FINAL PROGRAM

ANA2020 VIRTUAL MEETING

OCTOBER 4–9, 2020

145TH ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION

SOCIAL JUSTICE SYMPOSIUM: OCTOBER 3, 2020

AMERICAN NEUROLOGICAL ASSOCIATION
INNOVATORS IN DISCOVERY, EDUCATION, AND CARE

ana2020virtuallive.org • #ANA2020

Please note: all session times are listed in Eastern Daylight Time.

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Dear Colleagues,

Conrad "Chris" Weihl, MD, PhD

We welcome you for the first time in its 145-year history, the Virtual Annual Meeting of the American Neurological Association (ANA).

This year, the ANA is giving back to the neurological community by providing ANA members with complimentary registration for ANA2020 and offering significantly reduced registration rates for non-members. We expect to welcome more than 800 academic neurologists and neuroscientists from around the world to share exciting research updates and best practices. As always, there will be myriad opportunities for professional networking and education. Attendees will be able to network with colleagues through virtual networking events, which will bring the global neurological community together.

In addition to outstanding talks and poster presentations representing the latest advances in translational neuroscience, neurobiology of disease, and academic neurology, Special Interest Group (SIG) sessions and Interactive Workshops will spotlight advances across the full spectrum of neurologic subspecialties. Additionally, the professional development sessions at this year's event have something for everyone whether you are a student deciding which subspecialty to pursue or a department chair seeking best practices in administration. New this year are Emerging Scholar sessions focused on providing a platform for young investigator presentations.

This year's symposia dives into the science behind recent breakthroughs in our understanding and treatment of neurological disorders across a broad etiological spectrum. Topics include the emerging recognition that glia cells can serve as principal effectors of neuron degeneration and repair; the role of a tumor's microenvironment in CNS malignancy; and how personalized medicine approaches have been transformed by advances in genomic medicine.

The 2020 Presidential Symposium features experts and leaders in the field of wearable technologies discussing how wearable sensors can predict functional outcomes, diagnose patients, improve functional recovery post-stroke, or serve as outcomes in clinical trials.

The festivities will commence with the Translational and Clinical Research Course (TCRC), designed for early career physician-scientists interested or engaged in translational or clinical neuroscience research on October 3, followed by a reception for junior and early career attendees. This year, TCRC will be complimentary for ANA members and offered at a significantly reduced rate for non-members.

On behalf of the Board of Directors, Scientific Program Advisory Committee (SPAC), ANA President Justin C. McArthur, Interactive Workshops Subcommittee, and the Career Development Subcommittee, welcome to ANA2020.

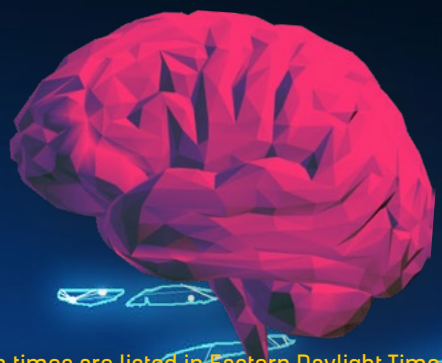
With warmest wishes,

Conrad C. Weihl

Chair, Scientific Program Advisory Committee (SPAC)
Professor, Washington University School of Medicine in St. Louis

ANA 2020 OCTOBER 4–9, 2020 SCHEDULE AT A GLANCE

VIRTUAL MEETING



All session times are listed in Eastern Daylight Time.

Friday, October 2, 2020

11:00 AM–4:45 PM	**ANA–NINDS Career Development Symposium** *(by invitation only)*
6:00 PM–7:00 PM	**Translational and Clinical Research Course** (TCRC) Reception (for pre-registered TCRC attendees only)

Saturday, October 3, 2020

10:00 AM–3:00 PM	**Social Justice Symposium**
10:00 AM–6:00 PM	**Translational and Clinical Research Course** (TCRC)
7:00 PM–8:00 PM	★ **Junior and Early Career Virtual Networking Reception** (for pre-registered attendees only)

Sunday, October 4, 2020

8:00 AM–9:00 PM	**Poster Viewing***
10:00 AM–12:15 PM	★ **Plenary Session** Presidential Symposium: Leveraging Digital Technologies in Neurology*
12:30 PM–2:30 PM	★ **Plenary Session** Derek Denny-Brown Young Neurological Scholar Symposium
3:00 PM–4:00 PM	★ **Emerging Scholar Lecture Series 1** *NEW!*
4:30 PM–6:30 PM	**Plenary Session** Targeting Glia for Therapy: Mediators of Neuroinflammation, Degeneration and Repair
7:15 PM–9:00 PM	**Poster Presentations***

Monday, October 5, 2020

8:00 AM–7:30 PM	**Poster Viewing***
10:00 AM–12:00 PM	**Plenary Session** Genomics of Personalized Medicine
12:15 PM–1:45 PM	**Poster Presentations***
2:00 PM–3:00 PM	★ **Emerging Scholar Lecture Series 2** *NEW!*
3:00 PM–3:30 PM	**Dedicated Exhibit Hall Hours***
3:30 PM–5:45 PM	**Plenary Session** Microenvironment Control of Brain Tumor Pathogenesis
6:00 PM–7:30 PM	**Poster Presentations***

Tuesday, October 6, 2020

8:00 AM–7:30 PM	**Poster Viewing***
10:00 AM–11:30 AM	**Professional Development Courses** ★ Early (Student, Resident, Trainee, Postdoc Fellow) & Early to Mid-Career Level Course 1: View from the NINDS, NIA, NICHD, and VA ANA-AUPN Chair Career Level Course 1: How to Get More Medical Students to Choose Neurology as a Career
11:30 AM–12:00 PM	**Special Interest Group Networking Session*** Global Neurology
12:00 PM–1:15 PM	**Interactive Workshops** The Neurology of COVID-19 from Emerging Neurological Infections Recent Advances in Amyloidosis: A Disease You Can't Afford to Miss ★ Twitter and Social Media: A Role for Neurology and Neuroscience Engagement
12:00 PM–2:00 PM	**Special Interest Group** Global Neurology
1:45 PM–2:30 PM	**Poster Presentations***
3:00 PM–5:00 PM	**Special Interest Groups** ANA-AHS Headache* Behavioral Neurology Clinical Logic Epilepsy Neuromuscular Disease
5:00 PM–6:00 PM	**Special Interest Group Networking Sessions*** ANA-AHS Headache Behavioral Neurology Clinical Logic Epilepsy Neuromuscular Disease
5:00 PM–6:00 PM	**Dedicated Exhibit Hall Hours***
6:00 PM–7:30 PM	**Poster Presentations***

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

★ Recommended for Junior and Early Career attendees.

Note: The American Board of Psychiatry and Neurology has reviewed the 145th 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.

Schedule Subject to Change: The event's operating hours, schedules, and speakers are subject to change or cancellation without notice. Refunds will be not issued for failure to view a live session.

SCHEDULE AT A GLANCE, *continued*

All session times are listed in Eastern Daylight Time.

Wednesday, October 7, 2020

8:00 AM–7:30 PM		**Poster Viewing***
10:00 AM–11:30 AM		**Professional Development Courses**
	★	Early (Student, Resident, Trainee, Postdoc Fellow) Career Level Course 2: Skills Development for Success in Research
	★	Early to Mid Career Level Course 2: Essential Skills for Academic Productivity in the First 5-10 Years
		ANA-AUPN Chair Career Level Course 2: How to Foster Development of Junior Faculty
11:30 AM–12:30 PM		**Dedicated Exhibit Hall Hours***
12:30 PM–1:45 PM		**Interactive Workshops**
		Biomarker in Clinical Studies
		Teleneurology in Academic Practice - Current State and Future Directions
		The Gene Therapy Toolbox: AAV
12:30 PM–1:45 PM		**Additional Workshop**
		American Board of Psychiatry and Neurology (ABPN) Maintenance of Certification (MOC) Program: Lifelong Learning for Neurologists
2:00 PM–3:00 PM	★	**Emerging Scholar Lecture Series 3** *NEW!*
3:30 PM–5:30 PM		**Special Interest Groups**
		Multiple Sclerosis*
		Neurocritical Care
		Traumatic Brain Injury (TBI)
5:30 PM–6:00 PM		**Special Interest Group Networking Sessions***
		Multiple Sclerosis
		Neurocritical Care
		Traumatic Brain Injury (TBI)
6:00 PM–7:30 PM	★	**ANA–AUPN Career Fair***
6:00 PM–7:30 PM		**Dedicated Exhibit Hall Hours***

Thursday, October 8, 2020

8:00 AM–7:30 PM		**Poster Viewing***
10:00 AM–11:30 AM		**Professional Development Courses**
	★	Early (Student, Resident, Trainee, Postdoc Fellow) Career Level Course 3: Landing Your Fellowship or First Faculty Position
	★	Early to Mid-Career Level Course 3: Critical Decisions in Your Academic Neurology Career
		ANA-AUPN Chair Career Level Course 3: Managing Up and Down: Getting What You Need from Your Faculty and Your Dean
11:30 AM–12:30 PM	★	**Additional Workshop***
		Meet the Chairs
11:45 AM–12:15 PM		**Dedicated Exhibit Hall Hours***
12:30 PM–1:45 PM		**Interactive Workshop**
		What Type of Evidence Should Drive Clinical Decision-Making?
12:30 PM–1:45 PM		**Additional Workshop**
		Meet the Editors*
2:00 PM–3:00 PM		**Dedicated Exhibit Hall Hours***

Thursday, October 8, 2020 *continued*

2:00 PM–3:00 PM		**Special Interest Group Networking Sessions***
		Autoimmune Neurology
		Cerebrovascular Disease and Interventional Neurology
		Dementia and Aging
		Education
		Health Services Research
2:00 PM–3:00 PM		**Additional Workshop**
		Media Roundtable*
3:00 PM–5:00 PM		**Special Interest Groups**
		Autoimmune Neurology
		Cerebrovascular Disease & Interventional Neurology
		Dementia and Aging
		Education
		Health Services Research
5:15 PM–6:00 PM		**Executive Session of Membership***
6:00 PM–7:30 PM		**Poster Presentations***

Friday, October 9, 2020

8:00 AM–7:30 PM		**Poster Viewing***
10:00 AM–12:00 PM		**Poster Presentations***
12:30 PM–1:45 PM		**Interactive Workshops**
		Clinical Genetic Testing For Parkinson's Disease: What, When and How?
		The 2020 NINDS Strategic Plan: A Progress Report and Request for Input
12:30 PM–1:45 PM		**Additional Workshop**
		AUPN's Networking Session for Small Academic Departments*
2:00 PM–3:00 PM	★	**Emerging Scholar Lecture Series 4** *NEW!*
3:30 PM–5:30 PM		**Special Interest Groups**
		Movement Disorders
		Neuro-Oncology
		Neurogenetics
		Sleep Disorders & Circadian Rhythms
5:30 PM–6:00 PM		**Special Interest Group Networking Sessions***
		Movement Disorders
		Neuro-Oncology
		Neurogenetics
		Sleep Disorders and Circadian Rhythms
6:00 PM–7:30 PM		**Poster Presentations***
7:30 PM		**Meeting Adjourns**

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

★ Recommended for Junior and Early Career attendees.

Note: The American Board of Psychiatry and Neurology has reviewed the 145th 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.

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General Information

Event Hours (Poster viewing available from 8:00 AM EDT)

Sunday, October 4	10:00 AM–9:00 PM EDT
Monday, October 5	10:00 AM–7:30 PM EDT
Tuesday, October 6	10:00 AM–7:30 PM EDT
Wednesday, October 7	10:00 AM–7:30 PM EDT
Thursday, October 8	10:00 AM–7:30 PM EDT
Friday, October 9	10:00 AM–7:30 PM EDT

Language

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

Technology Requirements & Recommendations

For the best user experience, please review these personal device requirements in advance of the live meeting:

Computer:

- Operating System: Microsoft Windows 10, or macOS 10.14.6+
- Browser: Latest version of Google Chrome, Firefox, Safari

Mobile Device:*

- Operating System: iOS/iPad OS 13.6, Android 9+
- Browser: Mobile Safari, Mobile Google Chrome

** Attending the virtual meeting via a laptop or desktop computer (instead of a mobile device) is recommended, as it will provide you with the best user experience.*

Internet Requirements:

- A minimum internet speed of **10mpbs Download** and **5mbps Upload is required**. Your ability to participate can be impacted by the quality of your internet service.
- Satellite internet service may experience a poor streaming experience.
- You can test your speed by visiting the site **https://speedof.me**.

Internet Requirements, *continued*

- You may be able to increase your internet speed or verify your internet bandwidth by contacting your internet service provider.
- Positioning your computer as close as possible to your wireless router or access point will help if you are experiencing slowness issues.
- Please coordinate with anyone who shares your internet connection in your home to ensure they are not consuming too much bandwidth impacting your ability to participate.

E-Poster Hall

E-posters will be viewable throughout the duration of ANA2020. The below schedule indicates the designated dates and times presenting authors will be joining live to present their posters. Please check the poster session schedule during the live meeting to see which posters are being presented during each of the following dates and times. All poster presentation hours are in Eastern Daylight Time.

Sunday, October 4	7:15 PM–9:00 PM EDT
Monday, October 5	12:15 PM–1:45 PM EDT 6:00 PM–7:30 PM EDT
Tuesday, October 6	1:45 PM–2:30 PM EDT 6:00 PM–7:30 PM EDT
Thursday, October 8	6:00 PM–7:30 PM EDT
Friday, October 9	10:00 AM–12:00 PM EDT 6:00 PM–7:30 PM EDT

Virtual Exhibit Hall

ANA2020's exhibitors are excited to e-greet you! Please visit the virtual exhibit hall to explore the latest industry trends and great products and services our exhibitors have to share with you. The virtual exhibit hall will be open throughout the duration of the meeting. However, company representatives will be present in the virtual booths to chat with you live and answer any questions you may have during the following Dedicated Exhibit Hall Hours:

Monday, October 5	3:00 PM–3:30 PM EDT
Tuesday, October 6	5:00 PM–6:00 PM EDT
Wednesday, October 7	11:30 AM–12:30 PM EDT 6:00 PM–7:30 PM EDT
Thursday, October 8	11:45 AM–12:15 PM EDT 2:00 PM–3:00 PM EDT

Continuing Medical Education

Accreditation & Designation Statement(s)

The 145th 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 ***29.5 AMA PRA Category 1 Credit(s)***™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The American Neurological Association hosts a wide range of educational programs. These programs seek to enhance the development and success of those pursuing a career in academic neurology at all levels. There are educational offerings to benefit those at the beginning stages of their careers, including students and those in their first faculty position, as well as those looking for best practices in Chair level positions. These programs seek to enhance attendee success in the field of academic neurology and to contribute to the overall education of neurologists and neuroscientists.

The American Board of Psychiatry and Neurology has reviewed the 145th 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:
2020.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)***™.

DISCLAIMER: The ANA does not endorse or affiliate with third-party companies, products or services including those that may have elected to support the 145th Virtual Annual Meeting.

Annual Meeting Evaluations

Following the event, you will receive access to the evaluation. Please complete the online evaluation by November 3, 2020 to obtain CME credit. You will be provided with a certificate after completing the evaluation. If you have any questions, please contact the ANA Meeting Coordinator at: **meetings@@myana.org.**

Consent to Recording, Capture, and Distribution

ANA will be recording in audio and/or video format the virtual sessions and events taking place during ANA2020. ANA may elect to distribute the recordings and associated materials either individually or as part of a compilation. By attending, an attendee's image and/or voice in photographs, video recordings, electronic reproductions, audio recordings, and other media throughout the world may be used and you acknowledge these activities and consent to such recording, capture, and distribution by ANA, royalty-free. Additionally, ANA contractors and sponsors may be audio and/or video recording virtual sessions and events at this event. By attending, your image and/ or voice in photographs, video recordings, electronic reproductions, audio recordings, and other media throughout the world may be used, including, but not limited to publications, on their websites, and in any other marketing and promotional materials. You acknowledge these activities and consent to such recording, capture, and distribution, royalty-free.

Recording, Reproduction, and Distribution of Content is Prohibited

By registering and attending the ANA2020 Virtual Annual Meeting attendees agree to not record, photograph, reproduce, or distribute any presentations or scientific content presented during the meeting, as session and slide content is the intellectual property of our speakers.

ADA Statement

ADA accommodations will be made in accordance with the law. If you require ADA accommodations, please indicate what your needs are at the time of registration. We cannot ensure the availability of appropriate accommodations without prior notification. If you have already registered for the meeting, please contact **meetings@myana.org** directly.

Inappropriate Behavior Policy

The American Neurological Association (ANA) encourages open and honest intellectual interactions and debate as part of a welcoming and inclusive atmosphere at all ANA associated meetings and conferences. To help maintain an open and respectful community of physicians and scientists, the ANA does not tolerate illegal or inappropriate behavior at any in person or virtual meeting, including violations of applicable laws pertaining to sale or consumption of alcohol, description of property, or harassment of any kind, including sexual harassment. The ANA condemns inappropriate or suggestive acts or comments that demean another person by reason of his or her gender, gender identity or expression, race, religion, ethnicity, age or disability or that are unwelcome or offensive to other members of the community or their guests. The ANA reviews allegations of any such behavior on a case by case basis, and violations may result in revocation of ANA membership and/or the prohibition on future attendance of an ANA meeting or conference by a particular individual. **Click here to read our full policy**.

ANA2020 Session Recordings Package

All registrations include access to the **ANA2020 Meetings Recording** package, which will be made available in the weeks following the virtual meeting. Capture key sessions of ANA2020 for review or earn CME for presentations that you missed. This online education package brings the groundbreaking research of ANA2020 to your fingertips 24/7. CME is based on content eligibility and not all sessions may award credit. Specific presentations within a session may not be available if the presenter has declined to be recorded.

Schedule Subject to Change

The event's operating hours, schedules, and speakers are subject to change or cancellation without notice. Refunds will be not issued for failure to view a live session.

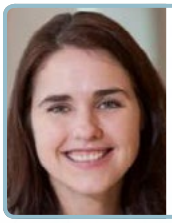
Stay in the know and join in on Social Media #ANA2020

Social Justice Symposium

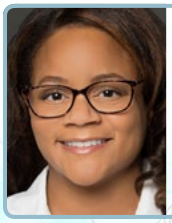
Saturday, October 3, 2020 **10:00 AM–3:00 PM EDT**

The ANA is challenging itself to become a champion of 21st century academic neurology and neuroscience. Given that its past was marred by systemic racism, the ANA is working hard to find new ways to rectify these exclusionary practices. To meet these challenges, ANA is redoubling its efforts around inclusion and diversity through educating the neurological community and implementing organizational changes. In line with these efforts, the ANA is hosting its inaugural Social Justice Symposium prior to ANA2020. During this symposium attendees will learn about topics ranging from the impact that social determinants have on health outcomes for people of color to health policy. Additionally, attendees will have the opportunity to participate in interactive breakout sessions designed to develop actionable steps to address inequity within academic neurology and neuroscience.

CHAIR
Justin C. McArthur, MBBS, MPH
JOHNS HOPKINS UNIVERSITY



CO-CHAIR
Lesli Skolarus, MD, MS
UNIVERSITY OF MICHIGAN



CO-CHAIR
Allison Willis, MD, MS
UNIVERSITY OF PENNSYLVANIA

Program details can be accessed **here**.

Satellite Symposium

The ANA values the participation of our corporate partners and is supportive of the role that members of this community continue to play in our efforts to provide neurologists & neuroscientists with quality educational programs. This symposium is not part of the ANA official educational program and the session and content are not endorsed by ANA.

Wednesday, October 7, 2020 **11:30 AM–12:30 PM EDT**

Create COVID-19 Litigation Safe Harbor: What Doctors Need to Know about COVID Tax Relief and Law

FACULTY: *Steve Comer*

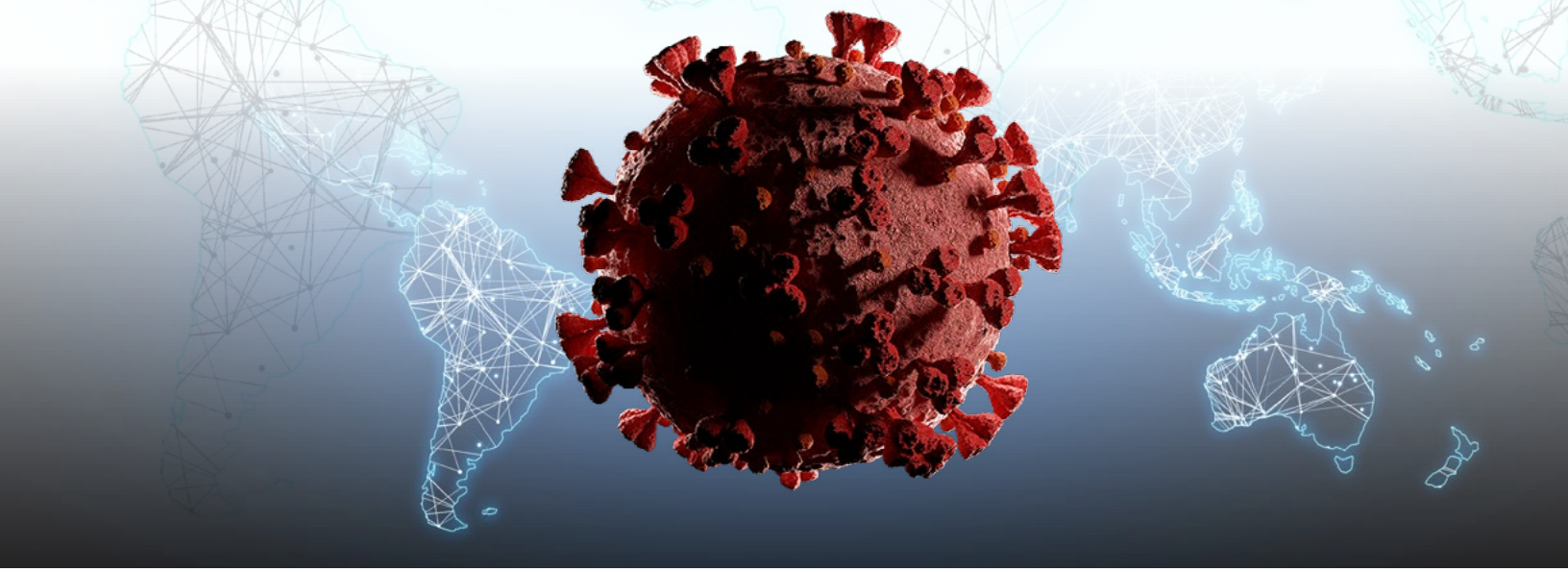
Legally Mine is an asset protection and tax strategy group. The mission of Legally Mine is to empower members of the healthcare community with the knowledge and tools to protect their assets from lawsuits, build professional license safeguards into their legal structures and legitimately reduce their tax liability.

Medical professionals have unfortunately become all too easy targets for MANY trial attorneys! Learning how to use legal entities is vital to protect everything they have worked hard to achieve. Setting up C-Corps, S-Corps, and LLC's is only part of the answer to this rapidly growing issue. This course will also instruct attendees on how to protect one of their most important assets, their medical license. Even if they aren't sued for a larger amount than what their malpractice insurance covers, all medical professionals will encounter being investigated and possibly sanctioned for issues UNRELATED to the reported lawsuit. Utilizing these legal tools, in many cases, can decrease malpractice insurance costs and drastically reduce their income taxes--all while keeping their name and license from being reported to the NPDB.

EDUCATIONAL OBJECTIVES:

1. **Maintain the focus on improved patient care rather than malpractice defense.**
2. **Improve overall professional success by structuring assets for lawsuit protection and prevention.**
3. **Applying risk management techniques that improve and enhance fiscal efficiency.**
4. **Acquire an understanding of basic medical legal tools that are available to help decrease unnecessary loss of revenue.**

Let us teach you how to bridge the gap between healthcare and the law!



Program by Day

Friday, October 2, 2020

11:00 AM–4:45 PM

ANA-NINDS Career Development Symposium

(by invitation only)

CHAIR: *Lesli E. Skolarus, MD, MS, University of Michigan*
CO-CHAIR: *Jonathan Rosand, MD, MSc, Massachusetts General Hospital*

This symposium is a joint collaborative effort between the 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.

6:00 PM–7:00 PM

Translational and Clinical Research Course (TCRC) Reception (for pre-registered TCRC attendees only)

Come meet the speakers and your fellow attendees in a relaxed, casual setting before the start of the TCRC meeting. This event is for pre-registered TCRC attendees only.

Saturday, October 3, 2020

10:00 AM–3:00 PM

Social Justice Symposium

All welcome to attend. Program detail **can be accessed here**.

10:00 AM–6:00 PM

Translational and Clinical Research Course (TCRC)

CHAIR: *Laura J. Balcer, MD, MSCE, New York University Grossman School of Medicine*

The course is designed to further the development of young physician-scientists interested in or engaged in translational or clinical neuroscience research. This course will provide selected research fellows, residents, and junior faculty members with strategies for career development and developing research grant proposals that are designed to encourage trainees and junior faculty to pursue careers in academic neurology. The sequence of topics will include sessions geared towards early stages of career development along with as unique opportunities to interact with senior clinician leaders and current clinician scientists that are well-placed to facilitate the success of neurology's next generation of academic and research-focused faculty. Talks, small group discussions, and case examples will be used as learning strategies. Small group discussions will also allow participants to further explore and develop specific areas of interest.

7:00 PM–8:00 PM

★ Junior and Early Career Virtual Networking Reception (for pre-registered attendees only)

Pre-registration is required to access the Zoom meeting outside of the ANA2020 platform. Regsistered attendees should access their invitations sent via email.

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

★ Recommended for Junior and Early Career attendees.

Sunday, October 4, 2020

8:00 AM–9:00 PM

Poster Viewing*

Poster presenters will be in attendance from 7:15 PM - 9:00 PM.

10:00 AM–12:15 PM

Plenary Session

★ Presidential Symposium: Leveraging Digital Technologies in Neurology*

CHAIR: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University*

CO-CHAIR: *Lindsey Wooliscroft, MD, Oregon Health & Science University*

This symposium will provide clinicians and researchers with information on how to successfully incorporate virtual visits and digital and wearable devices in clinical care and clinical research settings. The introduction and deployment of digital therapeutics into neurology will be discussed. The implications of the deployment of digital technologies for clinical trials and clinical research will be discussed.

LEARNING OBJECTIVES:

1. **Assess current clinical practice and/or research platforms to determine where technology has the potential to improve processes.**
2. **Anticipate the future direction of digital therapeutics in neurological research and clinical practice.**
3. **Opine the impact of regulatory oversight and develop tactics to overcome hurdles.**

10:00 AM–10:05 AM

Introduction

CHAIR: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University*

Sunday, October 4, 2020

10:05 AM–10:25 AM

LEADER IN THE FIELD PRESENTATION

Deep Phenotyping of Parkinson's Disease Using Digital Technology

SPEAKER: *Jamie Adams, MD, University of Rochester*

10:25 AM–10:35 AM

ORAL PRESENTATION

Patient Travel for Neurologist Visits and Implications for Telemedicine: A US Population-Based Medicare Study

SPEAKER: *Chun Chieh Lin, PhD, MBA, University of Michigan*

10:35 AM–10:55 AM

LEADER IN THE FIELD PRESENTATION

High-Performance Digital Biomarkers: Ethomic Markers for Rapid, Precise Monitoring of Disease Progression

SPEAKER: *Aldo Faisal, PhD, Imperial College London*

10:55 AM–11:15 AM

LEADER IN THE FIELD PRESENTATION

Developing Novel Outcome Measures for Clinical Trials

SPEAKER: *Jang-ho Cha, MD, PhD, Novartis Institutes for BioMedical Research*

11:15 AM–11:35 AM

LEADER IN THE FIELD PRESENTATION

Precision Rehabilitation Strategies for Motor Recovery Post Stroke

SPEAKER: *Preeti Raghavan, MD, Johns Hopkins University*

11:35 AM–11:55 AM

LEADER IN THE FIELD PRESENTATION

Digital Therapeutics

SPEAKER: *Adam Gazzaley, MD, PhD, University of California, San Francisco*

11:55 AM–12:15 PM

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

12:30 PM–2:30 PM

Plenary Session

★ Derek Denny-Brown Young Neurological Scholar Symposium

CHAIR: *Andrew Cole, MD, FRCP, Massachusetts General Hospital, Harvard Medical School*

CO-CHAIR: *Michael Geschwind, MD, PhD, FANA, University of California, San Francisco*

The Derek Denny-Brown Young Neurological Scholar Symposium is an opportunity for young researchers to share groundbreaking research in the field of Neurology and Neuroscience.

This symposium will feature presentations from the 2020 Derek Denny-Brown awardees, the Wolfe Neuropathy Research Prize and the Grass Foundation-ANA Award in Neuroscience recipients.

The Derek Denny-Brown Young Neurological Scholar Award recognizes early to mid-career neurologists and neuroscientists. This award honors those neurologists and neuroscientists in the first 10 years of their career at the assistant/associate faculty (equivalent) level who have made outstanding basic and clinical scientific advances toward the prevention, diagnosis, treatment and cure of neurological diseases. The Honorary Membership and Awards Committee can designate up to a total of three (3) awards in any of the following three areas: Physician Scientist-Basic, Physician Scientist-Clinical, Neuroscientist-relevant to disease.

The Distinguished Neurology Teacher Award was established in 1996 to recognize outstanding accomplishments in teaching neurology to residents and medical students. The purpose is to encourage efforts to recognize and reward contributions by gifted and talented teachers in neurology. Each Neurology Department in the U.S. and Canada is encouraged to nominate one individual from the entire field of neurology each year.

The 2020 Grass Foundation - ANA Award in Neuroscience was established in 2007 to recognize outstanding young physician scientists conducting research in basic and clinical neuroscience. The Grass Foundation was established in 1955 by Albert and Ellen Grass to advance research and education in neuroscience, with a special focus on investigators early in their careers.

The Wolfe Neuropathy Research Prize for Investigators Identifying New Causes or Novel Treatments of Axonal Peripheral Neuropathy was established to honor outstanding investigators who identify a new cause or treatment of axonal peripheral neuropathy. Eligible candidates include faculty members at any stage in their career (MD, MD/PhD, or PhD) who identify either a new cause or treatment of axonal peripheral neuropathy. The same researcher can qualify for this award annually if s/he can demonstrate evidence of repeated success in identifying new causes or treatments for axonal peripheral neuropathy.

Sunday, October 4, 2020

12:30 PM–12:35 PM

Introduction

CHAIR: *Andrew Cole, MD, FRCP, Massachusetts General Hospital, Harvard Medical School*

DISTINGUISHED NEUROLOGY TEACHER AWARD

AWARD WINNER: *Ann Poncelet, MD, FAAN, University of California, San Francisco*

12:35 PM–12:55 PM

DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD IN BASIC SCIENCE

Aging, Lysosomes and Neurodegenerative Disease

AWARD WINNER: *Aimee Kao, MD, PhD, University of California, San Francisco*

12:55 PM–1:15 PM

DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD IN BASIC SCIENCE

Functional Genomics of Alzheimer's Disease

AWARD WINNER: *Joshua Shulman, MD, PhD, Baylor College of Medicine*

1:15 PM–1:35 PM

DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD IN CLINICAL SCIENCE

Cerebellar Circuitry of Essential Tremor

AWARD WINNER: *Sheng-Han Kuo, MD, Columbia University*

1:35 PM–1:55 PM

THE GRASS FOUNDATION–ANA AWARD IN NEUROSCIENCE

Improving the Diagnostic Precision in Autoimmune Myelopathies and their Mimics

AWARD WINNER: *Eoin Paul Flanagan, MD, Mayo Clinic*

1:55 PM–2:15 PM

WOLFE NEUROPATHY RESEARCH PRIZE FOR IDENTIFYING NEW CAUSES OR NOVEL TREATMENTS OF AXONAL PERIPHERAL NEUROPATHY

Dietary Weight Loss May Halt Progression of Polyneuropathy in Patients with Obesity

AWARD WINNER: *Brian Callaghan, MD, MS, University of Michigan*

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

★ Recommended for Junior and Early Career attendees.

3:00 PM–4:00 PM

Emerging Scholar Lecture Series

★ Emerging Scholar Lecture Series 1 *NEW!*

MODERATOR: *Eric Landsness, MD, PhD, Washington University in St. Louis*

New in 2020, the Emerging Scholar Lecture series is designed exclusively for junior and early career annual meeting attendees. These sessions provide the opportunity for junior and early career members to present in front of a full virtual audience amongst their peer group. Attend a session to learn what cutting edge research the future leaders of the ANA have to share!

3:00 PM–3:05 PM

Introduction

MODERATOR: *Eric Landsness, MD, PhD, Washington University in St. Louis*

3:05 PM–3:15 PM

ORAL PRESENTATION

The Power of Single Cell Technologies; from T Cell Receptor to Antigen(s) in Multiple Sclerosis

SPEAKER: *Naresha Saligrama, PhD, Washington University in St Louis*

3:15 PM–3:25 PM

ORAL PRESENTATION

An Undiagnosed White Matter Disorders Neurogenetics Clinic

SPEAKER: *Jennifer Orthmann-Murphy, MD, PhD, University of Pennsylvania*

3:25 PM–3:35 PM

ORAL PRESENTATION

Objective Dystonia Identification Helps Elucidate Dystonia Pathophysiology

SPEAKER: *Bhooma Aravamuthan, MD, Dphil, Washington University in St. Louis*

3:35 PM–3:45 PM

ORAL PRESENTATION

Loss of Chchd2 and Chchd10 Activates Oma1 Peptidase to Disrupt Mitochondrial Cristae Phenocopying Patient Mutations

SPEAKER: *Derek Narendra, MD, PhD, National Institute of Neurological Disorders and Stroke*

3:45 PM–4:00 PM

Q&A and Discussion

4:30 PM–6:30 PM

Plenary Session

Targeting Glia for Therapy: Mediators of Neuroinflammation, Degeneration and Repair

CHAIR: *Jennifer Orthman-Murphy, MD, PhD, University of Pennsylvania*

CO-CHAIR: *Timothy Greenamyre, MD, PhD, University of Pittsburgh*

Nearly half of the brain is composed of glial cells, including oligodendrocytes, astrocytes, and microglia, and each likely contribute to the etiology and progression of neurological disease. In the past several years there have been an increasing number of high-profile, high-impact stories that implicate each of these cells in various neurological disorders that have no curative treatment. This session will focus on recent work highlighting the role of glial cells as the mediators of degeneration, inflammation and repair. A better understanding of the role of glial cells is likely critical to develop novel effective therapies.

LEARNING OBJECTIVES:

1. **Identify the specific glial cell types—astrocyte, oligodendrocyte lineage cells and microglia that are currently being studies in the context of neuroinflammatory and neurodegenerative disease.**
2. **Identify basic pathomechanisms addressing the role of glial cells mediate in inflammatory and neurodegenerative disease.**
3. **Identify glial-specific targets to develop reparative therapies.**

4:30 PM–4:35 PM

Introduction

CHAIR: *Jennifer Orthman-Murphy, MD, PhD, University of Pennsylvania*

4:35 PM–4:55 PM

LEADER IN THE FIELD PRESENTATION

Oligodendrocyte Precursor Cell Present Antigen and are Cytotoxic Targets in Inflammatory Demyelination

SPEAKER: *Peter Calabresi, MD, FACP, Johns Hopkins University*

4:55 PM–5:15 PM

LEADER IN THE FIELD PRESENTATION

Targeting Microglia-Mediated Synapse Elimination for Therapeutic Intervention in Demyelinating Disease

SPEAKER: *Sebastian Werneburg, PhD, University of Massachusetts Medical School*

5:15 PM–5:35 PM

LEADER IN THE FIELD PRESENTATION

Single Nuclei Transcriptomic Profiling of Human Astrocytes in Alzheimer's Disease and Aging

SPEAKER: *Jessica S. Sadick, PhD, NYU School of Medicine*

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

★ Recommended for Junior and Early Career attendees.

Plenary Session

continued from page 14

Targeting Glia for Therapy: Mediators of Neuroinflammation, Degeneration and Repair

5:35 PM–5:45 PM
ORAL PRESENTATION

Kv1.3 Channel Expressing Brain Myeloid Cells are a Unique Pro-inflammatory Subset of Microglia Which Can be Modulated by Kv1.3 Blockers in Alzheimer's Pathology

SPEAKER: *Supriya Ramesha, MD, Emory University, West Virginia University*

5:45 PM–6:05 PM
LEADER IN THE FIELD PRESENTATION

Glia-Mediated Mechanisms of Chemotherapy-Related Cognitive Impairment

SPEAKER: *Erin Gibson, PhD, Stanford University*

6:05 PM–6:30 PM

Q&A and Discussion

7:15 PM–9:00 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select e-poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.

Monday, October 5, 2020

8:00 AM–7:30 PM

Poster Viewing*

Poster presenters will be in attendance from 12:15 PM–1:45 PM and 6:00 PM–7:30 PM.

10:00 AM–12:00 PM

Plenary Session

Genomics of Personalized Medicine

CHAIR: *Conrad "Chris" Weihl, MD, PhD, Washington University in St. Louis*

CO-CHAIR: *Tritia Yamasaki, MD, PhD, University of Kentucky*

CO-CHAIR: *Bryan J. Traynor, MD, PhD, NIA, NIH*

Unraveling the genetic etiology of neurological disease provides fundamental insights into the cellular pathways underlying disease pathogenesis. It also facilitates disease modeling, as well as the design and testing of targeted therapeutics. This session will illustrate how genomics is paving the way for the field to move towards precision-based treatments. Pediatric neurologists have demonstrated that gene modification of a previously untreatable disease, spinal muscular atrophy, is feasible. Here, we will explore how genomic knowledge may be translated into disease-modifying interventions in other neurologic diseases.

LEARNING OBJECTIVES:

1. **To review current genetic understanding of neurologic disease.**
2. **To delineate how genetic knowledge can be leveraged to advance the precision medicine paradigm.**

10:00 AM–10:05 AM

Introduction

CHAIR: *Conrad "Chris" Weihl, MD, PhD, Washington University in St. Louis*

10:05 AM–10:25 AM
LEADER IN THE FIELD PRESENTATION

Genetic Discovery and Translation in Neuromuscular Disease

SPEAKER: *Monkol Lek, PhD, Yale University*

10:25 AM–10:45 AM
LEADER IN THE FIELD PRESENTATION

Genomic Approaches Paving the Way for Precision Neurology

SPEAKER: *Sonja Scholz, MD, PhD, NIH*

10:45 AM–11:05 AM
LEADER IN THE FIELD PRESENTATION

CRISPR-Mediated Therapeutics for Duchenne Muscular Dystrophy

SPEAKER: *Melissa Spencer, PhD, University of California, Los Angeles*

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

★ Recommended for Junior and Early Career attendees.

Plenary Session

continued from page 15

Genomics of Personalized Medicine

11:05 AM–11:25 AM
LEADER IN THE FIELD PRESENTATION

Patient-Customized Antisense Therapies for Rare Neurogenetic Diseases

SPEAKER: *Timothy Yu, MD, PhD, Boston Children's Hospital*

11:25 AM–11:45 AM
LEADER IN THE FIELD PRESENTATION

Towards Primary Prevention of Genetic Prion Disease

SPEAKER: *Sonia Vallabh, PhD, Broad Institute of MIT and Harvard*

11:45 AM–12:00 PM

Q&A and Discussion

12:15 PM–1:45 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select e-poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.

2:00 PM–3:00 PM

Emerging Scholar Lecture Series

★ **Emerging Scholar Lecture Series 2** *NEW!*

MODERATOR: *Andrew Findlay, MD, Washington University in St. Louis*

New in 2020, the 'Emerging Scholar Lecture' series is designed exclusively for junior and early career annual meeting attendees. These sessions provide the opportunity for junior and early career members to present in front of a full virtual audience amongst their peer group. Attend a session to learn what cutting edge research the future leaders of the ANA have to share!

2:00 PM–2:15 PM

Introduction

MODERATOR: *Andrew Findlay, MD, Washington University in St. Louis*

2:15 PM–2:25 PM
ORAL PRESENTATION

Neuropathy-causing TRPV4 Mutations Disrupt TRPV4-RhoA Interactions and Impair Cytoskeletal Regulation

SPEAKER: *Brett McCray, MD, PhD, Johns Hopkins University*

2:35 PM–2:45 PM
ORAL PRESENTATION

FTH1De Novo Dominant Variants Alter Iron Metabolism and Cause a Pediatric Onset Neuroferritinopathy

SPEAKER: *Xilma Ortiz-Gonzalez, MD, PhD, University of Pennsylvania*

2:25 PM–2:35 PM
ORAL PRESENTATION

Chemically Patterned Hydrogel Scaffolds Provide Cell-assembled Matrices to Guide Spinal Cord Regeneration

SPEAKER: *Nicolas Niall Madigan, MB BCh, PhD, Mayo Clinic*

Monday, October 5, 2020

2:05 PM–2:15 PM
ORAL PRESENTATION

Schwann Cells with Fig4 Deficiency are Predisposed to Demyelination

SPEAKER: *Daniel Moiseev, BS, Wayne State University School of Medicine*

2:15 PM–2:30 PM

Q&A and Discussion

3:00 PM–3:30 PM

Dedicated Exhibit Hall Hours*

The virtual exhibit hall will be open all day every day for attendees to view materials by the exhibitors. In this dedicated time slot, a company representative should be present to answer any questions in person.

3:30 PM–5:45 PM

Plenary Session

Microenvironment Control of Brain Tumor Pathogenesis

CHAIR: *Steven Small, MD, PhD, University of Texas at Dallas*

CO-CHAIR: *David Gutmann, MD, PhD, FAAN, FANA, Washington University in St. Louis*

Brain tumors are complex cellular ecosystems composed of both neoplastic and non-neoplastic cell types. While considerable research has focused on the genetics, genomics, and growth control pathways operative in the cancer cells, there has been comparatively less focus on the non-neoplastic cells. This session will focus on recent findings that non-neoplastic cells in the brain, including neurons, microglia, and T cells, regulate brain tumor formation and progression, as well as metastasis to the brain. Moreover, each of these cellular dependencies represent opportunities for targeted therapies against tumors of the central nervous system.

LEARNING OBJECTIVES:

1. **To understand that neurons in the tumor microenvironment are critical drivers of brain tumor formation and growth.**
2. **To understand that immune system cells in the tumor microenvironment are critical drivers of brain tumor formation and growths.**
3. **To understand that immune system cells represent therapeutic vehicles for the treatment of brain tumor.**

3:30 PM–3:35 PM

Introduction

CHAIR: *Steven Small, MD, PhD, University of Texas at Dallas*

3:35 PM–3:55 PM
LEADER IN THE FIELD PRESENTATION

Neuronal Regulation of Brain Tumor Pathobiology

SPEAKER: *Michelle Monje, MD, PhD, Stanford University*

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

★ Recommended for Junior and Early Career attendees.

Plenary Session

continued from page 16

Microenvironment Control of Brain Tumor Pathogenesis

3:55 PM–4:15 PM
LEADER IN THE FIELD PRESENTATION

The Brain Microenvironment and Metastasis

SPEAKER: *Adrienne Boire, MD, PhD, Memorial Sloan Kettering Cancer Center*

4:15 PM–4:35 PM
LEADER IN THE FIELD PRESENTATION

Immune System Cell Regulation of Brain Tumor Pathobiology

SPEAKER: *David Gutmann, MD, PhD, FAAN, FANA, Washington University in St. Louis*

4:35 PM–4:55 PM
LEADER IN THE FIELD PRESENTATION

Self-Organization of the Microenvironment Determines Glioma Pathogenesis

SPEAKER: *Pedro Lowenstein, MD, PhD, University of Michigan*

4:55 PM–5:05 PM
ORAL PRESENTATION

Whole-Brain Resting-State Mapping to Measure the Effect of Gliomas on Brain Function

SPEAKER: *Erica Silvestri, PhD, University of Padova*

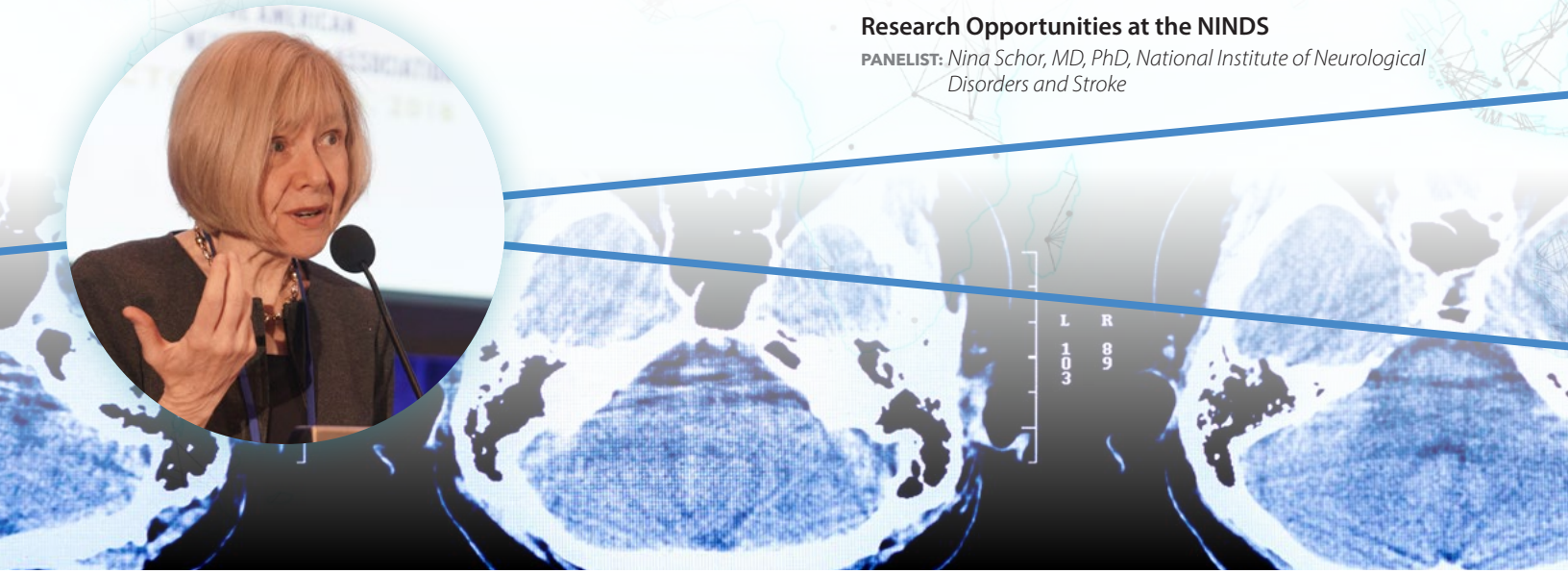
5:05 PM–5:45 PM

Q&A and Discussion

6:00 PM–7:30 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select e-poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.



Tuesday, October 6, 2020

8:00 AM–7:30 PM

Poster Viewing*

Poster presenters will be in attendance from 1:45 PM–2:30 PM and 6:00 PM–7:30 PM to answer questions pertaining to their research.

10:00 AM–11:30 AM

Professional Development Courses

★ **Early (Student, Resident, Trainee, Postdoc Fellow) & Early to Mid-Career Level**

Course 1: View from the NINDS, NIA, NICHD, and VA

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

This is a panel session of the directors from the NINDS, NIA, NICHD and the VA.

LEARNING OBJECTIVES:

1. **To learn about opportunities for neuroscience and neurology research at the NINDS, NIA, NICHD and VA.**
2. **To learn about the infrasturcture of the NIA, NINDS, NICHD and the VA as it pertains neurology and neuroscience research.**
3. **To learn about the trainging and career development opportunities available for acadmic neurologists and neuroscientistsat the NINDS, NIA, NICHD and VA.**

VA Research Support

PANELIST: *Ana-Claire Meyer, MD, MSHS, US Army Medical Research and Development Command*

Research Opportunities at the NICHD

PANELIST: *Ralph Nitkin, PhD, NCMRR/NICHD/National Institutes of Health*

Research Opportunities at the NIA

PANELIST: *Eliezer Masliah, MD, NIH-NIA*

Research Opportunities at the NINDS

PANELIST: *Nina Schor, MD, PhD, National Institute of Neurological Disorders and Stroke*

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

★ Recommended for Junior and Early Career attendees.

10:00 AM–11:30 AM

Professional Development Courses

ANA-AUPN Chair Career Level

Course 1: How to Get More Medical Students to Choose Neurology as a Career

MODERATOR: *John Greenfield, MD, PhD, University of Connecticut School of Medicine*

The national shortage of neurologists is increasing, yet few US medical students select neurology as a career, causing continued reliance on foreign graduates for our residency training programs. About 3.5% of medical students were neuroscience majors, yet less than 20% of them go on to neurology residencies. What can we do to increase the popularity of Neurology as a career?

LEARNING OBJECTIVES:

1. **Discuss the impediments to recruiting medical students to careers in Neurology.**
2. **Describe several strategies for improving medical student involvement in Neurology.**
3. **List resources available to improve medical student interest in Neurology.**

SPEAKER: *Imran Ali, MD, University of Toledo*

SPEAKER: *David Lee Gordon, MD, University of Oklahoma*

SPEAKER: *Doug Gelb, MD, PhD, University of Michigan*

SPEAKER: *Rachel Gottlieb-Smith, MD, University of Michigan*

11:30 AM–12:00 PM

Special Interest Group Networking Session*

Global Neurology

MODERATOR: *Ana-Claire Meyer, MD, MSHS, Yale University School of Medicine*

Join us for our first ever SIG Networking Sessions! Attendees will have the opportunity to discuss hot topics and current research with their peers during these sessions which will be held either before or after the session.

Tuesday, October 6, 2020

12:00 PM–1:15 PM

Interactive Workshops

The Neurology of COVID-19 from Emerging Neurological Infections

CHAIR: *Mark Wainwright, MD, PhD, Seattle Children's Hospital*

CO-CHAIR: *Michael Wilson, MD, MAS, University of California at San Francisco*

COVID-19 disease, caused by SARS-CoV-2 infection is responsible for over 24 million infections and 827,000 deaths worldwide. The neurological complications of COVID-19 are diverse and are caused by multiple mechanisms including direct infection of the central nervous system and virus-induced hypercoaguable and hyperinflammatory states. It is critical that neurologists understand these mechanisms and recognize the neurologic complications affecting the peripheral and central nervous system including stroke, meningitis, encephalitis, endothelialitis, and the Guillain-Barre syndrome and its variants. This session will feature leaders in this field who will focus on the epidemiology, neuroscience, diagnosis and management of this rapidly evolving threat to the nervous system.

LEARNING OBJECTIVES:

1. **To learn the epidemiology, clinical presentation, latest diagnostic techniques and management of the neurological complications of COVID-19.**

Epidemiology of the COVID-19 Pandemic

SPEAKER: *James Sejvar, MD, Centers for Disease Control and Prevention*

Clinical Features and Lessons from Animal Models

SPEAKER: *Kenneth Tyler, MD, University of Colorado*

Approaches to Diagnosis and Developing Therapies

SPEAKER: *Michael Wilson, MD, MAS, University of California at San Francisco*

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

12:00 PM–1:15 PM

Interactive Workshops

Recent Advances in Amyloidosis: A Disease You Can't Afford to Miss

CHAIR: *Neeraj Badjatia, MD, MS, University of Maryland School of Medicine*

Amyloidosis represents a heterogeneous group of disorders that may present with a diverse spectrum of clinical manifestations. In recent years there have been great advances in our understanding of the pathogenesis of this complex condition. This has led to an increase in the ability to provide more directed care, including novel, molecular-based therapeutic approaches. In this session and hear from leading experts as they discuss the latest advances in the pathogenesis, clinical care and features of amyloidosis, ranging from its effects on the cerebrovascular system to peripheral neuropathy. This along with data from ongoing clinical trials will provide the attendee with the most up to date evidence for this complex disorder.

LEARNING OBJECTIVES:

1. **To better understand the clinical features and diagnosis of amyloid neuropathy.**
2. **To learn recent advances on the pathogenesis and clinical care of cerebral amyloid angiopathy.**
3. **To learn about recently approved molecular therapies for TTR-related amyloidosis and ongoing clinical trials.**

Recent Advances in Amyloidosis: A Disease You Can't Afford to Miss

SPEAKER: *P. James Dyck, MD, Mayo Clinic*

Cerebral Amyloid Angiopathy

SPEAKER: *Steven M. Greenberg, MD, PhD, Massachusetts General Hospital*

New and Emerging Therapies for Amyloidosis

SPEAKER: *Sami Khella, MD, University of Pennsylvania*

Tuesday, October 6, 2020

12:00 PM–1:15 PM

Interactive Workshops

★ Twitter and Social Media: A Role for Neurology and Neuroscience Engagement

CHAIR: *Altaf Saadi, MD, MSc, Massachusetts General Hospital, Harvard Medical School*

Social media platforms like Twitter allow physicians and scientists to rapidly communicate and share information with millions of people. This workshop will explore in what capacity using Twitter can help physicians and scientists to improve care by creating a communicative and collaborative atmosphere with patients, physicians, scientists and researchers. Workshop discussants will also share best practices for increasing engagement with followers, such as the use of visual abstracts to disseminate their research findings. However, those who participate in social networking must not only be aware of best practices for social media engagement but also potential professional pitfalls and how to honor the patient-doctor relationship even when using these sites. Ultimately, this workshop will allow neurologists and researchers to determine, and make an informed decision about, how best to engage with Twitter and other social media platforms.

LEARNING OBJECTIVES:

1. **Explore the ways in which Twitter can be used as a tool for research dissemination and professional advancement.**
2. **Understand benefits of, and best practices for, creating a visual abstract as a tool for effective science communication.**
3. **Describe how professional ethical standards can be maintained while actively engaging with social media.**

Effective Use of Twitter for Academic Scientists

SPEAKER: *Monica Javidnia, PhD, University of Rochester Medical Center*

Evolving Visual Abstract: Equity in Imagery and Going Live

SPEAKER: *Chelsea Harris, MD, MS, University of Maryland*

eProfessionalism: Ethical and Responsible Use of Social Media

SPEAKER: *Sarah Mojarad, MS, University of Southern California*

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

★ Recommended for Junior and Early Career attendees.

Tuesday, October 6, 2020

12:00 PM–2:00 PM

Special Interest Group

Global Neurology

CHAIR: *Ana-Claire Meyer, MD, MSHS, Yale University School of Medicine*

CO-CHAIR: *Aaron Berkowitz, MD, PhD, Massachusetts General Hospital, Harvard University*

Global Health is a relatively new focus area within Neurology. This session will focus on how to build and sustain a successful career with a global health focus and, in parallel, support the career development of our global health partners. This session will bring together a diverse group of experienced and emerging leaders in global health and neurology to discuss:

LEARNING OBJECTIVES:

1. **How to build a successful career that includes global health.**
2. **Mentorship needs of students, residents and junior faculty with an interest in neurology and global health in the U.S. and our global health partners.**
3. **Factors influencing promotion and advancement for both U.S. faculty and our global health partners.**

12:00 PM–12:15 PM

LEADER IN THE FIELD PRESENTATION

Clinician Educators in Global Health: Developing Neurological Care and Training in Zambia

SPEAKER: *Deanna Saylor, MD, MHS, Johns Hopkins University School of Medicine*

12:15 PM–12:30 PM

LEADER IN THE FIELD PRESENTATION

Clinician Educators in Global Health: Perspectives from Kenya and the U.S.

SPEAKER: *Judith Kwasa, MBChB, MMed, Fell Clin Neurol (RCP London), University of Nairobi*

12:30 PM–12:40 PM

ORAL PRESENTATION

Global Prevalence of Tuberculosis in the Central Nervous System: A Systematic Review and Meta-Analysis

SPEAKER: *Kevin Pacheco-Barrios, MD, MSc, Universidad San Ignacio de Loyola*

12:40 PM–12:55 PM

LEADER IN THE FIELD PRESENTATION

Building Research Careers in Global Health: Perspectives from Ghana and the U.S.

SPEAKER: *Fred Stephen Sarfo, MD, PhD, Kwame Nkrumah University of Science and Technology*

12:55 PM–1:10 PM

LEADER IN THE FIELD PRESENTATION

Building Research Careers in Global Health: Perspectives from Ghana and the U.S.

SPEAKER: *Bruce Ovbiagele, MD, MSc, MAS, MBA, University of California, San Francisco*

1:10 PM–1:20 PM

ORAL PRESENTATION

Characterization of HIV-Associated Neurocognitive Impairment in Older Persons with HIV in Lima, Peru

SPEAKER: *Monica Diaz, MD, University of California, San Diego*

1:20 PM–1:35 PM

LEADER IN THE FIELD PRESENTATION

Global Health at Home: Asylum-Seekers and Refugees in the U.S.: A Humanitarian Crisis

SPEAKER: *Altaf Saadi, MD, MSc, Massachusetts General Hospital, Harvard Medical School*

1:35 PM–1:45 PM

ORAL PRESENTATION

"Doctor Myself": Barriers to Effective Diagnosis and Treatment of Zambians with Meningitis

SPEAKER: *Melissa Elafros, MD, PhD, University of Michigan*

1:45 PM–2:00 PM

LEADER IN THE FIELD PRESENTATION

Global Health at Home: Underserved Populations in the U.S.

SPEAKER: *Karen Parko, MD, University of San Francisco*

1:45 PM–2:30 PM

Poster Presentations*

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★ Recommended for Junior and Early Career attendees.

3:00 PM–5:00 PM

Special Interest Groups

ANA-AHS Headache*

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

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

The Headache special interest group session, co-hosted by the American Neurological Association and the American Headache Society, will provide the latest information on migraine pathophysiology, newly available migraine therapies, and future migraine treatment targets.

LEARNING OBJECTIVES:

1. **Attendees will be better able to discuss pathophysiology of migraine.**
2. **Attendees will be better able to discuss currently available migraine treatments.**
3. **Attendees will be better able to discuss emerging migraine therapeutic targets.**

3:00 PM–3:05 PM

Introduction

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

3:05 PM–3:25 PM

LEADER IN THE FIELD PRESENTATION

Migraine Pathophysiology: Focus on Neurovascular Activity and the Sleep-Wake State

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

Tuesday, October 6, 2020

3:25 PM–3:35 PM

ORAL PRESENTATION

#Headache: When a Common Problem Becomes a Neurological Emergency in Acute Stroke Patients

SPEAKER: *Patricia Olson, MD, PhD, University of Kentucky College of Medicine*

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Migraine Treatment: An Update

SPEAKER: *Jessica Ailani, MD, FAHS, FAAN, Medstar Georgetown University Hospital*

3:55 PM–4:05 PM

ORAL PRESENTATION

Self-Reported Ace Exposure in Adolescents Increases Odds of Frequent Headache: A Cross-Sectional Analysis

SPEAKER: *Marissa Anto, MD, MSc, The Children's Hospital of Philadelphia*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

New Migraine Therapeutic Targets: The Potential of ASICs and TRP Channels

SPEAKER: *Greg Dussor, PhD, University of Texas at Dallas*

4:25 PM–4:35 PM

ORAL PRESENTATION

Depression and Migraine–A Double Whammy on Patient-Reported Health

SPEAKER: *Lynda Krasenbaum, MSN, ANP-BC, Teva Pharmaceuticals*

4:35 PM–5:00 PM

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

3:00 PM–5:00 PM

Special Interest Groups

Behavioral Neurology

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

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

Selective neuronal vulnerability is a defining feature of neurodegenerative illness, but why these diseases target specific neuron types within specific brain regions remains uncertain. For some neurodegenerative syndromes, even the initial neuronal targets themselves have yet to be identified. In this SIG, we will explore the neuron types targeted early in several major neurodegenerative disorders and will discuss how this information is guiding the search for disease mechanisms.

LEARNING OBJECTIVES:

1. **Understand the distinction between neurodegenerative disease and syndrome and the relationship of each concept to the underlying neuroanatomical structures involved.**
2. **Understand the characteristics of neuron types targeted in some of the major neurodegenerative syndromes.**
3. **Appreciate the distinction between selective vulnerability to disease onset and anatomically driven disease spread.**

3:00 PM–3:05 PM

Introduction

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

3:05 PM–3:25 PM

LEADER IN THE FIELD PRESENTATION

The Upper Motor Neurons with TDP-43 Pathology Display Distinct Cellular Defects

SPEAKER: *Hande Ozdinler, PhD, Northwestern University*

3:25 PM–3:35 PM

ORAL PRESENTATION

Lesion Network Mapping of Mania Symptoms Caused by Focal Brain Lesions

SPEAKER: *Daniel Talmasov, MD, New York University*

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Early Involvement of Amygdala in Limbic-Predominant Age-related TDP-43 Encephalopathy (LATE)

SPEAKER: *Matthew Cykowski, MD, Houston Methodist Hospital*

3:55 PM–4:05 PM

ORAL PRESENTATION

Eye Movements Abnormalities as Early Biomarker of Alzheimer's Disease: An Ecological Approach

SPEAKER: *Andrea Zangrossi, PhD, University of Padova*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

Selective Vulnerability in Frontotemporal Dementia

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

Tuesday, October 6, 2020

4:25 PM–4:35 PM

ORAL PRESENTATION

Autopsy Correlations of Flortaucipir and Pittsburgh Compound B Pet in Frontotemporal Lobar Degeneration

SPEAKER: *Alma Ghirelli, MD, Mayo Clinic*

4:35 PM–5:00 PM

Q&A and Discussion

3:00 PM–5:00 PM

Special Interest Groups

Clinical Logic

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

CO-CHAIR: *Steven Galetta, MD, New York University*

This case based SIG will emphasize general neurology, systemic disease with neurologic involvement. and neuro-ophthalmology. 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.

LEARNING OBJECTIVES:

1. **Discuss challenging cases in neurology both in terms of diagnosis and management.**
2. **Learn new concepts about uncommon neurologic illness.**
3. **Discuss advanced testing for complex neurologic cases.**

3:05 PM–3:25 PM

Introduction

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

3:25 PM–3:45 PM

Case Study

SPEAKER: *S. Andrew Josephson, MD, University of California, San Francisco*

3:45 PM–4:05 PM

Case Study

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

4:05 PM–4:25 PM

Case Study

SPEAKER: *Martin A. Samuels, MD, Brigham and Women's Hospital, Harvard University*

4:25 PM–4:45 PM

Case Study

SPEAKER: *Megan Richie, MD, University of California, San Francisco*

4:45 PM–5:00 PM

Case Study

SPEAKER: *Steven Galetta, MD, New York University*

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

★ Recommended for Junior and Early Career attendees.

3:00 PM–5:00 PM

Special Interest Groups

Epilepsy

CHAIR: *Kathryn Davis, MD, MS, FAES, University of Pennsylvania*

CO-CHAIR: *Chloe Hill, MD, MS, University of Michigan*

Speakers will discuss the utilization of status epilepticus guidelines in theory and related practice limitations, utility of continuous EEG in the treatment of convulsive status epilepticus. Diagnosis and treatment of nonconvulsive status epilepticus including intracranial EEG monitoring in the ICU will be discussed. Finally, the use of big data and machine learning in continuous EEG and status epilepticus research.

LEARNING OBJECTIVES:

1. **Understand utilization of status epilepticus guidelines in theory and related practice limitations.**
2. **Review diagnosis and treat nonconvulsive status epilepticus including research on intracranial EEG monitoring in the ICU setting.**

3:00 PM–3:05 PM

Introduction

CHAIR: *Kathryn Davis, MD, MS, FAES, University of Pennsylvania*

3:05 PM–3:35 PM

LEADER IN THE FIELD PRESENTATION

Nonconvulsive Status Epilepticus: Evaluation and Treatment

SPEAKER: *Lawrence Hirsch, MD, Yale University*

3:35 PM–4:05 PM

LEADER IN THE FIELD PRESENTATION

Utilization of Status Guidelines and Continuous Video EEG Monitoring in the ICU

SPEAKER: *Chloe Hill, MD, MS, University of Michigan*

4:05 PM–4:35 PM

LEADER IN THE FIELD PRESENTATION

AI and Big Data for Critical Care EEG

SPEAKER: *Brandon Westover, MD, PhD, Massachusetts General Hospital, Harvard Medical School*

4:35 PM–5:00 PM

Q&A and Discussion

Tuesday, October 6, 2020

3:00 PM–5:00 PM

Special Interest Groups

Neuromuscular Disease

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

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

Neuromuscular diseases are disabling disorders that can manifest with a spectrum of clinical features and severity at any time, from prenatal life to advanced adulthood. Immune-mediated, genetic and toxic factors are the most common culprits. The understanding of pathomechanisms underlying each disease plays a crucial role in providing proper patient care and developing novel therapeutic strategies. This session will cover the most recent developments in the field of neuromuscular disorders with special focus on muscle disorders and defects of neuromuscular transmission.

LEARNING OBJECTIVES:

1. **To learn about available biomarkers of autoimmune neuromuscular diseases and related clinical and scientific value and specificity.**
2. **To learn the spectrum of immune checkpoint inhibitors related neuromuscular manifestations.**
3. **To convey the latest cutting edge advancement on the understanding of congenital myopathies.**

3:00 PM–3:05 PM

Introduction

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

3:05 PM–3:35 PM

LEADER IN THE FIELD PRESENTATION

Neuromuscular Immune Related Adverse Events of Immune Checkpoint Inhibitor Therapies: Towards Risk Mitigation and Targeted Therapies

SPEAKER: *Amanda Guidon, MD, Massachusetts General Hospital, Harvard Medical School*

3:35 PM–3:45 PM

ORAL PRESENTATION

Limb Girdle Muscular Dystrophy D1

SPEAKER: *Andrew Findlay, MD, Washington University in St. Louis*

3:45 PM–4:05 PM

LEADER IN THE FIELD PRESENTATION

Congenital Myopathies: New Advances in Therapy Development

SPEAKER: *James Dowling, MD, PhD, Hospital for Sick Children*

4:05 PM–4:15 PM

ORAL PRESENTATION

Characterizing the Histological and Behavioral Phenotypes of a Humanized Knock-In Mouse Modeling a Deep Intronic Mutation in Collagen VI-Related Dystrophy

SPEAKER: *Fady Guirguis, BS, National Institute of Neurological Disorders and Stroke*

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

★ Recommended for Junior and Early Career attendees.

Special Interest Groups *continued from page 23*

Neuromuscular Disease

4:15 PM–4:35 PM
LEADER IN THE FIELD PRESENTATION

Immunologic Biomarkers in Autoimmune Neuromuscular Disease

SPEAKER: *Jeffrey Guptill, MD, MA, MHS, Duke University*

4:35 PM–4:45 PM
ORAL PRESENTATION

Machine Learning Optimized Dynamic Meta-Analysis to Assess and Predict the Multifactorial Nature of Amyotrophic Lateral Sclerosis

SPEAKER: *Eleanor Ridgeway, Undergraduate Research Assistant, Georgia Institute of Technology*

4:45 PM–5:00 PM

Q&A and Discussion

5:00 PM–6:00 PM

Special Interest Group Networking Sessions*

Join us for our first ever SIG Networking Sessions! Attendees will have the opportunity to discuss hot topics and current research with their peers during these sessions which will be held either before or after the session.

ANA-AHS Headache
MODERATOR: *Jessica Ailani, MD, FAHS, FAAN, Medstar Georgetown University Hospital*

Behavioral Neurology
MODERATOR: *William Seeley, MD, University of California, San Francisco*

Clinical Logic
MODERATOR: *Raymond Price, MD, University of Pennsylvania*

Epilepsy
MODERATOR: *Kathryn Adamiak Davis, MD, MSTR, University of Pennsylvania*

Neuromuscular Disease
MODERATOR: *Ricardo Roda, MD, PhD, Johns Hopkins University*

5:00 PM–6:00 PM

Dedicated Exhibit Hall Hours*

The virtual exhibit hall will be open all day every day for attendees to view materials by the exhibitors. In this dedicated time slot, a company representative should be present to answer any questions in person.

6:00 PM–7:30 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select e-poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.

Wednesday, October 7, 2020

8:00 AM–7:30 PM

Poster Viewing*

Posters will be available for viewing throughout the entire meeting.

10:00 AM–11:30 AM

Professional Development Courses

★ **Early (Student, Resident, Trainee, Postdoc Fellow) Career Level**

Course 2: Skills Development for Success in Research

CHAIR: *Lauren Sansing, MD, MS, Yale University*

Preparing for a successful academic career is an exciting endeavor, and it's never too early to start thinking about developing skills to succeed. In this session, academic leaders will discuss a few key topics for burgeoning researchers and other academic paths—including how to get the most out of your mentoring relationships, how to make your manuscript stand out from the pack, and if, how and when to seek advanced training. There will then be an interactive panel discussion with questions from the audience.

LEARNING OBJECTIVES:

1. **To learn from experienced mentors how to get the most out of a mentoring relationship.**
2. **To understand key points that make effective manuscripts stand out.**
3. **To learn about opportunities for additional training and when and how they may help advance your career.**

Introduction
CHAIR: *Lauren Sansing, MD, MS, Yale University*

Being a Good Mentee
SPEAKER: *Rebecca Gottesman, MD, PhD, Johns Hopkins University*

Writing Effective Manuscripts
SPEAKER: *John A. Kessler, MD, Northwestern University*

Obtaining Advanced Training
SPEAKER: *Allison Willis, MD, MS, University of Pennsylvania*

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

★ Recommended for Junior and Early Career attendees.

10:00 AM–11:30 AM

Professional Development Courses

★ **Early to Mid Career Level**

Course 2: Essential Skills for Academic Productivity in the First 5-10 Years

CHAIR: *Mary Alissa Willis, MD, FAAN, FANA, University of Mississippi*

CO-CHAIR: *Caitlin Loomis, MD, Yale University*

The first 5-10 years of an academic neurology career are important in shaping a career path. How do you get from here to where you want to be? In this session, academic neurologists at different career stages will provide perspectives on balancing academic and clinical work as well as advice for navigating collaborations and conflict. Brief talks will be followed by a panel discussion.

LEARNING OBJECTIVES:

1. **Discuss the importance of time management when considering opportunities and when 'no' is ok and may be better than a "yes."**
2. **Describe a strategy for documenting and quantifying contributions as a medical educator.**
3. **Review rationale and tools for building successful collaborations and managing conflict.**

Introduction

CHAIR: *Mary Alissa Willis, MD, FAAN, FANA, University of Mississippi*

Time Management--Saying No

SPEAKER: *Daniel Ontaneda, MD, PhD, Cleveland Clinic*

Quantifying Work in Medical Education

SPEAKER: *Jeremy Moeller, MD, FRCPC, Yale Department of Neurology*

Building Collaborations and Managing Conflict

SPEAKER: *Amy Guzik, MD, Wake Forest School of Medicine*

Q&A and Discussion

10:00 AM–11:30 AM

Professional Development Courses

ANA-AUPN Chair Career Level

Course 2: How to Foster Development of Junior Faculty

MODERATOR: *Kerry Levin, MD, Cleveland Clinic Foundation*

Developing the careers of junior faculty is an important responsibility for chairs, which has become more challenging in recent years. For research-focused faculty, the major issue may be protecting research time before they obtain grant funding, while for clinically intensive faculty, there may be little opportunity for academic accomplishment and promotion. Education-focused faculty may find it difficult to support their education effort. Additional concerns may be non-traditional and part-time roles, adjunct faculty, career interruptions while raising families, and perceived differences in career goals among millennials. This session will explore strategies for promoting successful careers for the next generation of junior faculty.

LEARNING OBJECTIVES

1. **Discuss resources needed for faculty development in research, education, and clinical career paths.**
2. **Discuss role of mentorship in faculty development.**
3. **Discuss setting of expectations for early career work and advancement.**

SPEAKER: *Dave B. Watson, MD, FAAN, FAHS, West Virginia University–Robert C. Byrd Health*

SPEAKER: *Barbara Vickrey, MD, MPH, Icahn School of Medicine at Mount Sinai*

11:30 AM–12:30 PM

Dedicated Exhibit Hall Hours*

The virtual exhibit hall will be open all day every day for attendees to view materials by the exhibitors. In this dedicated time slot, a company representative should be present to answer any questions in person.

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

★ Recommended for Junior and Early Career attendees.

12:30 PM–1:45 PM

Interactive Workshops

Biomarker in Clinical Studies

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

One of key reasons for the failed clinical trials is often due to inadequate biomarkers used for outcome measurements. There have been increasing NIH-funding mechanisms toward disease biomarker studies. This session will group a team of experts who are experienced in this area and share their insights in the establishment of biomarkers in clinical studies.

LEARNING OBJECTIVES:

1. **To reiterate the definition of biomarker and outcome measurements in clinical studies.**
2. **To discuss how to identify and validate biomarkers.**
3. **To discuss specific success or failure examples in biomarker studies.**

Introduction

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

Informative Predictive and Prognostic Biomarkers for Neuromuscular Clinical Trials

SPEAKER: *Richard S. Finkel, MD, St. Jude Children's Research Hospital*

Biomarkers in ALS Trials

SPEAKER: *James D. Berry, MD, MPH, Massachusetts General Hospital*

Statistical Issues in Biomarker Research

SPEAKER: *Scott R. Millis, PhD, ABPP, CStat, PStat®, Wayne State University School of Medicine*

Q&A and Discussion

Wednesday, October 7, 2020

12:30 PM–1:45 PM

Interactive Workshops

Teleneurology in Academic Practice - Current State and Future Directions

CHAIR: *May Kim-Tenser, MD, University of Southern California/Keck School of Medicine*

CO-CHAIR: *Chadwick Hales, MD, PhD, Emory University*

The session will be interactive case based discussion of the current state of teleneurology in an academic setting. The session will lay out the foundation of how to set up teleneurology practice in a academic setting, pros-cons of setting up teleneurology, and provide an evidence based overview of how telenurology can be used in the current setting for different neurological sub-specialties. The session will be filled with case studies from authors practice including a overview of tele multiple sclerosis practice in a large academic setting.

LEARNING OBJECTIVES:

1. **To identify the gaps and opportunities in the practice of teleneurology in an academic setting.**
2. **To recognize appropriateness and feasibility of teleneurology for different sub specialties of neurology.**
3. **To apply the pearls and pitfalls teleneurology practice in their home academic setting.**

Introduction

CHAIR: *May Kim-Tenser, MD, University of Southern California/Keck School of Medicine*

Teleneurology in Academics: The Nuts and Bolts

SPEAKER: *Sebina Bulic, MD, University of Southern California*

Incorporation of Telestroke in the Residency Learning Environment

SPEAKER: *Shlee S. Song, MD, Cedars-Sinai Medical Center*

Future of Teleneurology in Academics

SPEAKER: *May Kim-Tenser, MD, University of Southern California/Keck School of Medicine*

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

12:30 PM–1:45 PM

Interactive Workshops

The Gene Therapy Toolbox: AAV

CHAIR: *Brent Fogel, MD, University of California, Los Angeles*

CO-CHAIR: *Melissa Spencer, PhD, University of California, Los Angeles*

Following the approval of the first gene therapy for a neurological disease, a growing number of clinical trials predicts additional approvals in the next decade, most using AAV as a vehicle. Neurologists should familiarize with the status of the field for these "one and done" therapies.

LEARNING OBJECTIVES:

1. **To understand the biology of AAV, repertoire of capsids, species specificity and immune responses.**
2. **To learn the different AAV-driven therapeutic strategies available.**
3. **To identify currently approved and emerging AAV-based therapies for neurological diseases.**

Introduction

CHAIR: *Brent Fogel, MD, University of California, Los Angeles*

Therapeutic Approaches using AAV: Gene Transfer, Silencing and Editing

SPEAKER: *Casey Maguire, PhD, Harvard Medical School*

Lessons from Completed Ongoing AAV Gene Therapy Studies in Parkinson's Disease

SPEAKER: *Haiyan Fu, PhD, University of North Carolina*

Introduction to AAV as a Delivery Vehicle for Gene Therapy in Neurology

SPEAKER: *Chad Christine, MD, University of California, San Francisco*

Q&A and Discussion

12:30 PM–1:45 PM

Additional Workshop

American Board of Psychiatry and Neurology (ABPN) Maintenance of Certification (MOC) Program: Lifelong Learning for Neurologists

Dr. John Bodensteiner, ABPN Child Neurology Director, will lead the session by providing background on the ABMS MOC program, recent changes to the MOC program, and perspective on the future of MOC. Dr. Bodensteiner, will detail the four-part ABPN MOC Program, giving specific requirements related to self-assessment, CME, and performance in practice components.

LEARNING OBJECTIVES:

1. **To become familiar with the rationale and background of MOC.**
2. **To learn the 4-part ABPN MOC Program components.**
3. **To become familiar with the online ABPN personalized physician Folios system.**
4. **To learn about the future direction for the ABPN MOC Program.**

MOC/CC and Article Based Learning

SPEAKER: *John Bodensteiner, MD, American Board of Psychiatry and Neurology (ABPN)*

Wednesday, October 7, 2020

2:00 PM–3:00 PM

Emerging Scholar Lecture Series

★ Emerging Scholar Lecture Series 3 *NEW!*

MODERATOR: *Jee Bang, MD, Johns Hopkins University School of Medicine*

New in 2020, the Emerging Scholar Lecture series is designed exclusively for junior and early career annual meeting attendees. These sessions provide the opportunity for junior and early career members to present in front of a full virtual audience amongst their peer group. Attend a session to learn what cutting edge research the future leaders of the ANA have to share!

2:00 PM–2:05 PM

Introduction

MODERATOR: *Jee Bang, MD, Johns Hopkins University School of Medicine*

2:05 PM–2:15 PM

ORAL PRESENTATION

APOE Genotype Regulates Pathology and Disease Progression in Synucleinopathy

SPEAKER: *Albert (Gus) Davis, MD, PhD, Washington University in St. Louis*

2:15 PM–2:25 PM

ORAL PRESENTATION

Critical Glial Role For Parkinson's Disease Risk Genes In Controlling Alpha-Synuclein Toxicity

SPEAKER: *Abby Olsen, MD, PhD, Brigham and Women's Hospital, Harvard Medical School*

2:25 PM–2:35 PM

ORAL PRESENTATION

Disparities in Access to Care and Research Participation in Advanced Parkinson's Disease: Differences Between a Home Visit Study and Outpatient Clinic Population

SPEAKER: *Jori Fleisher, MD, MSCE, Rush University Medical Center*

2:35 PM–2:45 PM

ORAL PRESENTATION

Cognitive Impairment and Risk Factors of LATE, a Novel Degenerative Pathology

SPEAKER: *S. Ahmad Sajjadi, MD, PhD, University of California, Irvine*

2:45 PM–3:00 PM

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

3:30 PM–5:30 PM

Special Interest Groups

Multiple Sclerosis*

CHAIR: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University*

CO-CHAIR: *Ellen Mowry, MD, MCR, Johns Hopkins University*

With a growing number of FDA-approved therapies that reduce multiple sclerosis (MS) inflammatory activity, much active research in the field is focused on identifying means of promoting remyelination, neuroprotection, and neurorepair. This SIG will focus on animal data surrounding remyelination, outcome measures that may be useful for human trials of neuroprotection/repair agents, and provide an update on a promising candidate therapy for remyelination.

LEARNING OBJECTIVES:

1. **To describe remyelination in animal models of MS.**
2. **To describe imaging outcome measures for trials of remyelination, neuroprotection, or neurorepair in MS.**
3. **To describe a candidate remyelination therapy in MS.**

3:30 PM–3:35 PM

Introduction

CHAIR: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University*

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Remyelination Alters the Pattern of Myelin in the Cerebral Cortex

SPEAKER: *Jennifer Orthmann-Murphy, MD, PhD, University of Pennsylvania*

3:55 PM–4:05 PM

ORAL PRESENTATION

Vascular Comorbidity is Associated with Lower Brain Volumes in a Large Multiple Sclerosis Cohort

SPEAKER: *Kathryn Fitzgerald, ScD, Johns Hopkins School of Medicine*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

Neuroimaging Outcomes for Neuroprotection in MS: A Focus on the Retina

SPEAKER: *Shiv Saidha, MBBCh, MD, MRCPI, Johns Hopkins University*

4:25 PM–4:35 PM

ORAL PRESENTATION

Brain Functional Connectivity is Related to Leptomeningeal Enhancement in Relapsing-Remitting Multiple Sclerosis: A 7-T MRI Study

SPEAKER: *Shun Yao, MD, PhD, Brigham and Women's Hospital, Harvard Medical School*

4:35 PM–4:55 PM

LEADER IN THE FIELD PRESENTATION

CNM-Au8: Nanocatalytic Therapy for the Treatment of Chronic Optic Neuropathy

SPEAKER: *Robert Glanzman, MD, FAAN, Clene Nanomedcine Inc.*

Wednesday, October 7, 2020

4:55 PM–5:05 PM

ORAL PRESENTATION

Progressive Multifocal Leukoencephalopathy Brain and Lesion Segmentation from MRI: Lessons Learnt from Deep Learning

SPEAKER: *Omar Al-Louzi, MD, National Institute of Neurological Disorders and Stroke*

5:05 PM–5:30 PM

Q&A and Discussion

3:30 PM–5:30 PM

Special Interest Groups

Neurocritical Care

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

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

The COVID-19 pandemic has brought unprecedented challenges. During this pandemic, the roles and responsibilities of many neurointensivists have drastically changed. Neurointensivists have been frontline providers in evolving clinical roles, key stakeholders in surge planning efforts, decision-makers in resource allocation, medical ethicists in policy development, and patient advocates. In this section, we will hear from a panel of neurointensivists about their personal experience during the COVID-19 pandemic.

LEARNING OBJECTIVES:

1. **To describe the neurological manifestations of COVID-19 in the intensive care unit.**
2. **To discuss the clinical management of critically ill COVID-19 patients.**
3. **To explore the challenges of resource allocation and hospital surge planning during a pandemic.**
4. **To hear the impact on the Neurointensive care units including care of other non-COVID patients.**
5. **To share the unique ethical issues involved in resource allocation and prognostication.**

3:30 PM–3:35 PM

Introduction

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

3:35 PM–3:55 PM

ORAL PRESENTATION

Multi-Objective Control of Learnt Covid-19 Model

SPEAKER: *Abhishek Dutta, PhD, University of Connecticut*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

Neurocritical Care in the Era of COVID-19

SPEAKER: *Hooman Kamel, MD, Weill Cornell Medical College*

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

★ Recommended for Junior and Early Career attendees.

Special Interest Groups *continued from page 28*

Neurocritical Care

4:25 PM–4:45 PM

LEADER IN THE FIELD PRESENTATION

#COVID19: Extraordinary Times Call for Extraordinary Measures #InThisTogether

SPEAKER: *Neha Dangayach, MD, MSCR, Icahn School of Medicine at Mount Sinai and Mount Sinai Health System*

4:45 PM–5:05 PM

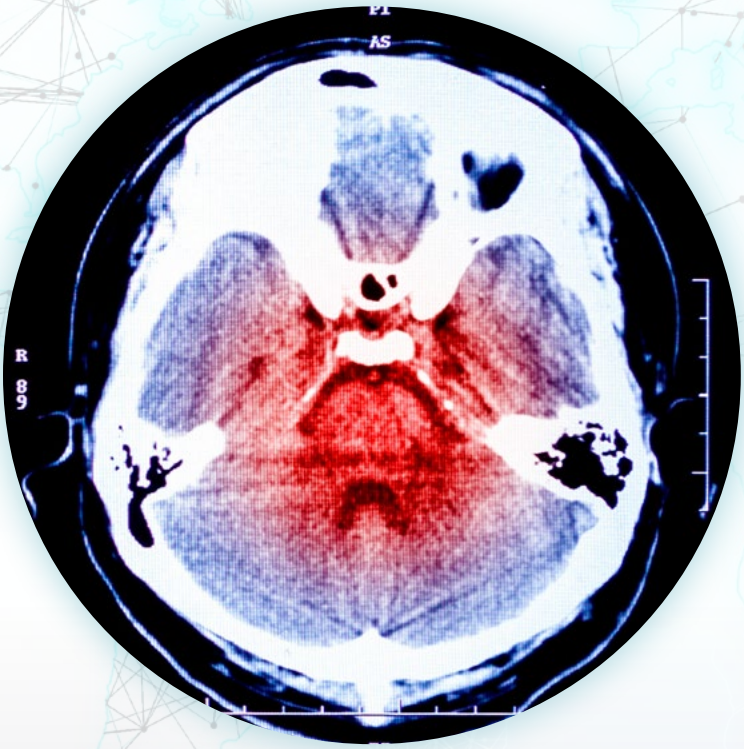
LEADER IN THE FIELD PRESENTATION

Global Collaboration on Neurological Impacts of COVID-19

SPEAKER: *Sherry Chou, MD, MSc, FNCS, FCCM, University of Pittsburgh School of Medicine*

5:05 PM–5:30 PM

Q&A and Discussion



3:30 PM–5:30 PM

Special Interest Groups

Traumatic Brain Injury (TBI)

CHAIR: *Jennifer Frontera, MD, New York University*

CO-CHAIR: *Jan Claassen, MD, Columbia University*

Traumatic brain injury (TBI) affects 1-2 million people in US each year, causing lifelong functional deficits in cognition and behavior. Profound brain injury can compromise arousal and consciousness. New imaging and EEG modalities suggest that consciousness may be preserved to varying degrees even in patients who are unable to interact with their environment and consciousness may, in fact be plastic. This section will cover topics in clinical, neurophysiological, and neuroimaging perspectives to detect consciousness and explore new therapeutic techniques to unlock the mind of the covertly aware.

LEARNING OBJECTIVES:

1. **To better understand the pathophysiology of cognitive motor dissociation (minimally conscious state) after brain injury.**
2. **To understand the potential neural networks and neurotransmitters underpinning consciousness.**
3. **To update neurophysiological and neuroimaging assessment of consciousness.**
4. **To gain insights into novel therapeutic approaches for stimulating consciousness.**
5. **To identify possible therapeutic targets for minimally conscious or unresponsive wakefulness patients.**
6. **To describe ethical and legal issues arisen around the care of patients who may be covertly aware and/or have cognitive motor dissociation.**

3:30 PM–3:35 PM

Introduction

CHAIR: *Jennifer Frontera, MD, New York University*

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Tapping the Brain of the Comatose with EEG: Impairment and Recovery of Consciousness in the Critical Care Setting

SPEAKER: *Jan Claassen, MD, Columbia University*

3:55 PM–4:05 PM

ORAL PRESENTATION

Investigating the Role of the Claustrum in Consciousness Recovery Following Severe Brain Injury

SPEAKER: *Adeeb Narangoli, Medical Student, Weill Cornell Medicine–Qatar*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

Imaging Consciousness: fMRI, Connectomics and the Ascending Arousal Network

SPEAKER: *Brian Edlow, MD, Massachusetts General Hospital*

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

★ Recommended for Junior and Early Career attendees.

Special Interest Groups *continued from page 29*

Traumatic Brain Injury (TBI)

4:25 PM–4:35 PM
ORAL PRESENTATION

Lack of Efficacy of Stem Cells in the Treatment of Chemosensory Dysfunction

SPEAKER: *Ibrahim Farah, Medical Student, Windsor University School of Medicine*

4:35 PM–4:55 PM
ORAL PRESENTATION

Restoration of Neuronal Function After Coma

SPEAKER: *Nicolas Schiff, MD, Weill Cornell Medical Center*

4:55 PM–5:05 PM
ORAL PRESENTATION

Paroxysmal Sympathetic Hyperactivity Syndrome in Severe Traumatic Brain Injury: Patient Characteristics, Utilization of Sedation, Analgesia and Anesthetic Intravenous Infusion Medications and Patient Outcome

SPEAKER: *Christa O'Hana Nobleza, MD, MSCI, University of Mississippi Medical Center*

5:05 PM–5:30 PM

Q&A and Discussion

5:30 PM–6:00 PM

Special Interest Group Networking Sessions*

Join us for our first ever SIG Networking Sessions! Attendees will have the opportunity to discuss hot topics and current research with their peers during these sessions which will be held either before or after the session.

Multiple Sclerosis

MODERATOR: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University School of Medicine*

Neurocritical Care

MODERATOR: *Nerissa Ko, MD, MAS, University of California, San Francisco*

Traumatic Brain Injury (TBI)

MODERATOR: *Jennifer Frontera, MD, New York University*

6:00 PM–7:30 PM

★ ANA-AUPN Career Fair*

The ANA-AUPN Career Fair is an opportunity for residents, post-doc fellows and graduate students to virtually interact with academic neurology departments to discuss career opportunities. In its third year, the ANA-AUPN Career Fair will take place during its own dedicated hours at ANA2020. Neurology residents, postdoc fellows and graduate students can present their CVs and have brief discussions with institutions, pharma companies and recruitment companies regarding open positions. Last year, Career Fair attendees met with department chairs from 28 prominent universities.

6:00 PM–7:30 PM

Dedicated Exhibit Hall Hours*

The virtual exhibit hall will be open all day for attendees to view materials by the exhibitors. However, in this dedicated time slot, company representatives will be present to answer any questions. Please be sure to visit their virtual booths!

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

★ Recommended for Junior and Early Career attendees.

Thursday, October 8, 2020

8:00 AM–7:30 PM

Poster Viewing*

Poster presenters will be in attendance from 6:00 PM–7:30 PM to answer questions pertaining to their research.

10:00 AM–11:30 AM

Professional Development Courses

★ **Early (Student, Resident, Trainee, Postdoc Fellow) Career Level**

Course 3: Landing Your Fellowship or First Faculty Position

CHAIR: *Tracey A. Cho, MD, University of Iowa Carver College of Medicine*

CO-CHAIR: *Charles Flippen, MD, David Geffen School of Medicine at UCLA*

Successfully navigating the search for a fellowship or faculty position is a critical step in launching and advancing your career. In this session, three academic leaders will share their advice from beginning the search to finding the best fit and negotiating your first position. Their talks will be followed by an interactive panel discussion with questions from the audience.

LEARNING OBJECTIVES:

1. **Identify fellowship and faculty opportunities and how well they fit with career goals.**
2. **Explain a strategy to present a career vision and the needs that accompany it.**
3. **Discuss the process and pitfalls of negotiating a first position and arriving at a contract.**

Introduction

CHAIR: *Tracey A. Cho, MD, University of Iowa Carver College of Medicine*

Finding Good Fits in Fellowship & Faculty Positions

SPEAKER: *Charles Flippen, MD, David Geffen School of Medicine at UCLA*

Negotiation and Contracts

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

Q&A and Discussion

10:00 AM–11:30 AM

Professional Development Courses

★ **Early to Mid-Career Level**

Course 3: Critical Decisions in Your Academic Neurology Career

CHAIR: *Jonathan Rosand, MD, MSc, Massachusetts General Hospital*

CO-CHAIR: *Michael R. Dobbs, MD, MHCM, UT Health RGV*

This session is meant to provide attendees with information from experienced and successful academic neurologists who have navigated an academic career. The speakers will be provided with an outline of critical choices to discuss such as: choice of training programs, subspecialty, level/type of scholarship, where to work, when to move, and when to move on (from a path that isn't working). They will also discuss pitfalls that they have experienced themselves or seen with others (maintaining confidentiality of course).

LEARNING OBJECTIVES:

1. **Develop a personal plan for making critical career decisions in one's own academic neurology career.**
2. **Apply lessons learned in this session to adviser/mentor relationships in one's career.**

Introduction

CHAIR: *Jonathan Rosand, MD, MSc, Massachusetts General Hospital*

Navigating Early Career Decisions

SPEAKER: *Tritia Yamasaki, MD, PhD, University of Kentucky*

Where to Work and When to Move

SPEAKER: *Avindra Nath, MD, National Institute of Neurological Disorders and Stroke*

Scholarship Decisions

SPEAKER: *Dawn Kleindorfer, MD, University of Michigan*

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

Thursday, October 8, 2020

10:00 AM–11:30 AM

Professional Development Courses

ANA-AUPN Chair Career Level

Course 3: Managing Up and Down: Getting What You Need from Your Faculty and Your Dean

MODERATOR: *John Greenfield, MD, PhD, University of Connecticut School of Medicine*

Leadership involves getting people to do what you want them to do, not necessarily what they want to do, in service of a greater goal. This session will explore strategies for leading both the faculty who report to you, and those in higher positions at your institution, to achieve your goals for your department.

LEARNING OBJECTIVES:

1. **Explain the relationships among leaders of an academic medical center.**
2. **Identify characteristics that aid leadership up and down.**
3. **Describe evolution of changes in academic neurology.**

SPEAKER: *Steven T. DeKosky, MD, FACP, FANA, FAAN, McKnight Brain Institute*

11:30 AM–12:30 PM

Additional Workshop*

★ **Meet the Chairs**

MODERATOR: *Clifton L. Gooch, MD, University of South Florida*

Prominent chairs of neurology will discuss how they handle their position, including what's involved with being a chair; what the process is for attaining their position, and how to interact with chairs.

SPEAKER: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University School of Medicine*

SPEAKER: *Clifton L. Gooch, MD, University of South Florida*

SPEAKER: *John Greenfield, MD, PhD, University of Connecticut School of Medicine*

SPEAKER: *Frances E. Jensen, MD, University of Pennsylvania*

11:45 AM–12:15 PM

Dedicated Exhibit Hall Hours*

The virtual exhibit hall will be open all day every day for attendees to view materials by the exhibitors. In this dedicated time slot, a company representative should be present to answer any questions in person.

12:30 PM–1:45 PM

Interactive Workshop

What Type of Evidence Should Drive Clinical Decision-Making?

CHAIR: *Beau Ances, MD, PhD, MSc, Washington University in St. Louis*

Clinical decisions need to be fueled by solid data. Until recently, this was translated to mean that well conducted randomized controlled trials (RCTs) or meta-analyses that derive from them should be the primary source of data for all "evidence based" guidelines. However, recently there is more discussion regarding the biases that can be introduced by RCT's with excellent methodology but limited generalizability. This symposium will use examples derived from several neurologic conditions to address the contribution of RCTs vs other forms of data to clinical decision-making

Introduction

CHAIR: *Beau Ances, MD, PhD, MSc, Washington University in St. Louis*

Can Observational Studies Ever Support Strong Guideline Recommendations?

SPEAKER: *Gary Gronseth, MD, University of Kansas Medical Center*

Can the Endpoints Measured in Clinical Trials Capture Clinical Meaningfulness?

SPEAKER: *David Dodick, MD, Mayo Clinic-Phoenix*

When RCTs and Real World Evidence Disagree: What Do We Believe?

SPEAKER: *Jacqueline French, MD, New York University Grossman School of Medicine*

Statistical Approaches to the Analysis of Data and Limitations

SPEAKER: *Gary Cutter, PhD, UAB School of Public Health*

Q&A and Discussion

12:30 PM–1:45 PM

Additional Workshop

Meet the Editors*

Editors from the ANA journals will be available to discuss the submission process, publishing, tips, and other key topics of interest.

SPEAKER: *John A. Kessler, MD, Northwestern University, Editor-in-Chief, Annals of Clinical and Translational Neurology (ACTN)*

SPEAKER: *Clifford Saper, MD, PhD, Harvard University, Editor-in-Chief, Annals of Neurology*

2:00 PM–3:00 PM

Dedicated Exhibit Hall Hours*

The virtual exhibit hall will be open all day for attendees to view materials by the exhibitors. However, in this dedicated time slot, company representatives will be present to answer any questions. Please be sure to visit their virtual booths!

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

★ Recommended for Junior and Early Career attendees.

2:00 PM–3:00 PM

Special Interest Group Networking Sessions*

Join us for our first ever SIG Networking Sessions! Attendees will have the opportunity to discuss hot topics and current research with their peers during these sessions which will be held either before or after the session.

Autoimmune Neurology
MODERATOR: *Eric Lancaster, MD, PhD, University of Pennsylvania*

Cerebrovascular Disease and Interventional Neurology
MODERATOR: *Magdy Selim, MD, PhD, Beth Israel Deaconess Medical Center, Harvard University*

Dementia and Aging
MODERATOR: *Eric McDade, DO, Washington University in St. Louis*

Education
MODERATOR: *Guillermo E. Solorzano, MD, MSc, University of Virginia*

Health Services Research
MODERATOR: *Nabila Dahodwala, MD, MS, University of Pennsylvania*

2:00 PM–3:00 PM

Additional Workshop

Media Roundtable*
MODERATOR: *Julia Brannan-Rauch, MoJJo Collaborative Communications*

ANA will host an interactive panel for members of the press to discuss highlights of the key science being presented at the meeting.

PANELIST: *Justin C. McArthur, MBBS, MPH, Johns Hopkins University School of Medicine*
PANELIST: *Jennifer Orthmann-Murphy, MD, PhD, University of Pennsylvania*
PANELIST: *David Gutmann, MD, PhD, Washington University in St. Louis*
PANELIST: *Conrad "Chris" Weihl, MD, PhD, Washington University in St. Louis*

3:00 PM–5:00 PM

Special Interest Groups

Autoimmune Neurology
CHAIR: *Eric Lancaster, MD, PhD, University of Pennsylvania*
CO-CHAIR: *Anusha Yeshokumar, MD, Icahn School of Medicine at Mount Sinai*

Autoimmune neurology encompasses the diagnosis and treatment of neurological disorders with an autoimmune basis. These disorders can affect diverse areas of the immune system and produced severe but treatable disorders. This SIG will cover novel research into underlying disease mechanisms, diagnosis and treatments.

LEARNING OBJECTIVES:
1. **Explore emerging research into treatment for autoimmune encephalitis.**
2. **Review novel research into autoimmune neuromuscular junction disorders and new potential treatments.**
3. **Examine the latest research on CNS inflammatory disorders.**

Thursday, October 8, 2020

3:00 PM–3:05 PM
Introduction
CHAIR: *Eric Lancaster, MD, PhD, University of Pennsylvania*

3:05 PM–3:25 PM
LEADER IN THE FIELD PRESENTATION
Sleep Disorders in Autoimmune Encephalitis
SPEAKER: *Amaia Muñoz Lopetegi, MD, Hospital Clinic, University of Barcelona*

3:25 PM–3:35 PM
ORAL PRESENTATION
Beyond the IgG4 Antibody subclass in MuSK Myasthenia Gravis: Novel Evidence for the Pathogenicity of IgG1,2 and 3
SPEAKER: *Michelangelo Cao, MD, PhD, University of Oxford*

3:35 PM–3:55 PM
LEADER IN THE FIELD PRESENTATION
Expanding the Phenotype of Autoimmune Associated Epilepsies
SPEAKER: *Claude Steriade, MD, CM, NYU Langone*

3:55 PM–4:05 PM
ORAL PRESENTATION
Neuronal Septin Autoimmunity: Differentiated Serological Profiles & Clinical Findings
SPEAKER: *Cecilia Zivelonghi, MD, Mayo Clinic, Rochester*

4:05 PM–4:15 PM
ORAL PRESENTATION
CaVα2δ Autoimmune Encephalitis: A Novel Antibody and its Characteristics
SPEAKER: *Soon-Tae Lee, MD, PhD, Seoul National University Hospital*

4:15 PM–4:25 PM
ORAL PRESENTATION
Natural Language Processing Analyses of Written Text across Stages of Illness in Anti-NMDA Receptor Encephalitis
SPEAKER: *Kelsey Martin, BA, Icahn School of Medicine*

4:25 PM–4:35 PM
LEADER IN THE FIELD PRESENTATION
Cerebrospinal Fluid Oligoclonal Bands in Anti-NMDA Receptor Encephalitis
SPEAKER: *Sang Bin Hong, MD, Seoul National University Hospital*

4:35 PM–5:00 PM
Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

3:00 PM–5:00 PM

Special Interest Groups

Cerebrovascular Disease & Interventional Neurology

CHAIR: *Magdy Selim, MD, PhD, Beth Israel Deaconess Medical Center, Harvard University*

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

More than 750,000 Americans have a stroke every year. Stroke is a leading cause of morbidity, mortality & permanent disability. Medical complications after stroke; ethnical, racial and socioeconomic factors related to risk factors and access to effective treatments; and the rapid progress in endovascular therapy impact stroke outcome and quality of life of stroke survivors. This session will cover these important topics, in particular: 1) the impact of dysphagia and potential innovative therapeutic approaches for post-stroke dysphagia; 2) the ethnic, socioeconomic, and racial landscape of stroke care in America; and 3) the evolving role of "direct-to-angio" to expedite treatment.

LEARNING OBJECTIVES:

1. **Understand the burden of post-stroke dysphagia and discuss innovative therapeutic strategies.**
2. **Discuss the pros and cons of a "direct-to-angio" strategy in patients with suspected large vessel occlusion.**
3. **Highlight the ethnic, economic, and racial disparities in stroke care in the United States and how to address them to improve outcomes.**

3:00 PM–3:05 PM

Introduction

CHAIR: *Magdy Selim, MD, PhD, Beth Israel Deaconess Medical Center, Harvard University*

3:05 PM–3:25 PM

LEADER IN THE FIELD PRESENTATION

Post-Stroke Dysphagia: Implications & Innovative Therapeutic Approaches

SPEAKER: *Sandeep Kumar, MD, Harvard Medical School*

3:25 PM–3:35 PM

ORAL PRESENTATION

Corneal Confocal Microscopy: Corneal Nerve Loss In Acute Stroke Patients With Poor Pial Collaterals

SPEAKER: *Ajay Menon, MD Candidate, Weill Cornell Medicine–Qatar*

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Direct to Angio Suite: The Good, the Bad, and the Evidence

SPEAKER: *Ashutosh Jadhav, MD, PhD, University of Pittsburgh*

3:55 PM–4:15 PM

LEADER IN THE FIELD PRESENTATION

Racial, Ethnic & Economic Disparities in Stroke Care: The Past & the Future

SPEAKER: *Amytis Towfighi, MD, University of Southern California*

Thursday, October 8, 2020

4:15 PM–5:00 PM

Q&A and Discussion

3:00 PM–5:00 PM

Special Interest Groups

Dementia and Aging

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

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

Abnormal deposits of aggregated tau protein have been recognized as a pathological hallmark of a large number of neurodegenerative disorders, collectively referred to as tauopathies. Although abnormal tau has been recognized histopathologically for years, recent advances in biofluid analysis and neuroimaging have allowed for in vivo exploration of soluble and aggregated forms of tau in preclinical and symptomatic phases of tauopathies. In parallel with these developments, novel experimental therapeutics targeting tau aggregation, phosphorylation, and spread have greatly increased, generating hopes for disease-modifying therapies in the future. Given the diversity in methods to measure tau related changes in neurodegenerative diseases, it is important to understand key differences between methods and how each can help to better understand tauopathies, including Alzheimers disease and frontotemporal dementia. Likewise, it is important to consider the differences between the tau-focused therapies under-development and in clinical trials, especially how they were developed and how they are being tested.

LEARNING OBJECTIVES:

1. **To distinguish between key differences in measures of soluble and aggregated tau.**
2. **Identify the current state of tau therapeutics.**
3. **Recognize important differences between tau, phosphorylated tau and how they relate to different tauopathies and amyloid pathology.**

3:00 PM–3:05 PM

Introduction

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

3:05 PM–3:25 PM

LEADER IN THE FIELD PRESENTATION

Results of the DIAN-TU Prevention Trial of Solanezumab and Gantenerumab

SPEAKER: *Randall Bateman, MD, Washington University School of Medicine*

3:25 PM–3:35 PM

ORAL PRESENTATION

Nilotinib Effects on Safety, Tolerability, and Biomarkers in Alzheimer's Disease: A Phase 2, Double-blind, Randomized, Placebo-controlled Trial

SPEAKER: *Charbel Moussa, MD, PhD, Georgetown University*

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

★ Recommended for Junior and Early Career attendees.

Special Interest Groups *continued from page 34*

Dementia and Aging

3:35 PM–3:55 PM
LEADER IN THE FIELD PRESENTATION

Clinical and Research Applications of High Affinity Tau Imaging Agents

SPEAKER: *Pedro Rosa-Neto, MD, PhD, McGill University*

3:55 PM–4:05 PM
ORAL PRESENTATION

Accelerated Rate of Hippocampal Atrophy 17-Years Prior to Death in Alzheimer's Disease is Linked to TAR DNA Binding Protein 43

SPEAKER: *Marina Buciuc, MD, Mayo Clinic*

4:05 PM–4:25 PM
LEADER IN THE FIELD PRESENTATION

Heterogeneity in Dementia

SPEAKER: *Bradley T. Hyman, MD, PhD, Massachusetts General Hospital*

4:25 PM–4:35 PM
ORAL PRESENTATION

History of Seizures in Alzheimer's Disease Patients is Associated with Elevations in mTOR Activity and Neuropathology

SPEAKER: *David Stewart, BS, Duke University School of Medicine*

4:35 PM–5:00 PM

Q&A and Discussion

Thursday, October 8, 2020

3:00 PM–5:00 PM

Special Interest Groups

Education

CHAIR: *Guillermo E. Solorzano, MD, MSc, University of Virginia*

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

Valid assessments for our learners are becoming increasingly more important. While entrustable professional activities have been in place at the undergraduate medical education level for a number of years the application of competency based education in residency and fellowship remains elusive. This SIG will focus on how competency based education is applied in our current world.

LEARNING OBJECTIVES:

1. **Identify what is competency based education.**
2. **Compare methods of competency based education across the continuum of learners.**
3. **Recognize how competencies are translated from UME to GME.**

3:00 PM–3:05 PM

Introduction

CHAIR: *Guillermo E. Solorzano, MD, MSc, University of Virginia*

3:05 PM–3:15 PM
ORAL PRESENTATION

Simulation for Neurologic Emergencies and Acute Scenarios (SNES) Course: A 4-Year Evolutionary Experience of Utilizing Simulation for Incoming PGY-2 Neurology Residents to Prepare them for Independent Calls

SPEAKER: *Christa O'Hana Nobleza, MD, MSCI, University of Mississippi Medical Center*

3:15 PM–3:25 PM
ORAL PRESENTATION

Improving the Comfortability of Neurology Residents in Providing Care for Spanish-Speaking Monolingual Patients during Neurologic Emergencies

SPEAKER: *Jennifer Adrissi, MD, Northwestern University Feinberg School of Medicine*

3:25 PM–3:35 PM
ORAL PRESENTATION

Development of a Database Containing Detail Bedside Neurological Examination and Final Diagnosis

SPEAKER: *Hirokazu Furuya, MD, PhD, Department of Neurology, Kochi Medical School, Kochi University*

3:35 PM–3:55 PM
LEADER IN THE FIELD PRESENTATION

Authentic Workplace Assessment through the Use of Entrustable Professional Activities

SPEAKER: *Maryellen Gusic, MD, University of Virginia*

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

★ Recommended for Junior and Early Career attendees.

Special Interest Groups *continued from page 35*

Education

3:55 PM–4:15 PM
LEADER IN THE FIELD PRESENTATION

Competency Based Education–Neurology Subspecialty Fellowship Perspective

SPEAKER: *Dragos Sabau, MD, Indiana University*

4:15 PM–4:35 PM
LEADER IN THE FIELD PRESENTATION

Measuring Competence Across the Continuum: Beyond the Milestones – Continuing Professional Development

SPEAKER: *Nicole Chiota-McCollum, MD, MeD, University of Virginia*

4:35 PM–5:00 PM

Q&A and Discussion

3:00 PM–5:00 PM

Special Interest Groups

Health Services Research

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

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

Health services research helps us determine the best way to organize, finance and deliver high value health care and improve patient safety. This session will cover the latest in health services research across neurological disciplines including topics such as tele-neurology and palliative care delivery, and the best abstracts in the field.

LEARNING OBJECTIVES:

1. **Describe the health services research methodology for palliative care.**
2. **Understand the value of tele-neurology.**
3. **Gain insights into the latest in healthcare innovations in neurological care.**

3:00 PM–3:05 PM

Introduction

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

Thursday, October 8, 2020

3:05 PM–3:25 PM
LEADER IN THE FIELD PRESENTATION

Interdisciplinary Home Visits for People with Advanced Parkinson's Disease and Related Disorders

SPEAKER: *Jori Fleisher, MD, MSCE, Rush University*

3:25 PM–3:45 PM
LEADER IN THE FIELD PRESENTATION

Teleneurology Metrics

SPEAKER: *Eric Anderson, MD, PhD, SOC Telemed; Corticare; Intensive Neuro*

3:45 PM–3:55 PM
ORAL PRESENTATION

Social Factors Related to Home-Based Telerehabilitation After Stroke

SPEAKER: *Archana Podury, BA, Harvard Medical School*

3:55 PM–4:25 PM
LEADER IN THE FIELD PRESENTATION

Advances and Challenges of Patient-Reported Outcomes Data to Track and Improve Provider and Patient Experiences

SPEAKER: *Lidia Moura, MD, MPH, FAAN, Massachusetts General Hospital, Harvard Medical School*

4:25 PM–4:35 PM
ORAL PRESENTATION

Increasing Out-of-Pocket Costs for Privately-Insured Neurology Patients

SPEAKER: *Chloe Hill, MD, MS, University of Michigan*

4:35 PM–5:00 PM

Q&A and Discussion

5:15 PM–6:00 PM

Executive Session of Membership*

All ANA members are encouraged to attend this session where new officers and directors will be elected to the ANA Board of Directors.

6:00 PM–7:30 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.

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

★ Recommended for Junior and Early Career attendees.

Friday, October 9, 2020

8:00 AM–7:30 PM

Poster Viewing*

Poster presenters will be in attendance from 10:00 AM - 12:00 PM and 6:00 PM - 7:30 PM.

10:00 AM–12:00 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.

12:30 PM–1:45 PM

Interactive Workshops

Clinical Genetic Testing For Parkinson's Disease: What, When and How?

CHAIR: *Tanya Simuni, MD, Northwestern University*

This program will provide an update of the common PD related genetic mutations and focus on the implications of recent discoveries on patient clinical care and clinical research. Specifically the program will cover the currently existing mechanisms for genotyping of PD patients (including direct to consumer, research and commercial testing) and discuss role of genetic counseling. Ethical issues surrounding genetic testing of the PD manifest and at risk individuals will be discussed.

Introduction

CHAIR: *Tanya Simuni, MD, Northwestern University*

Overview of PD Genetics: Common Mutations, Variance in Geographic Prevalence and Penetrance

SPEAKER: *Tatiana Foroud, PhD, Indiana University School of Medicine*

Clinical Genetic Testing for Parkinson's Disease: What, When and How

SPEAKER: *Tanya Simuni, MD, Northwestern University*

Counseling and Ethical Issues in Genetic Testing for People with PD and their Family Members

SPEAKER: *Rachel Saunders-Pullman, MD, MPH, MS, Icahn School of Medicine at Mount Sinai*

Q&A and Discussion

12:30 PM–1:45 PM

Interactive Workshops

The 2020 NINDS Strategic Plan: A Progress Report and Request for Input

MODERATOR: *Nina Schor, MD, PhD, National Institute of Neurological Disorders and Stroke*

This session will introduce the audience to the process by which National Institute of Neurological Disorders and Stroke (NINDS) is creating its next strategic plan; provide an update on where in this process NINDS is currently and what progress has been made to date; and obtain input from the audience directly at the session and subsequently through an online interface.

Planning Strategically: Ushering Neuroscience into the Future

SPEAKER: *Nina Schor, MD, PhD, National Institute of Neurological Disorders and Stroke*

Opportunities within the NINDS Intramural Program

SPEAKER: *Avindra Nath, MD, National Institute of Neurological Disorders and Stroke*

12:30 PM–1:45 PM

Additional Workshop

AUPN's Networking Session for Small Academic Departments*

MODERATOR: *Sanjay Singh, MD, Creighton University School of Medicine*

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 session, sponsored by the AUPN and hosted by Sanjay P. Singh, MD, Chairman and Professor of the Department of Neurology at the Creighton University School of Medicine, provides an opportunity for chairs of smaller departments to meet, discuss issues and share strategies.

Topics that will be covered:

- Recovery from COVID—Data and Predictions
- "Academics in the time of COVID"
- Neuroscience Serviceline Essentials
- Diversity and Inclusion—Departments of Neurology
- Faculty Productivity—wRVUs, academic productivity, etc.

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

★ Recommended for Junior and Early Career attendees.

2:00 PM–3:00 PM

Emerging Scholar Lecture Series

★ **Emerging Scholar Lecture Series 4** *NEW!*

MODERATOR: *Naresha Saligrama, PhD, Washington University in St Louis*

New in 2020, the Emerging Scholar Lecture series is designed exclusively for junior and early career annual meeting attendees. These sessions provide the opportunity for junior and early career members to present in front of a full virtual audience amongst their peer group. Attend a session to learn what cutting edge research the future leaders of the ANA have to share!

2:00 PM–2:05 PM

Introduction

MODERATOR: *Naresha Saligrama, PhD, Washington University in St Louis*

2:05 PM–2:15 PM

ORAL PRESENTATION

Non-Invasive Calcium Imaging Reliably Classifies Sleep States

SPEAKER: *Eric Landsness, MD, PhD, Washington University in St. Louis*

2:15 PM–2:25 PM

ORAL PRESENTATION

In-Vivo Two-Photon Imaging Reveals Brain Capillary Plugging During Neurotoxicity in a Mouse Model of Chimeric Antigen Receptor (CAR) T Therapy

SPEAKER: *Juliane Gust, MD, PhD, Seattle Children's Hospital*

2:25 PM–2:35 PM

ORAL PRESENTATION

Gamma Sensory Flicker for Patients with Prodromal Alzheimer's Disease: A Phase I Trial

SPEAKER: *Annabelle Catherine Singer, PhD, Georgia Institute of Technology*

2:35 PM–3:00 PM

Q&A and Discussion

Friday, October 9, 2020

3:30 PM–5:30 PM

Special Interest Groups

Movement Disorders

CHAIR: *Alexander Pantelyat, MD, Johns Hopkins University*

CO-CHAIR: *Anne-Marie Wills, MD, MPH, Harvard University*

This SIG session will emphasize recent developments in our understanding of the genetic forms of parkinsonism, Huntington disease, and the spinocerebellar ataxias.

LEARNING OBJECTIVES:

1. **To learn about the genetic forms of Parkinson disease as well as Huntington Disease and Spinocerebellar ataxias.**
2. **To learn about recent advances in the mechanistic understanding of these disorders development of therapies for these disorders.**
3. **To learn about recent advances in the development of therapies for these disorders.**

3:30 PM–3:35 PM

Introduction

CHAIR: *Alexander Pantelyat, MD, Johns Hopkins University*

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Genetics of PD

SPEAKER: *Sonja Scholz, MD, PhD, NIH*

3:55 PM–4:05 PM

ORAL PRESENTATION

Variants in Saposin D Domain of Prosaposin Gene are Linked to Parkinson's Disease

SPEAKER: *Yutaka Oji, MD, PhD, Juntendo University School of Medicine*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

Update on Huntington Disease

SPEAKER: *Blair Leavitt, MDCM, FRCPC, University of British Columbia*

4:25 PM–4:35 PM

ORAL PRESENTATION

HIV Protease Inhibitors Activate the Integrated Stress Response and Correct Diverse Dystonia Phenotypes in Mouse Models

SPEAKER: *Zachary Caffall, MS, Duke University*

4:35 PM–4:55 PM

LEADER IN THE FIELD PRESENTATION

Update on Inherited Ataxias

SPEAKER: *Vikram Shakkottai, MD, PhD, University of Michigan*

4:55 PM–5:05 PM

ORAL PRESENTATION

Altered Capicua Expression Drives Regional Purkinje Neuron Vulnerability Through Ion Channel Gene Dysregulation in Spinocerebellar Ataxia Type 1

SPEAKER: *Ravi Chopra, MD, PhD, Washington University in St. Louis*

5:05 PM–5:30 PM

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

3:30 PM–5:30 PM

Special Interest Groups

Neuro-Oncology

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

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

The incidence of neurologic autoimmune disorders in the context of wider use of anti-cancer immunotherapies is increasing. Immune checkpoint inhibitors and CAR-T cells 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. Immunotherapies are also an area of active investigation in patients with primary brain tumors. This session will review advances in immunotherapy of primary brain tumors and discuss neurologic complications of cancer and cancer therapies. 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.

LEARNING OBJECTIVES:

1. **To recognize strategies to identify and manage cancer related auto-immunity and the unique adverse events related to use of anti-CTLA-4, anti-PD-1, anti-PD-L1 antibodies and CAR-T cell therapies.**
2. **To describe the rationale for targeting the immune system in the treatment of brain tumors.**
3. **To evaluate results of ongoing clinical trials examining immunotherapy agents as part of treatment paradigms.**

3:30 PM–3:35 PM

Introduction

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

3:35 PM–3:55 PM

LEADER IN THE FIELD PRESENTATION

Brain Tumor Immunotherapy

SPEAKER: *Hideho Okada, MD, PhD, University of California, San Francisco*

3:55 PM–4:15 PM

LEADER IN THE FIELD PRESENTATION

Paraneoplastic Syndromes and Neurologic Autoimmunity in the Era of Cancer Immunotherapy

SPEAKER: *Jorg Dietrich, MD, PhD, MMSc, FANA, FAAN, Massachusetts General Hospital*

4:15 PM–4:25 PM

ORAL PRESENTATION

First Dose Pembrolizumab-Induced Toxicity in Young Patient Treated for Invasive Thymoma: An Overlap Syndrome of Myasthenia Gravis and Myositis

SPEAKER: *Dmitri Kovalev, MD, Univeristy of Texas Medical Branch*

4:25 PM–4:45 PM

LEADER IN THE FIELD PRESENTATION

Update on CAR T Cell Neurotoxicity

SPEAKER: *Bianca Santomasso, MD, PhD, Memorial Sloan Kettering Cancer Center*

4:45 PM–4:55 PM

ORAL PRESENTATION

Pre-Infusion Neurofilament Light Chain (NfL) Levels Predict the Development of Immune Effector Cell-associated Neurotoxicity Syndrome (ICANS)

SPEAKER: *Omar Butt, MD, PhD, Washington University in St. Louis*

4:55 PM–5:30 PM

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

Friday, October 9, 2020

3:30 PM–5:30 PM

Special Interest Groups

Neurogenetics

CHAIR: *Matthew Harms, MD, Eleanor & Lou Gehrig ALS Center at Columbia University*

Many neurologic disease have genetic underpinnings. These include rare diseases with monogenic inheritance or more common disorders associated with genetic risk factors. As the availability of genetic data moves into clinical care it will be essential for clinicians and researchers to understand and appropriately interpret the exponentially increasing genetic information. In this SIG, we will explore the breadth of genetic variation and efforts to understand how it relates to clinical care and therapeutic development.

LEARNING OBJECTIVES:

1. **Appreciate the importance of sharing genetic variants through research and clinical collaboration.**
2. **Understand how to interpret variants of unknown significance on genetic test results.**
3. **Learn how high throughout cell based approaches can offer supportive evidence to genetic testing.**

3:30 PM–3:35 PM

Introduction

CHAIR: *Matthew Harms, MD, Eleanor & Lou Gehrig ALS Center at Columbia University*

3:35 PM–4:00 PM

LEADER IN THE FIELD PRESENTATION

Genetic Testing and Research Collaboration

SPEAKER: *Stephan Zuchner, MD, PhD, University of Miami Miller School of Medicine*

4:00 PM–4:10 PM

ORAL PRESENTATION

A Diagnostic Ceiling for Exome Sequencing in Cerebellar Ataxia and Related Neurological Disorders

SPEAKER: *Brent Fogel, MD, PhD, University of California, Los Angeles*

4:10 PM–4:35 PM

LEADER IN THE FIELD PRESENTATION

ALS: Lessons from 10,000 Genomes

SPEAKER: *Matthew Harms, MD, Eleanor & Lou Gehrig ALS Center at Columbia University*

4:35 PM–5:00 PM

LEADER IN THE FIELD PRESENTATION

Cell Based Functional Screens to Resolve Genetic Variants

SPEAKER: *Monkol Lek, PhD, Yale University*

5:00 PM–5:10 PM

ORAL PRESENTATION

ADNC-RS, a Clinical-Genetic Risk Score, Predicts Alzheimer's Pathology in Autopsy-Confirmed Parkinson's Disease and Dementia with Lewy Bodies

SPEAKER: *David Dai, BA, University of Pennsylvania*

5:10 PM–5:30 PM

Q&A and Discussion

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

★ Recommended for Junior and Early Career attendees.

Friday, October 9, 2020

3:30 PM–5:30 PM

Special Interest Groups

Sleep Disorders & Circadian Rhythms

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

CO-CHAIR: *Lynn Marie Trotti, MD, The Emory Healthcare Emory Clinic*

This session will review recent advances in neurological sleep and circadian science, focusing on clinical application.

LEARNING OBJECTIVES:

1. **Identify indications and mechanisms of new medication and non-medication treatments for insomnia.**
2. **Recognize the genetic underpinnings of circadian disorders.**
3. **Give examples of the interaction between sleep and cognition.**

3:30 PM–3:35 PM

Introduction

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

3:35 PM–3:45 PM

ORAL PRESENTATION

African-Americans Exhibit Lower Sleep Efficiency and CSF Alzheimer Biomarker Levels than Non-Hispanic Whites

SPEAKER: *Nithya Chennupati, BA, Biology: Neuroscience, Washington University in St. Louis*

3:45 PM–3:55 PM

ORAL PRESENTATION

The Circadian Protein Bmal1 Mediates Cell Type-specific Effects on Protein Aggregation and Neuronal Survival in Mouse Models of Synucleinopathy and Tauopathy

SPEAKER: *Albert (Gus) Davis, MD, PhD, Washington University in St. Louis*

3:55 PM–4;05 PM

ORAL PRESENTATION

Cholinergic Innervation of Genioglossus Motoneurons in the Context of Sleep Apnea

SPEAKER: *Krutika Joshi, PhD, Beth Israel Deaconess Medical Center, Harvard Medical School*

4:05 PM–4:25 PM

LEADER IN THE FIELD PRESENTATION

Take a Nap, Change your Mind: Sleep and Cognition

SPEAKER: *Sara Mednick, PhD, University of California Irvine*

4:25 PM–4:45 PM

LEADER IN THE FIELD PRESENTATION

Does Mechanism Matter? Choosing Among Insomnia Treatments

SPEAKER: *Andrew Krystal, MD, MS, University of California, San Francisco*

4:45 PM–5:05 PM

LEADER IN THE FIELD PRESENTATION

Clinical and Genetic Aspects of Human Circadian Phenotypes

SPEAKER: *Louis Ptacek, MD, University of California, San Francisco*

5:05 PM–5:30 PM

Q&A and Discussion

5:30 PM–6:00 PM

Special Interest Group Networking Sessions*

Join us for our first ever SIG Networking Sessions! Attendees will have the opportunity to discuss hot topics and current research with their peers during these sessions which will be held either before or after the session.

Movement Disorders

MODERATOR: *Alexander Pantelyat, MD, Johns Hopkins University*

Neuro-Oncology

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

Neurogenetics

MODERATOR: *Matthew Harms, MD, Eleanor & Lou Gehrig ALS Center at Columbia University*

Sleep Disorders and Circadian Rhythms

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

6:00 PM–7:30 PM

Poster Presentations*

E-poster presentations are available for viewing throughout the whole meeting. Select e-poster presenters will be present to answer questions and discuss their work with meeting attendees at this time.

7:30 PM

Meeting Adjourns

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

★ Recommended for Junior and Early Career attendees.

Note: The American Board of Psychiatry and Neurology has reviewed the 145th 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.

Schedule Subject to Change: The event's operating hours, schedules, and speakers are subject to change or cancellation without notice. Refunds will be not issued for failure to view a live session.

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

★ Recommended for Junior and Early Career attendees.

SPEAKER ABSTRACTS

All abstract information listed below has been provided to the ANA by plenary session speakers.

Sunday, October 4, 2020

PRESIDENTIAL SYMPOSIUM: LEVERAGING DIGITAL TECHNOLOGIES IN NEUROLOGY

Deep Phenotyping of Parkinson's Disease Using Digital Technology

Jamie Adams, MD, PhD, University of Rochester

Phenotype is the set of observable characteristics of an organism or condition. In Parkinson's disease (PD), assessments are largely subjective, episodic and categorical, resulting in gaps in our understanding of the PD phenotype. Digital technologies provide objective, continuous, real-world data which can expand our knowledge of PD, allow for earlier diagnosis, enhance and accelerate evaluation of therapies, and ultimately, improve patient care. These new tools, in addition to clinical, biological, genetic, and imaging tools, can produce deep phenotyping, or a comprehensive assessment of a condition. Deep phenotyping using digital technology can give us new insights into PD and a more complete characterization of the disease. [1]

To complement and expand on deep phenotyping efforts in PD [2,3,4], we have initiated a study at the University of Rochester, SUPER-PD, that uses multiple sensors in individuals with and without PD. We are enrolling fifty individuals, thirty-five with PD, and fifteen age- and sex-matched controls in a two-year prospective cohort study. We are studying four different sensors: (1) a smartphone application, mPower (2) wearable adhesive sensors, BioStamp nPoint® (MC-10, Lexington, MA) (3) a video analytics tool (University of Rochester), and (4) a radio wave sensor, Emerald (Cambridge, MA). These sensors can increase the precision of established measures to capture greater variability in symptoms and enable more frequent data collection. By using multiple sensors in clinic and at home, we hope to generate novel outcome measures and ultimately, develop digital biomarkers that can better measure PD symptoms and progression.

References:

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High-Performance Digital Biomarkers: Ethomic Markers For Rapid, Precise Monitoring of Disease Progression

Aldo Faisal, PhD, University College of London

We have pursued a systematic data-driven approach to develop Machine Learning methods for diagnosing, monitoring and intervening semiautonomous in a variety of clinical conditions. We focus here on methods that operate in the patient's daily routine on-the-go and in-the-Wild, outside of clinics and complex lab assessments – using e.g. wearable and home-based sensors which quantify human behaviour. The challenge is that daily-life human behaviour is inherently variable, and to characterise and quantify it one has to seek some underlying simplicity that reflects on some underlying mechanisms. Here we develop machine learning methods to objectively and consistently quantify the data avoiding human inductive biases and "by-eye" assessments. We hypothesised that even subtle changes in physiological function due to disease will be reflected in measurable changes in daily-life behaviour. This has led to our work on Behavioural Digital Biomarker framework aimed to dramatically reduce the duration of clinical trials e.g. to measure the efficacy of drugs during the entire regulatory approval pipeline. We show how we are able to track subtle changes such as gene expression and detect much faster and more precisely the slow progression of neurodegenerative diseases (Friederichs's Ataxia, Duchenne Muscular Dystrophy, Stroke recovery). We then show how such data obtained from wearable or mobile devices can be combined with personalised digital interventions delivered via smartphones to improve the wellbeing of patients.

References:

1. Towards high-resolution clinical digital biomarkers for Duchenne muscular dystrophy (2019)V Ricotti, B Kadirvelu, V Selby, T Voit, A FaisalNeuromuscular Disorders 29
2. The artificial intelligence clinician learns optimal treatment strategies (2018)M Komorowski, LA Celi, O Badawi, AC Gordon & AA FaisalNature Medicine 24 (11), 1716-1720
3. Makin, T. R., de Vignemont, F., & Faisal, A. A. (2017). Neurocognitive barriers to the embodiment of technology. Nature Biomedical Engineering, 1(1), 1-3.

Developing Novel Outcome Measures for Clinical Trials

Jang-ho Cha, MD, PhD, Novartis Institutes for BioMedical Research

Current trials in neuroscience rely heavily on pen and paper, interviewer-administered ratings scales. Such rating scales suffer from weak signal detection and large variability, resulting in small effect sizes. To counteract small effects sizes, clinical trials in neuroscience require increased sample size. Sample size is the largest driver of both clinical trial cost and duration. Thus, as a result of weak effect sizes, current pen and paper rating scales consign neuroscience drug development to slow expensive clinical trials. Given the historical poor record of drug development in neuroscience, these factors are a barrier to developing novel therapeutics.

Outcome measures with increased effect size could therefore revolutionize the conduct of neuroscience clinical trials. Effect sizes could be increased by either increasing signal detection or by decreasing variability. Digital measures, including sensors, or more direct physiometric measures, could provide improved detection than conventional pen and paper measures. Direct digital measures of neurologic or psychiatric phenotypes could reduce variability by removing the variability inherent in having a scale administered by an interviewer. Repeated measures, as could be accomplished by at-home administration, may reduce the day-to-day fluctuations, and thereby decrease variability. Digital sensors could also move the assessment of the patient out of the clinic and into a more naturalistic at-home environment. In addition, automated assessment of features like mobility or cognition may align more closely with parameters that matter to individual patients.

While the possibilities of using digital sensors as novel outcome measures is intriguing, several practical steps need to be understood. First, many novel digital measures have not been employed in the context of clinical trials. The vendor companies that supply novel technology have to ensure that they have compliant protocols for dealing with patient data, for example. Next, the feasibility and user acceptability of devices, both for clinical trial participants and trial study personnel, but be ascertained. The value of a novel device or potential outcome measure lies in its ability to detect differences between disease-affected individuals and healthy controls. Beyond that, the key aspect is the sensitivity to change. In terms of neurologic disorders, ideally, sensitivity to change would be measured in the context of a positive control effective therapy. For disorders for which there is no existing effective therapy, natural history is another type of change that can provide insight to the utility of a novel outcome measure.

Here I provide an overview to the approach for evaluating novel outcome measures in neurologic and psychiatric disorders.

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Precision Rehabilitation Strategies for Motor Recovery Post Stroke

Preeti Raghavan, MD, Johns Hopkins University

New evidence suggests that even patients with severe upper limb motor impairment post stroke can recover movement and function in the chronic stage. However, they require long duration and intensity of training (at least 150 hours) that is tailored to each individual's impairment, and progression of training with repetitive practice of close to normal movements. On the other hand, predictive algorithms for upper limb motor recovery within three days post stroke suggest that specific upper limb movements drive longer term recovery. This presentation will address the biomechanics of these critical movements, and technology to assess and restore these movements, setting the stage for precision rehabilitation strategies that can be applied early on in the continuum of care post stroke to mitigate long term disability.

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A New Era of Experiential Medicine: The Emerging Role of Technology as Cognitive Treatments

Adam Gazzaley, MD, PhD, University of California, San Francisco

A fundamental challenge of our global healthcare system is the development and distribution of effective treatments to enhance cognition in those suffering from diverse psychiatric and neurological conditions. Dr. Gazzaley will describe the use of custom-designed, closed-loop video games to achieve cognitive benefits in both healthy individuals (Nature 2013; Nature Human Behavior 2019) and patients (Lancet 2020). This approach has now advanced to yield the first FDA-cleared digital treatment for ADHD, and the first video game cleared by the FDA as a medical device for any clinical condition. He will share with you the next stage of his research program, which integrates digitally-delivered interactive experiences with the innovations in machine learning, virtual reality, physiological recordings and non-invasive electrical brain stimulation to enhance cognition with the ultimate goal of improving quality of life.

References:

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Plenary Session

DEREK DENNY-BROWN SYMPOSIUM YOUNG NEUROLOGICAL SCHOLAR SYMPOSIUM

THE DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD—BASIC SCIENCE

Aging, Lysosomes and Neurodegenerative Disease

Aimee Kao, MD, PhD, University of California, San Francisco

Fundamentally, neurodegenerative diseases are age-associated failures of protein homeostasis. Lysosomes, a sub-cellular organelle responsible for protein and other macromolecular degradation, exhibit age-associated declines in function. As this occurs, the clearance of proteins such as tau, TDP-43 and alpha-synuclein can become impaired, leading to formation of the pathognomonic protein aggregates observed in Alzheimer's Disease, frontotemporal dementia and Parkinson's Disease. Our work examines the molecular mechanisms contributing to age-associated declines in lysosome activity as they relate to neurodegeneration. I will discuss how disease mutations, such as those in MAPT, Progranulin and other genes, can negatively impact lysosomal targeting or function. I will explore lysosomal protease biology and our recent discoveries in this area. Finally, I will describe our efforts to develop novel therapeutics by screening for modifiers of lysosomal pH. Better understanding of how age, stress and disease mutations intersect at the lysosome will lead to important insights into the pathophysiology of neurodegenerative diseases and likely reveal key treatment modalities.

References:

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THE DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD—BASIC SCIENCE

Functional Genomics of Alzheimer's Disease

Joshua Shulman, MD, PhD, Baylor College Medicine

Alzheimer's Disease (AD) is projected to affect 13 million people in the US by 2050 and remains neither curable nor preventable. Following remarkable recent progress, the genomic architecture of AD and related dementias is coming into focus. Similar to other common and genetically complex disorders, AD is characterized by substantial locus heterogeneity and polygenic susceptibility. The critical next steps for therapeutic breakthroughs include confirmation of the responsible genes, understanding the functional impact of disease-associated variants, and determining how polygenic interactions mediate disease risk. We have developed a cross-species strategy integrating human genomic analyses with functional investigations in both fruit flies (Drosophila melanogaster) and mice. Going back-and-forth between humans and animal models is a powerful approach for experimental validation of both rare and common AD risk alleles. Among top results from an exome-wide association analysis, a rare missense variant (P155L) in the poorly studied TM2D3 gene was significantly associated with AD risk and age at onset. Mutation of a well-conserved Drosophila TM2D3 homolog causes a nervous system phenotype similar to loss of the familial AD gene, presenilin. Whereas human TM2D3

can functionally substitute, the P155L variant abolishes rescue, proving that this AD-associated allele is damaging to protein function. We have also used fly genetics to enhance genome-wide association studies of common variants, pinpointing causal genes at AD susceptibility loci and linking them to tau-mediated disease mechanisms. In follow-up studies of CD2AP, we found that the homologous protein in flies localizes to synapses and regulates protein turnover. Loss of CD2AP disrupts the ubiquitin-proteasome system, leading to calcium dyshomeostasis and impaired synaptic vesicle recycling and release. Studies of a CD2AP knockout mouse reveal evidence for functional conservation, and importantly, results from human brain proteomics establish relevance to disease. Indeed, differential gene expression analysis in human postmortem brain tissue has become a valuable tool for probing disease mechanisms, but these studies confront related challenges to identify proximal triggers, dissect dynamic changes, and highlight differences that are truly causal. We applied a 2-stage, cross-species strategy for functional dissection of AD-associated coexpression modules from meta-analysis of 2,000 human brain transcriptomes. First, leveraging differentially expressed gene sets from mouse models of AD and other neurodegenerative disorders, we highlight responses to amyloid versus tau pathology and reveal age- and sex-dependent expression signatures for disease progression. Next, we manipulated hundreds of implicated genes in Drosophila models, defining those expression changes that modify amyloid beta-, tau-, or aging-induced neurodegeneration. Overall, our results reveal a causal chain from the earliest AD risk factors and pathologic triggers to resulting gene expression changes in the brain and impact on neuronal function and survival.

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THE DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD—CLINICAL

Cerebellar Circuitry of Essential Tremor

Sheng-Han Kuo, MD, Columbia University

The olivocerebellar circuit has been postulated to be involved in tremor generation in ET, but the pathophysiology is not clear. Climbing fibers (CFs) are the axons of inferior olivary neurons, and altered synaptic organization between CFs and Purkinje cells (PCs) could play a role in tremor. We found that ET patients have abnormal CF synapses in the parallel fiber territory along PC dendrites, which is also associated with a deficiency of GluRdδ2 protein, a master regulator for CF-PC synaptic organization. Mice with GluRδ2 deficiency also display this ET-like CF-PC synaptic abnormality and develop age-related kinetic tremor that can be ameliorated by propranolol, primidone, and alcohol. By means of optogenetics and pharmacology, we found that inhibition of activities of either CFs, PCs, or CF-PC synaptic transmission can eliminate tremor in this mouse model in real time. In addition, CF-PC synaptic pathology caused cerebellar oscillatory activity, coherent with tremor, and optogenetic-driven PC activity synchronization was sufficient to generate tremor in wild-type animals. Human validation by cerebellar electroencephalography confirmed that excessive cerebellar oscillations also exist in patients with ET. Our findings identify a pathophysiologic contribution to tremor at molecular (GluRδ2), structural (CF-to-PC synapses), physiological (cerebellar oscillations), and behavioral levels (kinetic tremor) that might have clinical applications for treating ET.

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THE GRASS FOUNDATION—ANA AWARD IN NEUROSCIENCE

Improving the Diagnostic Precision in Autoimmune Myelopathies and Their Mimics

Eoin Paul Flanagan, MD, Mayo Clinic

It is essential to rapidly determine the cause of myelopathy as the accompanying disability can be severe and quickly become irreversible. It is increasingly recognized that spinal cord lesions play an important role in disability in inflammatory demyelinating disorders of the central nervous system and recent studies have shown that progressive disability in MS can be attributable to a single severe lesion located in an eloquent spinal cord territory (e.g., lateral columns). A number of studies have shown that many patients assigned an initial diagnosis of idiopathic transverse myelitis have a specific underlying cause for their myelopathy. The discovery of novel antibody biomarkers of myelitis (e.g., aquaporin-4 [AQP4]-IgG and myelin oligodendrocyte glycoprotein[MOG]-IgG) have contributed to our improved ability to assign a specific diagnosis in transverse myelitis. Neuroimaging plays an important role in confirming the clinical suspicion for myelopathy and can help determine the exact myelopathy etiology. Moreover, it is very useful to help distinguish an inflammatory from a non-inflammatory myelopathy. When evaluating a suspected myelitis episode determining the length of the MRI sagittal T2-lesion is useful. MS myelitis MRI T2-lesions are typically less than 3 vertebral segments in length and are located peripherally in the cord, often in the dorsal or lateral columns. On the contrary, transverse myelitis accompanying AQP4-IgG or MOG-IgG usually has a MRI T2-lesion that spans 3 or more vertebral segments and is generally located centrally on axial images. The MRI pattern of gadolinium enhancement is an under-recognized, very useful radiologic feature that can help guide additional investigations or confirm the diagnosis. A ring-like pattern of spinal cord gadolinium enhancement may occur with MS or AQP4-IgG and helps discriminate them from other non-inflammatory myelopathies. The presence of linear dorsal subpial enhancement, with or without central cord enhancement forming a trident appearance, is suggestive of spinal cord sarcoidosis. Tract-specific enhancement, usually along the lateral columns, is a hallmark feature of paraneoplastic myelopathies. A rim and flame pattern of enhancement is recognized with intramedullary spinal cord metastases. With spinal cord infarct, a linear strip of enhancement along the anterior spinal cord may be encountered and the presence of concomitant spinal cord restricted diffusion, vertebral artery dissection or vertebral body infarct can help confirm this diagnosis. A missing-piece of enhancement can occur with spinal dural arteriovenous fistula, although the presence of flow voids is the most useful MRI feature. The presence of a transverse band of enhancement in which the width of enhancement is greater than or equal to the height with sparing of gray matter on axial images can occur with cervical spondylotic myelopathy and differs from the rostro-caudal enhancement typically encountered with transverse myelitis. Occasionally a dynamic cervical MRI with extension views may reveal extrinsic compression from spondylosis that is occult in the neutral position. In conclusion, close scrutiny of the neuroimaging features accompanying a myelopathy, particularly the gadolinium enhancement pattern, can assist in myelopathy diagnosis. Combining these radiology pearls with the clinical features and laboratory studies will allow clinicians improve their diagnostic precision in autoimmune myelopathies and their mimics.

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WOLFE RESEARCH PRIZE FOR IDENTIFYING NEW CAUSES OR NOVEL TREATMENT OF AXONAL PERIPHERAL NEUROPATHY

Dietary Weight Loss May Halt Progression of Polyneuropathy in Patients With Obesity

Brian Callaghan, MD, MS, University of Michigan

Recent studies highlight obesity as an important risk factor for polyneuropathy. The objective of this study was to explore the effect of medical weight loss on polyneuropathy outcomes. We analyzed data from a prospective cohort undergoing medical weight loss in a specialized clinic at the University of Michigan. Weight loss was achieved by providing participants with very low calorie diets (VLCD) in the form of meal replacement (800 kcal/day) for 12 weeks and then slowly transitioned to 1200-1500 kcal/day. The co-primary outcomes were change in intraepidermal nerve fiber density (IENFD) in the thigh and distal leg. Secondary outcomes included nerve conduction studies, Michigan Neuropathy Screening Instrument (MNSI) questionnaire and exam, short-form McGill pain questionnaire, NeuroQoL, and quantitative sensory testing (QST). Among 120 patients enrolled in the IWMC study, 72 (mean [SD] age: 50.10 [10.47, 36 Females, 63 whites) completed 2 years of follow-up. Patients lost 12.38 kg [11.83] (10.25 % weight reduction). All metabolic syndrome components improved with the exception of blood pressure. IENFD in the thigh (0.05 [1.19], p=0.73) and distal leg (0.14 [1.03], p=0.32) did not significantly change. Improvements were observed on the MNSI Questionnaire: -0.59 [1.43], p <0.01; two NeuroQoL components (Pain: -0.35 [1.14], p = 0.01; and Emotional: -0.71 [2.2], p =0.01), and QST cold -1.93 [5.34], p<0.01. No significant changes were observed in other secondary outcomes. Medical weight loss was associated with improvements in all metabolic parameters other than blood pressure, and both IENFD outcomes remained stable after 2 years. Given that natural history studies reveal decreases in IENFD over time, medical weight loss may halt this progression, but randomized controlled trials are needed. Uncontrolled exercise interventions revealing improvements in IENFD may indicate that exercise has greater effects than medical weight loss, but comparative effectiveness clinical trials are required. Encouragingly, four secondary polyneuropathy outcomes revealed improvements after medical weight loss, but NCS, MNSI examination, and the short-form McGill pain questionnaire remained unchanged.

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Plenary Session

TARGETING GLIA FOR THERAPY; MEDIATORS OF NEUROINFLAMMATION, DEGENERATION AND REPAIR

Oligodendrocyte Precursor Cell Present Antigen and are Cytotoxic Targets in Inflammatory Demyelination

Peter Calabresi, MD, Johns Hopkins University

Oligodendrocyte precursor cells (OPCs) are abundant in the adult CNS and can be recruited to form new oligodendrocytes and myelin in response to injury or disease. However, in multiple sclerosis (MS), oligodendrocyte regeneration and remyelination are often incomplete, suggesting that recruitment and maturation of OPCs is impaired. MS and the rodent model experimental autoimmune encephalomyelitis (EAE) are characterized by infiltration of activated T-cells into the CNS. To investigate the mechanisms by which this neuroinflammatory process influences OPC mobilization, we performed in vivo fate tracing in an inflammatory demyelinating animal model. Results of our studies showed that the OPC differentiation and myelin production are inhibited by either adoptive transfer of CNS infiltrating cytokine producing effector T-cells or CNS production of interferon gamma (IFNÎ³), using an astrocyte specific IFNÎ³ transgene model. In both systems, IFNÎ³ changes the profile of OPCs by inducing functional expression of the immunoproteasome and upregulation of MHC class I. OPCs exposed to IFNÎ³ are shown to cross present exogenous antigen to cytotoxic CD8 T-cells, which then produce proteases and FasL that results in subsequent caspase 3/7 activation and OPC death, both in vitro and in vivo. Cross presentation by OPCs is dependent on the cytosolic processing pathway and can be inhibited by small molecules targeting MHC class I antigen processing and the immunoproteasome subunits. Finally, the immunoproteasome subunit, PSMB8, is shown to be markedly increased on Sox10+ oligodendrocyte lineage cells only in the demyelinated white matter lesions from patients with MS. These findings support the notion that OPCs have multiple functions beyond differentiation into myelinating cells and adapt to their microenvironment by responding to local cues. In MS, OPCs may be co-opted by the immune system to perpetuate the autoimmune response. Strategies aimed at inhibiting the aberrant immune activation pathways in OPCs may allow more efficient remyelination in MS.

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Targeting Microglia-Mediated Synapse Elimination for Therapeutic Intervention in Demyelinating Disease

Sebastian Werneberg, PhD, University of Massachusetts

Multiple sclerosis (MS), an autoimmune disease of the central nervous system, is characterized by inflammation, demyelination, and varying degrees of neurodegeneration. In some patients this neurodegeneration can be chronic and intractable, leaving patients with profound disability. Synapse loss is emerging as an early and likely feature underlying circuit dysfunction in many neurodegenerative diseases, including Alzheimer's disease and related dementias (Forner et al., 2017; Henstridge et al., 2016; Tyebji and Hannan, 2017). However, compared to other diseases far less is known regarding how synaptic connections are affected in MS. Using the retinogeniculate system, a circuit that is frequently affected by optic neuritis and therefore highly relevant to MS patients, we have identified a pronounced loss of synapses that was caused

by microglial engulfment of large amounts of presynaptic material in tissue from human MS patients and multiple animal models of demyelinating disease (Werneburg et al., 2020). Using animal models, we further found that these events can occur independent of local demyelination and axonal degeneration, but coincide with gliosis and the deposition of complement factor C3 at synapses. We then developed an AAV strategy to specifically inhibit activated complement at the synapse and found evidence that we can protect synapses from microglial elimination with high spatial and temporal precision, which also preserved visual circuit function. These data provide novel insight into how synaptic connectivity is modified in demyelinating disease and could have implications for a number of neurodegenerative diseases where microglia and complement have been implicated.

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Single Nuclei Transcriptomic Profiling of Human Astrocytes in Alzheimer's Disease and Aging

Jessica S. Sadick, PhD, NYU School of Medicine

Resolving cell type-specific contributions to Alzheimer's disease (AD) is necessary because changes in neuronal function, such as reduced synaptic density, altered firing, and ultimately death, do not occur in isolation. Growing interest has turned to non-neuronal central nervous system (CNS) cells and their potential role(s) in the initiation and progression of AD. Of particular interest are astrocytes, given their fundamental role in regulating CNS homeostasis and increasing evidence supporting their etiological role in neurodegenerative diseases, including AD [1,2]. Although much research has focused on how 'reactive' astrocytes are involved in AD, the majority of work characterizing human AD patient samples has involved brain regional isolates, which do not take into account the heterogeneous composition of cell types within the tissue. Although many techniques exist to evaluate cell type-specific contributions in biological systems, single cell/nuclei RNA sequencing (scRNAseq/snRNAseq) provides an unmatched platform to assess heterogeneity. Recently, snRNASeq has been applied to study AD in human tissues [3-5]; however, these studies do not provide large enough sample sizes to confidently define astrocyte subpopulations, and donors characterized vary in apolipoprotein E (APOE) haplotype, which may confound resulting profiles of astrocytes. This leaves many remaining questions about reactive astrocytes in human AD patients including: what characteristics define subtypes of reactive astrocytes during disease, and how heterogeneous is this response? Here we present the largest-to-date generated snRNASeq dataset characterizing astrocytes isolated from human postmortem APOEe2/3 AD and aged-matched non-symptomatic (NS) brain from both female and male donors. In order to improve astrocyte capture for snRNASeq, we optimized a platform to enrich for astrocyte nuclei prior to sequencing, ultimately increasing our astrocyte capture rate from ~5-10% to 50% (averaging ~2,700 astrocytes per donor). To date, we have sequenced ~41,000 astrocytes across 15 patients. By capturing high numbers of astrocytes per donor, we identified unique astrocyte subpopulations with transcriptomic signatures that may reflect functional differences (e.g., homeostatic clusters, inflammatory-enriched clusters, glutamatergic neuron regulatory machinery-enriched cluster) as well as clusters with similarities to developing/maturing astrocytes (data directly integrated with fetal astrocyte scRNAseq from [6]). This resolved astrocyte heterogeneity was not driven by underlying sample variables, such as RNA quality, post-mortem interval, age, or sex. Additionally, astrocyte subpopulations were equally represented in both AD and NS patients. Upon evaluating differentially expressed genes (DEGs) between AD and NS astrocytes, very few transcripts were differentially expressed (adjusted p-value < 0.05 and log2 fold change > 1), which may be a consequence of comparing age-matched astrocytes with AD astrocytes, as age can also induce astrocyte reactivity state changes [7,8]. However, when all DEGs regardless of fold change were analyzed by gene ontology/pathway analysis, we identified coordinated upregulation of axonal and synaptic maintenance and repair pathways in AD astrocytes to which astrocyte subpopulations uniquely

contribute. In addition to these novel findings, we have since directly integrated our data with previously published works [3-5]. By using our dataset as a reference, we are able to resolve representation of unique astrocyte subpopulations across datasets, which were originally undefinable due to low astrocyte capture rates. Through our work, we provide a highly valuable resource in which we can explore the breadth of astrocyte reactivity in AD and aging.

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Tri-glial Dysregulation of Chemotherapy-related Cognitive Impairment

Erin Gibson, PhD, Stanford University

Chemotherapy results in a frequent yet poorly understood syndrome of long-term neurological deficits. Neural precursor cell and white matter dysfunction are thought to contribute to this debilitating syndrome. Here, we demonstrate persistent depletion of oligodendrocyte lineage cells in humans who received chemotherapy. Developing a mouse model of methotrexate chemotherapy-induced neurological dysfunction, we find a similar depletion of white matter OPCs, increased but incomplete OPC differentiation and a persistent deficit in myelination. OPCs from chemotherapy-naïve mice similarly exhibit increased differentiation when transplanted into the microenvironment of previously methotrexate-exposed brains, indicating an underlying microenvironmental perturbation. Methotrexate results in persistent activation of microglia and subsequent astrocyte activation that is dependent upon inflammatory microglia. Microglial depletion normalizes oligodendroglial lineage dynamics, myelin microstructure and cognitive behavior after methotrexate chemotherapy. These findings indicate that methotrexate chemotherapy exposure is associated with persistent tri-glial dysregulation and identify inflammatory microglia as a therapeutic target to abrogate chemotherapy-induced neurological dysfunction. These therapeutic strategies will depend on understanding microglial population dynamics. Recent work from our lab has identified a temporal susceptibility of microglial reactivity, suggesting the potential for a chronotherapeutic approach to mitigate the tri-glial dysregulation associated with chemotherapy-related cognitive impairment.

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Monday, October 5, 2020

Plenary Session

GENOMICS OF PERSONALIZED MEDICINE

Genetic Discovery and Translation in Neuromuscular Disease

Monkol Lek, PhD, Yale University

Exome sequencing has proven to be a powerful and cost-effective approach for the identification of causal mutations in many patients suffering from rare, severe Mendelian diseases. However, exome analysis unambiguously identifies a causal mutation in only 30-50% of sequenced families, indicating much work remains to be done to increase the yield of causal variants from sequencing based approaches. Causal mutations can be missed by current exome sequencing approaches for a variety of reasons.

Using a large undiagnosed neuromuscular disease cohort, we present approaches beyond standard exome analysis to improve the diagnosis rate. Firstly, the re-analysis of exome data has revealed copy number variants that were initially missed. Second, RNA sequencing from affected muscle tissue have identified a range of splicing disruptions caused by variants outside of the splice regions. Lastly, whole genome sequencing has discovered a range of inversions within the DMD gene.

Despite our improved ability to "end the diagnostic odyssey" for patients, there are still no effective therapies for the majority of rare diseases. Furthermore, these treatments are aimed at addressing the broad symptoms and not personalized to the patient's mutation. We have identified a patient with a DMD muscle exon 1 deletion with low levels of genetic compensation through the expression of non-muscle isoforms. Using cells from the patient, we have designed and validated a CRISPR based up-regulation of non-muscle DMD isoforms. Next we have further validated this approach in the hDMD/mdxD2 mouse model through delivery via a single vector AAV. This study highlights the importance of furthering our understanding of genetic mechanisms in known disease genes for translation into potential therapeutic approaches.

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Genomic Approaches Paving the Way for Precision Neurology

Sonja Scholz, MD, PhD, National Institutes of Health

We are in the midst of a biomedical revolution. Advances in genomics are providing mechanistic insights into the foundational molecular characteristics of neurodegenerative diseases at a staggering pace. These discoveries fuel new optimism for translating genetic knowledge into improved predictive, diagnostic, prognostic, and therapeutic approaches toward these otherwise incurable diseases. In this presentation, I will outline how genetics will likely impact daily clinical practice in the near future. Delineating distinct genetic profiles allows us to define disease subtypes and chart the path ahead to realize the translational opportunities for identifying the best therapeutic strategy for the right patient at the right time period in a given disease course. Using examples from the field of neurodegeneration research, I will review the promises, challenges, critical pitfalls, and unmet needs of precision medicine approaches, spanning from monogenic disease to tackling the even more challenging genetically complex conditions.

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Assessing Immune Responses to AAV9 and a CRISPR/Cas9 Gene Editing Platform for Duchenne Muscular Dystrophy

Melissa Spencer, PhD, University of California, Los Angeles

AGene editing holds much promise as an approach for treating monogenic Neuromuscular Disorders such as Duchenne muscular dystrophy (DMD), which is caused by out-of-frame mutations in the DMD gene. Due to the nature of these mutations, DMD is amenable to gene-editing and gene replacement therapies. We have developed a gene editing platform to delete DMD exons 45-55, which will reframe the gene to enable production of an internally truncated, but functional dystrophin protein2. Nanoparticles and Adeno-associated virus (AAV) are being developed to systemically deliver these gene editing components to all muscles of the body. Nanoparticles will need to be further developed before they can be translated to patients, while AAV is highly efficient at transducing skeletal muscle, especially serotypes AAV6,8, and 9. However, AAV is limited in that it can only be dosed once due to the immune response that arises. Our goal is to comprehensively characterize AAV-induced immune responses in vivo, to gain insight on AAV-immune interactions. Identification of the most relevant immune effectors might lead to strategies to block them and allow for re-dosing. To assess immune responses to our AAV-CRISPR/Cas9, we dosed a dystrophic mouse model with AAV9 carrying both CRISPR/Cas9 and an mCherry reporter and performed 10x Genomics single cell RNA-sequencing (scRNA-seq) to analyze immune cell phenotypes. After a single injection of AAV-CRISPR-mCherry, we observed mCherry positive muscle fibers and a clear shift in phenotype in four main immune cell populations in response to AAV treatment: monocytes, NK cells, B cells, and T cells. Within the T cell population, we detected phenotypic shifts in all subpopulations including CD4+, CD8+, and gamma delta (Î³Î´)T cells after AAV exposure. We also tested the effect of two AAV injections and showed that the second dose of vector was rejected. Double dosing of AAV9 results in a more profound shift in immune clusters by scRNAseq (compared to the single injection cohort), and an emergence of new immune cell phenotypes. Additional analysis and validation studies are needed to identify critical immune cell populations and genes that elicit responses to AAV, and to separate capsid and transgene-specific immune reactions. These studies will enable the identification of new target genes involved in immune responses to AAV.

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Patient-Customized Antisense Therapies for Rare Neurogenetic Diseases

Timothy Yu, MD, PhD, Boston Children's Hospital

Examples of intrathecal antisense oligonucleotide (ASO) therapeutics include nusinersen for SMA as well as investigational trials for ALS, Huntington Disease, Dravet Syndrome, and Angelman Syndrome. Early successes in this space have re-invigorated interest in this modality. We will describe our recent experience developing an ASO-based therapy for a child with CLN7 Batten disease, a rare, fatal lysosomal storage disease (Kim et al, 2019). Milasen, the investigational drug we created, was designed to mitigate the impact of a splice-altering pathogenic mutation in the MFSD8 gene, and treatment of our patient under compassionate use has been associated with a slowing of disease progression. This experience focuses scientific attention on the possibility of using ASOs as a platform for rapid development of drugs for as few as a single patient, but also raises important questions about the standards that ought to govern such work. What patients, with what types of conditions and what types of mutations, are eligible for such efforts? How does one balance potential benefits and risks to the parties involved? How are we to assess the success or failure of interventions for as few as one? Can this process be made accessible? We will discuss these questions through the lens of milasen and other examples.

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Towards Primary Prevention of Genetic Prion Disease

Sonia Vallabh, PhD, Broad Institute of MIT and Harvard

Though often known in the neurology community by different clinical terms, including Creutzfeldt-Jakob disease (CJD), fatal familial insomnia (FFI), and Gerstmann-Straussler-Scheinker disease (GSS), all prion disease shares the same molecular root: all cases trace to a post-translational corruption of the prion protein, or PrP. Lowering the amount of native PrP in the brain is a long-standing therapeutic hypothesis that has now become pharmacologically achievable. Treatment with antisense oligonucleotides (ASOs) designed against the prion protein RNA dose-dependently extends the survival of prion-infected mice, is effective across prion strains, and can reverse pathological biomarkers [1,2]. As the first plausible PrP-lowering therapeutic approaches the clinic, one of the most challenging questions will be how to do right by two very different patient populations. Sporadic prion disease patients cannot currently be identified before onset, but on average die within six months of first symptoms. For this population, early testing, taking advantage of the highly sensitive and specific RT-QuIC assay, will be essential, and standard symptomatic clinical trials, with an endpoint of survival, may be feasible and appropriate. Genetic prion disease mutation carriers, on the other hand, can be identified years or decades ahead of first symptoms, and cross-sectionally, most do not show prodromal signs of disease [3]. This genetic advance notice creates an opportunity to delay or prevent, rather than prolong, disease. Due to disease rarity and variability in age of onset, randomizing healthy carriers to an endpoint of onset or survival will not be feasible [4]. Instead, we are exploring a model for genetically informed primary prevention, in which demonstrated reduction of the single disease-causing protein in cerebrospinal fluid could potentially serve as the basis for provisional drug approval [5].

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Plenary Session

MICROENVIRONMENT CONTROL OF BRAIN TUMOR PATHOGENESIS

Neuronal Regulation of Brain Tumor Pathobiology

Michelle Monje, MD, PhD, Stanford University

Neuronal activity regulates the proliferation of oligodendrocyte precursor cells (OPCs) and generation of new oligodendrocytes during development and in adulthood. In the healthy brain, this results in activity-regulated plasticity of myelination and subsequent modulation of neural circuit function evident in oligodendrogenesis-dependent neurological functions. Activity-regulated brain-derived neurotrophic factor (BDNF) signaling to TrkB on oligodendrocyte precursor cells is required for myelin plasticity in cortical projection neurons, and conditional loss of TrkB in OPCs during adulthood impairs cognitive behavioral function. Concordantly, disruption of neuronal BDNF to OPC TrkB signaling by chemotherapy exposure abrogates activity-regulated myelination, and the loss of myelin plasticity contributes to chemotherapy-related cognitive impairment.

The robust mitogenic effect of neuronal activity on normal oligodendroglial precursor cells, a putative cellular origin of gliomas, suggests that dysregulated or "hijacked" mechanisms of myelin plasticity might similarly promote proliferation in this devastating group of brain cancers. Indeed, neuronal activity promotes proliferation and growth of both pediatric and adult high-grade glioma subtypes in patient-derived preclinical models. Crucial mechanisms mediating activity-

regulated glioma growth include secretion of BDNF and the synaptic protein neuroligin-3 (NLGN3). NLGN3 induces multiple oncogenic signaling pathways in the cancer cell, and also promotes glutamatergic synapse formation between neurons and glioma cells. This synaptic and electrical integration of glioma into neural circuits is central to tumor progression in patient-derived preclinical models. NLGN3 is necessary for the growth of high-grade glioma xenografts in the mouse brain, and therapeutic targeting of NLGN3 is presently under clinical investigation. Thus, neuron-glial interactions not only modulate neural circuit structure and function in the healthy brain, but paracrine and synaptic neuron-glioma interactions also play important roles in the pathogenesis of glial cancers. The mechanistic parallels between normal and malignant neuron-glial interactions underscores the extent to which mechanisms of neurodevelopment and plasticity are subverted by malignant gliomas, and the importance of understanding the neuroscience of cancer.

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Cancer Cell Metabolic Adaptations to the Leptomeninges

Adrienne Boire, MD, PhD, Memorial Sloan Kettering

Leptomeningeal metastasis (LM), or spread of cancer cells into the spinal fluid, is a fatal complication of cancer with increasing prevalence. Despite a nutritionally sparse microenvironment, cancer cells grow rapidly within the leptomeninges. To address this apparent paradox, we employ analysis of iteratively-sampled spinal fluid from patients harboring LM as our primary tool for discovery and hypothesis generation followed by mechanistic interrogation within in vitro culture systems and mouse models of LM. In doing so, we have uncovered a rich array of molecular strategies employed by cancer cells to support their survival. We have found that cancer cells disrupt choroid plexus barrier function to enrich the CSF with plasma components (Boire A et al Cell 2017). In addition, the cells undergo a metabolic shift, favoring the electron transport chain as they transition from predominantly adherent growth to anchorage-independent growth within the spinal fluid (Remsik J et al Cancer Reports 2020). Finally, the cancer cells make use of high-affinity iron collection systems to effectively outcompete non-transformed resident cells; supporting cancer cell growth and impairing immune cell function (Chi Y et al Science 2020). These metabolic adaptations suggest novel therapeutic approaches for the treatment of leptomeningeal metastasis.

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Immune System Cell Regulation of Brain Tumor Pathobiology

David Gutmann, MD, PhD, FAAN, Washington University School of Medicine

Brain tumors are complex cellular ecosystem comprised of both neoplastic and non-neoplastic cell types. This is particularly relevant to gliomas, where 30-50% of the cellular content represents non-neoplastic (stromal) cells, including neurons, microglia, and immune system cells (T lymphocytes). Using a combination of human pathologic specimens and genetically engineered mouse models of pediatric low-grade glioma, we have identified a "neuron-immune-cancer cell axis". Specifically, murine Neurofibromatosis type 1 (NF1) optic gliomas are regulated by the interplay of neurons, T cells, microglia, and cancer cells through a network of paracrine factors. The relevance of this axis to the pathobiology of childhood gliomas, patient risk assessment, and future therapeutic targeting will be discussed.

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Understanding Self-organization in High-grade Glioma: from Genes to Oncostreams

Pedro Lowenstein, MD, PhD, University of Michigan

High-grade gliomas (glioblastomas) are the most aggressive and difficult to treat tumors of the brain. Gliomas kill by local recurrence, a result of local invasion. Standard of care consists of surgery, radiotherapy, and temozolomide; median survival is ~18 months. Neuropathologically and molecularly, high-grade gliomas are heterogeneous. Pathologically tumors display areas of necrosis, microvascular proliferation, hemorrhages and pseudopalisades. Molecularly, gliomas have been divided in three main molecular groups: proneural, classical, and mesenchymal. Human and mouse gliomas also contain fascicles of elongated mesenchymal-like tumor cells. The function of these areas is poorly understood, yet is associated with poor prognosis. We established genetically engineered mouse models (GEMMs) of high-grade glioma (Nunez et al., 2019) that exhibit large amounts of fascicles of mesenchymal-like tumor cells. Our data show that tumor cells self-organize into dynamic multicellular fascicles and contribute to tumor malignant behavior. We named these fascicles oncostreams. Oncostreams are organized fascicles of elongated tumor cells that move in a collective manner. Dynamic analysis of the glioma core and tumor margins with normal brain tissue demonstrate that oncostreams display two main types of collective motion: (i) streams (â†'â†") = cells move in both directions within a given structure, (ii) flocks (â†'â†') = cells move mostly in one direction. Cells that move without a preferred direction are defined as swarms. We recently showed, using agent-based mathematical modeling (Jamous et al., 2020), that interactions between individual cells are sufficient to produce these large-scale patterns of collective motion. We have characterized oncostreams: (i) neuropathologically, in mouse and human gliomas, as well-organized fascicles of aligned, elongated mesenchymal-like glioma cells; (ii) molecularly (Comba et al., 2020), and shown they have a unique gene expression pattern; (iii) dynamically, as glioma cells that move by collective motion; (iv) functionally, oncostreams facilitate glioma growth and invasion of normal brain; and, (v) quantitatively, by using deep learning to quantify oncostream density. Oncostream density correlates with glioma malignancy in rodent and human gliomas. A mechanistic understanding of how the molecular makeup on oncostreams contributes to glioma malignant behavior will provide new avenues into the molecular basis of glioma progression and invasion. Equally, we propose that disassembling oncostreams will become a novel approach to treating high-grade gliomas.

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ANA2020 AWARDEES

RAYMOND D. ADAMS LECTURESHIP AWARD

This award honors Dr. Raymond D. Adams, emeritus Bullard Professor of Neurology Service at the Massachusetts General Hospital.

SUNDAY, OCTOBER 4, 2020 FROM 4:30 PM - 6:30 PM EDT

Peter Calabresi, MD, FACP
JOHNS HOPKINS UNIVERSITY

Presentation Title: Oligodendrocyte Precursor Cell Present Antigen and are Cytotoxic Targets in Inflammatory Demyelination

This award will be presented during the Targeting Glia for Therapy: Mediators of Neuroinflammation, Degeneration and Repair Symposium.

Peter A. Calabresi, MD, FACP is a Professor of Neurology and Neuroscience at the Johns Hopkins School of Medicine and Director of the Johns Hopkins Multiple Sclerosis (MS) Center. Dr. Calabresi is also Director of the Richard T. Johnson Division of Neuroimmunology and Neuroinfectious Diseases. He earned his undergraduate degree from Yale College and medical degree from Brown University. Dr. Calabresi completed residency training at Strong Memorial Hospital in Rochester, NY, and completed a research fellowship at the National Institutes of Health, Neuroimmunology Branch. Dr. Calabresi serves on the Editorial Boards of the Journal of Clinical Investigation and the Multiple Sclerosis Journal. He served as Chair of a grant review committee of the National Multiple Sclerosis Society and was a standing member of the NIH Clinical Neuroimmunology and Brain Tumors Study Section. As co-director of the Johns Hopkins Precision Medicine MS Center of Excellence, Dr. Calabresi has been the principal investigator on several clinical trials and also oversees translational laboratory research projects. His specific laboratory research interest lies in understanding the mechanisms of T lymphocyte differentiation into effector memory T cells and how these T cells interface with glial cells in the brain to modulate remyelination. Dr. Calabresi has published over 300 research papers including numerous articles on imaging and the immunopathogenesis of MS. He was the recipient of a five-year NMSS Collaborative Center grant from the National MS Society to study endogenous remyelination in MS, and the Jacob Javits Neuroscience Investigator award from the National Institutes of Health. Dr. Calabresi was co-awarded the Barancik prize for innovation in MS research in 2015, and was elected to the American Association of Physicians in 2017.

DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD IN BASIC SCIENCE

A basic and a clinical award is given each year during the Annual Meeting to new members of the association who have achieved significant stature in neurological research and who show promise as one who will continue making major contributions to the field of neurology.

SUNDAY, OCTOBER 4, 2020 FROM 12:30 PM – 2:30 PM EDT

Aimee Kao, MD, PhD
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

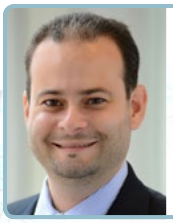
Presentation Title: Aging, Lysosomes and Neurodegenerative Disease

Dr. Aimee Kao, MD, PhD, holds the French Foundation Endowed Professorship and is Associate Professor of Neurology at UCSF. She is an expert in the management of age-related cognitive conditions such as Alzheimer's disease and frontotemporal dementia. Dr. Kao's laboratory investigates the basic pathophysiological mechanisms underlying neurodegenerative disorders, focusing on how aging and disease impact lysosome function and protein homeostasis. She directs the UCSF Alzheimer Disease Research Center (ADRC) Biomarker Core. She has received the Paul G. Allen Family Foundation Distinguished Investigator Award in Neurodegenerative Diseases and the Glenn Award for Research in the Biological Mechanisms of Aging.

DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD IN BASIC SCIENCE

A basic and a clinical award is given each year during the Annual Meeting to new members of the association who have achieved significant stature in neurological research and who show promise as one who will continue making major contributions to the field of neurology.

SUNDAY, OCTOBER 4, 2020 FROM 12:30 PM – 2:30 PM EDT



Joshua Shulman, MD, PhD
BAYLOR COLLEGE OF MEDICINE

Presentation Title: Functional Genomics of Alzheimer's Disease

Joshua M. Shulman received his A.B. in Biochemical Sciences from Harvard College, and Ph.D. in Genetics from Cambridge University. Subsequently, he obtained his MD at Harvard Medical School and the Massachusetts Institute of Technology and completed neurology residency at Brigham & Women's Hospital and Massachusetts General Hospital. Since 2012, Dr. Shulman has been at Baylor College of Medicine and the Jan and Dan Duncan Neurological Research Institute at Texas Children's Hospital. His research explores genomic mechanisms of Alzheimer's and Parkinson's disease, integrating studies of human subjects with animal models. He remains clinically active, caring for patients with Parkinson's disease.

DEREK DENNY-BROWN YOUNG NEUROLOGICAL SCHOLAR AWARD IN CLINICAL SCIENCE

A basic and a clinical award is given each year during the Annual Meeting to new members of the association who have achieved significant stature in neurological research and who show promise as one who will continue making major contributions to the field of neurology.

SUNDAY, OCTOBER 4, 2020 FROM 12:30 PM – 2:30 PM EDT

Sheng-Han Kuo, MD
COLUMBIA UNIVERSITY

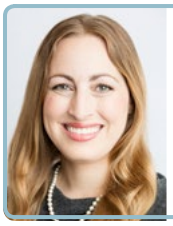
Presentation Title: Cerebellar Circuitry of Essential Tremor

Dr. Kuo is a physician-scientist specializing in cerebellar disorders. He received his neurology training at Baylor College of Medicine and he moved to Columbia University for Movement Disorders fellowship. During his fellowship, he saw patients with tremor and ataxia, and treatment options are very limited to them. Therefore, he decided to dedicate his academic career to find therapies. His lab uses multi-disciplinary approaches, including postmortem human brains, mouse models, optogenetic tools, and human physiology techniques, to understand cerebellar circuitry and to advance therapies for ataxia and tremor.

F.E. BENNETT MEMORIAL LECTURESHIP AWARD

The F.E. Bennett Memorial Lectureship began in 1979 to recognize outstanding neuroscientists.

MONDAY, OCTOBER 5, 2020 FROM 3:30 PM - 5:30 PM EDT



Michelle Monje, MD, PhD
STANFORD UNIVERSITY

Presentation Title: Neuronal Regulation of Brain Tumor Pathobiology

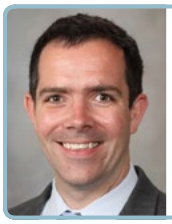
This award will be presented during the Microenvironment Control of Brain Tumor Pathogenesis Symposium.

Michelle Monje, MD, PhD, is an Associate Professor of Neurology at Stanford University. She received her MD and PhD in Neuroscience from Stanford and completed her residency training in neurology at the Massachusetts General Hospital/Brigham and Women's Hospital/Harvard Medical School Partners program, and then returned to Stanford for a clinical fellowship in pediatric neuro-oncology. Her laboratory studies neuron-glial interactions in health and disease, with a particular focus on mechanisms and consequences of myelin plasticity in health, aplasticity of myelin in cognitive impairment after cancer therapies and neuron-glial interactions in malignant glioma.

THE GRASS FOUNDATION - ANA AWARD IN NEUROSCIENCE

Established in 2007, the award honors outstanding young investigators conducting research in basic or clinical neuroscience.

SUNDAY, OCTOBER 4, 2020 FROM 12:30 PM – 2:30 PM EDT



Eoin Flanagan, MD
MAYO CLINIC

Presentation Title: Improving the Diagnostic Precision in Autoimmune Myelopathies and Their Mimics

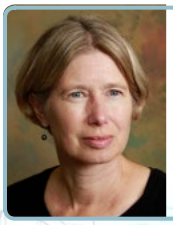
This award will be presented during the Derek Denny-Brown Young Neurological Scholar Symposium.

Dr. Eoin Flanagan is an Associate Professor of Neurology and Consultant in the Departments of Neurology and Laboratory Medicine and Pathology at Mayo Clinic (Rochester, MN). He completed his medical school training at University College Dublin in Ireland followed by a medical residency in Ireland. He moved to Mayo Clinic (Rochester, MN) for neurology residency followed by a fellowship in Neuroimmunology during which he received a Master's degree in clinical and translational science. His clinical expertise and research is focused on diagnosis of autoimmune CNS disorders with an emphasis on spinal cord disorders and their mimics including their MRI patterns.

DISTINGUISHED NEUROLOGY TEACHER AWARD

The award recognizes and rewards contributions by gifted and talented teachers of neurology. Nominees come from the entire field of clinical neurology or neuroscience.

SUNDAY, OCTOBER 4, 2020 FROM 12:30 PM – 2:30 PM EDT



Ann Poncelet, MD, FAAN
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

This award will be presented during the Derek Denny-Brown Young Neurological Scholar Symposium.

Ann Poncelet, MD, FAAN is Professor of Neurology at the University of California, San Francisco and William G. Irwin Endowed Chair and Director of the Haile T. Debas Academy of Medical Educators. She directed the neurology clerkship (1997-2007) with a focus on bedside teaching and professionalism. She has won many medical student teaching awards including the Frank A. Rubino Award for Excellence in Clinical Neurology Teaching and held the Rowe Endowed Chair for Teaching in Neurology. She developed and co-directed the first urban academic longitudinal integrated clerkship (2007-2016) and studies the impact of longitudinal relationships in medical education.

SORIANO LECTURESHIP AWARD

This award was established in 1987 by ANA member Dr. Victor Soriano and his wife to provide a "brilliant lecture delivered by an outstanding scientist" who is a member of the Association.

MONDAY, OCTOBER 5, 2020 FROM 10:00 AM - 12:00 PM EDT

Sonja Scholz, MD, PhD
NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE

Presentation Title: Genomic Approaches Paving the Way for Precision Neurology

This award will be presented during the Genomics of Personalized Medicine Symposium.

Dr. Scholz is a physician-scientist specialized in neurodegeneration. She received her medical degree from the Medical University Innsbruck, Austria. Following graduation, she was a post-doctoral fellow at the Laboratory of Neurogenetics, National Institute on Aging, under the supervision of Drs. Andrew Singleton and John Hardy. She obtained a PhD in Neurogenomics from the University College London, UK, in 2010. She then moved to Baltimore to complete her neurology residency training at Johns Hopkins. She is currently a Lasker Clinical Research Scholar at the National Institute of Neurological Disorders and Stroke and an adjunct Assistant Professor of Neurology at Johns Hopkins University. Her primary area of research is atypical parkinsonism, such as Lewy body dementia, multiple system atrophy, and frontotemporal dementia. She specializes in applying modern genomic techniques and data-driven approaches to assess molecular genetic mechanisms implicated in these complex neurodegenerative disorders and to identify targets that are suitable for disease-modifying therapeutic interventions.

WOLFE NEUROPATHY RESEARCH PRIZE

The Wolfe Research Prize was established in 2009 by Mr. Winston Wolfe and the ANA to honor outstanding investigators who identify a new cause or novel treatment of axonal peripheral neuropathy.

SUNDAY, OCTOBER 4, 2020 FROM 12:30 PM – 2:30 PM EDT

Brian C. Callaghan, MD, MS
UNIVERSITY OF MICHIGAN

Presentation Title: Dietary Weight Loss May Halt Progression of Polyneuropathy in Patients with Obesity

This award will be presented during the Derek Denny-Brown Young Neurological Scholar Symposium.

Dr. Callaghan, the Fovette E. Dush early career professor of neurology, has two main research interests, the epidemiology of peripheral neuropathy and neurology health services research. He has over 90 peer-reviewed publications including more than 40 first and last author publications. He has received grant funding from the NIH (NIDDK R-01 grant, NIH K23 grant), VA (CSR&D Merit grant), ADA (Junior Faculty Award), JDRF, and the AAN. He serves as the co-section editor for the Innovations in Care Delivery website for the Neurology journal. Dr. Callaghan serves on two AAN committees (Guideline and Health Services Research). He previously served as the diabetic neuropathy chair for the scientific sessions meeting planning committee of the ADA. He also serves as the co-chair for the health services research special interest group for the ANA.

ANA2020 ABSTRACT REVIEWERS

We want to thank the experts who reviewed the 481 abstracts submitted in 18 categories for inclusion in this year's e-poster presentations. They performed an outstanding service for ANA. Based on these ratings and comments, authors of 48 impressive studies were selected to give short oral presentations of their abstracts (formerly known as Data Blitz Presentations), during both Plenary and Special Interest Group (SIG) sessions.

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