth University

**Accelerating ALS Therapeutics: Master Platform Trials and Other Approaches**

**SPEAKER:** Merit Cudkowicz, MD, Massachusetts General Hospital

**SPEAKER:** Allison Willis, MD, MS, University of Pennsylvania

**Designing Novel Functional Outcomes for Clinical Trials**

**SPEAKER:** Lindsay Alfano, DPT, PCS, The Research Institute at Nationwide Children's Hospital

**2:15 PM****Meeting Adjourns**

*\*This session is not available for AMA PRA Category I Credit(s)\**



# 2019 Registration Rates

2019 PRE-MEETING SYMPOSIUM REGISTRATION		
	Early Bird Rates	Standard/Onsite Rates
Symposium-Only Attendees and One-Day Annual Meeting Attendees	\$125	\$225
Member/Non-Member Symposium-Only Attendees and One-Day Annual Meeting Attendees from LLMIC*	\$60	\$160
ANA Annual Meeting Registrants	\$95	\$95
Member/Non-Member Students/ Resident/Grad Fellow/Post Doc	\$60	\$160

TICKETED EVENTS – MONDAY, OCTOBER 14, 2019: PRESIDENT’S RECEPTION	
Guest Pass	\$50 Per Guest

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**2019 ANNUAL MEETING FULL REGISTRATION RATES (EARLY BIRD)**

	Early Bird Rates (includes ANA2019 Meeting Recordings Package)	With Pre-Meeting Symposium	With ANA2019 Meeting Recordings Package**
Non-Member	\$710	\$805	
Member	\$510	\$605	
Member/Non-Member From LLMIC*	\$160	\$210	
Fellow	\$510	\$605	
Corresponding Member	\$510	\$605	
Corresponding Fellow	\$510	\$605	
Senior Member	\$410	\$505	
Honorary Member	\$410	\$505	
Member/Non-Member - Student/ Resident/Grad Fellow/Post Doc	\$160	\$210	
Past President	Complimentary	Complimentary	\$95

**2019 ANNUAL MEETING FULL REGISTRATION RATES (STANDARD/ONSITE)**

	Standard/Onsite Rates (includes ANA2019 Meeting Recordings Package)	With Pre-Meeting Symposium	With ANA2019 Meeting Recordings Package**
Non-Member	\$910	\$1005	
Member	\$710	\$805	
Member/Non-Member From LLMIC*	\$235	\$410	
Fellow	\$710	\$805	
Corresponding Member	\$710	\$805	
Corresponding Fellow	\$710	\$805	
Senior Member	\$610	\$705	
Honorary Member	\$610	\$705	
Member/Non-Member - Student/ Resident/Grad Fellow/Post Doc	\$235	\$410	
Past President	Complimentary	Complimentary	\$95

**2019 ANNUAL MEETING ONE DAY REGISTRATION RATES (EARLY BIRD)**

	Early Bird Rates	With Pre-Meeting Symposium	With ANA2019 Meeting Recordings Package**	With Pre-Meeting Symposium and ANA2019 Meeting Recordings Package**
Non-Member	\$460	\$585	\$580	\$705
Member	\$335	\$460	\$430	\$555
Member/ Non-Member From LLMIC*	\$60	\$120	\$110	\$170
Fellow	\$335	\$460	\$430	\$555
Corresponding Member	\$335	\$460	\$430	\$555
Corresponding Fellow	\$335	\$460	\$430	\$555
Senior Member	\$335	\$460	\$430	\$555
Honorary Member	\$335	\$460	\$430	\$555
Member/ Non-Member - Student/Resident/ Grad Fellow/Post Doc	\$60	\$120	\$110	\$170
Past President	Complimentary	Complimentary	\$95	\$95

**2019 ANNUAL MEETING ONE DAY REGISTRATION RATES (STANDARD/ONSITE)**

	Standard/Onsite Rates	With Pre-Meeting Symposium	With ANA2019 Meeting Recordings Package**	With Pre-Meeting Symposium and ANA2019 Meeting Recordings Package**
Non-Member	\$610	\$705	\$730	\$825
Member	\$485	\$610	\$580	\$705
Member/ Non-Member From LLMIC*	\$160	\$220	\$210	\$270
Fellow	\$485	\$610	\$580	\$705
Corresponding Member	\$485	\$610	\$580	\$705
Corresponding Fellow	\$485	\$610	\$580	\$705
Senior Member	\$485	\$610	\$580	\$705
Honorary Member	\$485	\$610	\$580	\$705
Member/ Non-Member - Student/Resident/ Grad Fellow/Post Doc	\$160	\$220	\$210	\$270
Past President	Complimentary	Complimentary	\$95	\$95

\* LLMIC = Low- Or Lower-Middle-Income country as defined by the World Bank which can be accessed here.

\*\* The ANA2019 Meeting Recordings Package includes recorded Plenary and SIG presentations from the October 2019 ANA Annual Meeting. Using ANA OnDEC, the ANA's new online education portal, you may easily view the videos and secure AMA PRA Category | Credits™.

\*\*\*CME is based on content eligibility and not all sessions may award credit.

Note: Specific presentations within a session may not be available or may be audio only if the presenter has confidential patient information or otherwise declines to be recorded.

## PRE-MEETING SYMPOSIUM REGISTRATION

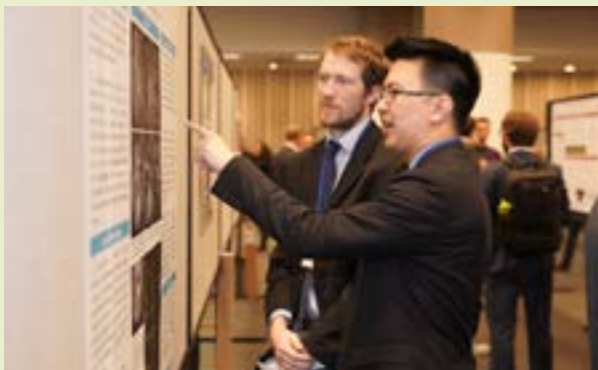
Register online at [2019.myana.org/event-registration](https://2019.myana.org/event-registration) no later than 11:59 PM ET on **Monday, September 16, 2019** in order to receive the early bird rates. After **September 16**, standard/onsite rates will apply. Once you have registered online, you will receive a confirmation email. If you do not receive a confirmation email or have difficulty with online registration, please contact ANA staff at [meetings@myana.org](mailto:meetings@myana.org).

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To cancel your registration and receive a refund, a written request with your registration confirmation must be received by **September 16, 2019**. Please send your request to [meetings@myana.org](mailto:meetings@myana.org). Cancellation requests received by this date will receive a refund less a \$50 processing fee. Refunds will be processed after the meeting. All requests received after **September 16, 2019**, will forfeit 100% of monies paid.

## CONSENT TO USE OF PHOTOGRAPHIC IMAGES

Registration and attendance at, or participation in, ANA meetings and other related activities constitutes attendee's authorization to ANA's use and distribution (both now and in the future) of the attendee's image or voice in photographs, video recordings, electronic reproductions, audio recordings, and other media throughout the world and royalty-free.



## ON-SITE REGISTRATION HOURS

Saturday, October 12	3:00 PM–7:00 PM
Sunday, October 13	6:00 AM–5:45 PM
Monday, October 14	6:30 AM–5:45 PM
Tuesday, October 15	6:30 AM–2:15 PM

## POSTER HOURS

Sunday, October 13	12:00 PM–7:00 PM
Monday, October 14	12:00 PM–6:30 PM

Poster presenters will be in attendance from 5:30 PM–7:00 PM on Sunday and from 5:00 PM–6:30 PM on Monday.



## HOTEL ACCOMMODATIONS

For your convenience, a block of sleeping rooms has been reserved at the **Marriott St. Louis Grand** at a conference rate of \$199 (plus taxes) per night for a traditional single or double room.

The special group room rate will be available through **September 19, 2019** or until the ANA block is sold out. After this date, the prevailing rates for the hotel will apply.

To reserve a room(s) at the group rate, please visit the meeting website at **2019.myana.org** and click on the Housing tab.

Disclaimer: ANA strongly encourages you to make hotel reservations for the Annual Meeting directly with the official host hotel, the Marriott St. Louis Grand. Please be aware, any solicitation you receive regarding housing services coming from a third party company is not endorsed by or affiliated with ANA in any way. Room reservations made on your behalf by any outside company may not be guaranteed. ANA is not responsible for any reservations made outside of the official hotel block.

## GENERAL HOTEL INFORMATION

**Marriott St. Louis Grand, 800 Washington Avenue, St. Louis, MO 63101.**

A contemporary oasis in the downtown area, Marriott St. Louis Grand offers stylish accommodations for business and leisure travel. Relax and recharge in 875 spacious hotel rooms and 42 suites, featuring modern amenities, Wi-Fi and flat-screen TVs with Netflix, Pandora, Hulu and Crackle streaming content. Discover a diverse collection of popular attractions, including Ballpark Village, the St Louis Gateway Arch, Busch Stadium and St Louis Zoo.

RESERVATIONS TOLL FREE PHONE: (800) 397-1282

RESERVATIONS LOCAL: (877) 303-0104

CHECK-IN TIME: 4:00 PM | CHECK-OUT TIME: 11:00 AM

SPECIAL ACCOMMODATIONS: If you require special accommodations in order to fully participate in the program, please contact the ANA Meeting Coordinator at [meetings@myana.org](mailto:meetings@myana.org).

## Language

The official language of the Annual Meeting is English. No simultaneous translation is available.

## CONTINUING MEDICAL EDUCATION ACCREDITATION & DESIGNATION STATEMENT(S)

### The 144th Annual Meeting of the American Neurological Association:

The American Neurological Association is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The American Neurological Association designates this live activity for a maximum of 24 AMA PRA Category 1 Credit(s)<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The American Board of Psychiatry and Neurology has reviewed the 144th Annual Meeting of the American Neurological Association and has approved this program as a part of a comprehensive CME program, which is mandated by the ABMS as a necessary component of Maintenance of Certification.

Additional information is also available online at [2019.myana.org/continuing-medical-education](http://2019.myana.org/continuing-medical-education)

PLEASE NOTE: A session that has an asterisk (\*) next to the session title is not available for AMA PRA Category 1 Credit(s)<sup>™</sup>.

DISCLAIMER: The ANA does not endorse or affiliate with third-party companies, products or services including those that may have elected to support the 144th Annual Meeting.



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The overall educational focus of ANA's Annual Meeting has been planned by the following dedicated and accomplished ANA committee members.

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## KEY MEETING INFORMATION

### Hotel Reservation Deadline:

September 19, 2019  
Book Online: [2019.myana.org/housing](https://2019.myana.org/housing)

### Early Registration Deadline:

September 16, 2019  
Online Registration:  
[2019.myana.org/event-registration](https://2019.myana.org/event-registration)

### Meeting Contacts:

Phone: (856) 642-4213  
Hours: Mon–Fri | 9:00 am–5:00 pm ET

### Registration & Meeting Questions:

[meetings@myana.org](mailto:meetings@myana.org)

### Meeting Location:

Marriott St. Louis Grand  
800 Washington Avenue, St. Louis, MO 63101

### 2020 Annual Meeting:

145th Annual Meeting of the American Neurological Association  
October 4–6, 2020  
Los Angeles, CA

## 2019 LOCAL ARRANGEMENTS SUBCOMMITTEE

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# 2019 Annual Meeting Important Dates

Registration Opens

**April 29,  
2019**

Late-Breaking  
Abstracts

**May 1–June 3,  
2019**

Early Bird Deadline

**September 16,  
2019**

Housing Deadline

**September 19,  
2019**

Pre-Meeting  
Symposium

**October 12,  
2019**

144th Annual Meeting

**October 13–15,  
2019**