



CONVERGENCE NEUROSCIENCE

10.5
AMA PRA
CATEGORY 1
CREDITS™

WESTIN BUCKHEAD
ATLANTA, GA
OCTOBER 24–25, 2017

INTENDED AUDIENCE

Convergence calls for groups within the biomedical, life sciences, physical science, engineering and other fields to come together to solve unmet health needs. This conference is meant to bring together various scientists with the aim of discovery of education gaps inherent to one's own discipline, as well as the potential for creative collaboration in shared problem solving.

COURSE LEARNING OBJECTIVES

Upon conclusion of this program, participants should be able to:

- Discuss complex neurological conditions and challenges
- Identify emerging innovations and potential converged solutions
- Recognize convergence concepts
- Identify opportunities for scientific collaboration, discovery and problem solving
- Create a growing network of convergence neuroscience teams within Mayo Clinic and abroad

COURSE DESCRIPTION

Convergence: coming together from different directions so as eventually to meet; the integration of different scientists to solve challenging real-world problems.

Storied institutions such as the National Academies, the Institute of Medicine and the Medical Research Council call for the unification of scientists from different disciplines to address problems unsolvable by any single discipline. Neuroscience in particular is ripe for a quantum leap forward— bench scientists, clinical investigators, and engineers are all advancing their respective fields. Imagine merging their investigations, combining the forces of chemistry, medicine, coding, biology, and robotics to penetrate the mysteries of the brain. This is Convergence.

Convergence Neuroscience will bring together researchers in life sciences, physical sciences, engineering and other fields to foster creative collaboration and develop penetrating insight. Join us, your expertise will deepen our experience.

The best interest of the patient is the only interest to be considered, and in order that the sick may have the benefit of advancing knowledge a “union of forces” is necessary.

— William J. Mayo, M.D.

CREDIT

Mayo Clinic College of Medicine and Science is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Mayo Clinic College of Medicine and Science designates this live activity for a maximum of 10.5 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AOA

This program has been accredited by the American Osteopathic Association for 10.5 credits of AOA Category 2-A.

Other Health Care Professionals

A certificate of attendance will be provided to other health care professionals for requesting credits in accordance with state nursing boards, specialty societies, or other professional associations.

GRANTS AND EXHIBITS

At the time of this printing, a complete listing of commercial supporters (financial or in-kind) was not available. Appropriate acknowledgment will be given to all supporters at the time of the meeting.

Exhibits will be available for viewing at all scheduled breaks.

DATE AND LOCATION

The Mayo Clinic Convergence Neuroscience conference is held at the Westin Buckhead in Atlanta on October 24 and 25, 2017.

ONLINE REGISTRATION CE.MAYO.EDU/CN2017

The registration fee includes tuition, electronic course syllabus, continental breakfasts, break refreshments and lunch. Although it is not Mayo Clinic School of Continuous Professional Development (CPD) policy to limit the number of registrants for a course, conference room facilities may necessitate closing of enrollment; therefore, early registration is advised. A letter of confirmation will be sent upon receipt of payment and completed registration.

\$750 USD

Physicians (MD/DO) and Scientists (PhD)

\$600 USD

Residents, Physician Assistants and Nurse Practitioners

CANCELLATION POLICY

If you cancel your participation in this course, your registration fee, less a \$75 administrative fee, will be refunded when written notification is received by Mayo Clinic School of CPD on or before Tuesday, October 10, 2017 (cme-jax@mayo.edu). No refunds will be made after Tuesday, October 10, 2017. Canceled registrations are non-transferable.

Mayo Clinic School of CPD reserves the right to cancel or postpone any course due to unforeseen circumstances. In the unlikely event Mayo Clinic School of CPD must cancel or postpone this course, Mayo Clinic School of CPD will refund the registration fee, but is not responsible for any related costs, charges, or expenses to participants, including fees assessed by airline/travel/lodging agencies.

For additional information, contact:

Mayo Clinic School of Continuous Professional Development

Website: ce.mayo.edu

E-mail: cme-jax@mayo.edu

Phone: 800-462-9633

LODGING ACCOMMODATIONS

Westin Buckhead

3391 Peachtree Road, N.E. Atlanta 30326 +1 (800) 937-8461

Resort view rooms are reserved for attendees and their guests at the group rate of \$189 per night plus applicable taxes. In order to receive the special rate, reservations must be made before the room block is filled or before the expiration date of October 1, 2017, whichever comes first.

FACULTY

Course Directors

Kevin Barrett, M.D., W. David Freeman, M.D., Leonard Petrucelli, Ph.D., Michael Pizzi, D.O., Ph.D., Alejandro Rabinstein, M.D., Alfredo Quinones-Hinojosa, M.D.

Co-Course Director

Kevin E. Bennet, Ph.D., M.B.A.

Mayo Faculty

Thomas G. Brott, M.D., Professor of Neurology and the Applebaum Endowed Neuroscience Professor

James D. Buntrock, Instructor of Biomedical Informatics and Vice Chair of information technology at Mayo Clinic leading Enterprise Technology Service

H. Gordon Deen, M.D., Professor of Neurosurgery

David Deyle, M.D., Assistant Professor of Medical Genetics

Neil Graff-Radford, M.D., Professor of Neurology, Director of Alzheimer's Disease Research Center

Betty Kim, M.D., Ph.D., Assistant Professor of Cancer Biology and Neuroscience and Neurosurgery

Leonard Petrucelli, Ph.D., Professor and Chair of Neuroscience

Alfredo Quinones-Hinojosa, M.D., William and Charles Mayo Professor and Chairman of Neurologic Surgery

Alejandro Rabinstein, M.D., Professor of Neurology

Ryan Uitti, M.D., Professor of Neurology, Deputy Director of Center of Science of Health Care Delivery

Greg Worrell, M.D., Ph.D., Professor of Neurology

Abba Zubair, M.D., Ph.D., Associate Professor of Laboratory Medicine and Pathology

Keynote Speaker



Victor J. Dzau, M.D., President of the National Academy of Medicine (NAM) and Vice Chair of the National Research Council

Guest Faculty

David Albert, M.D., Founder & Chief Medical Officer, AliveCor, Inc.

Jason Hallstrom, Ph.D., Professor and Director I-SENSE, Department of Electrical Engineering and Computer Science FAU

James Hickman, Ph.D., Professor, NanoScience Technology Center, Chemistry, Biomolecular Science and Electrical Engineering, University of Central Florida

Mike Huerta, Ph.D., Associate Director of the US National Library of Medicine and NLM Coordinator of Data and Open Space Initiatives, NIH

Nick B. Langhals, Ph.D., Program Director for Neural Engineering within the Repair and Plasticity Cluster at the National Institute of Neurological Disorders and Stroke

Jin Hyung Lee, Ph.D., Assistant Professor of Neurology and Neurological Sciences, Bioengineering, Neurosurgery, and Electrical Engineering (Courtesy), Stanford University

Babak Kateb, M.D., Founding Chairman of the Board of SBMT and Brain Mapping Foundation, Scientific Director of SBMT and Brain Mapping Foundation

Hugh Lloyd-Jukes, CEO of Oxehealth

Guru Madhavan, Ph.D., Program Director National Academies of Sciences, Engineering and Medicine

Brad Rabinovitz, Director of Research and Business Development, Longevity Neuro Solutions

Ravinder Sajwan, CEO and Board Member, Renew Group

Theodore Willich, CEO NLP Logix, Machine Learning

Matt Berseth, NLP Logix Machine Learning

TUESDAY, OCTOBER 24, 2017**Global Impact of Neuroscience Disorders and Opportunities for Convergence Discoveries**

7:15 a.m. Registration and Continental Breakfast

**Thematic Global Challenges in Human Neuroscience Diseases:
Cognitive, Artificial Intelligence and Bioinformatics**

8:00	Introduction and Welcome <i>Moderator: W. David Freeman, MD</i>
8:05	History of Neurosciences Evolution and Global Neuroscience Challenges <i>W. David Freeman, MD</i>
8:30	Global Impact of Brain Cancer and the Cancer Moonshot: A Call to Action <i>Alfredo Quinones-Hinojosa, MD</i>
9:00	Global Epilepsy: Current Challenges and Potential Future Solutions <i>Greg Worrell, MD</i>
9:30	Advancing Global Health through Patient Centered Outcomes: ICHOM <i>Ryan Uitti, MD</i>
10:00	Global Impact of Spine Disorders on Human Population by 2050 <i>H. Gordon Deen, MD</i>
10:30	Speaker Q&A Panel
10:45	Break
11:00	Global Impact of Stroke and Cerebrovascular Disorders: World Health Organization and Advances <i>Thomas G. Brott, MD</i>
11:30	NINDS-Update on BRAIN Initiative & Neural Engineering <i>Nick Langhals, PhD</i>
12:00 pm	Lunch and Networking Tracks and Meetings
1:00	The Future of Health Care in Your Home <i>Hugh Lloyd Jukes</i>
1:30	Alzheimer's Disease- Future Therapies <i>Neil Graff-Radford, MD</i>
2:00	Machine Learning <i>David E. Albert, MD</i>
2:30	Theme #1 - History of Convergence Science, Engineering, and National Academies Panel CEO and Academicians, Governmental and Industry <i>Guru Madhavan, PhD</i> <i>Moderator: Alejandro Rabinstein, MD and Michael Pizzi, DO, PhD</i>
3:00	Theme #2 - Translating Big Data to Action and Future of Big Data and the Precision Medicine Initiative - Q&A <i>James D. Buntrock, Jason Hallstrom, PhD, Paul Terry, PhD, Mike Huerta PhD</i> <i>Moderator: W. David Freeman, MD</i>
3:30	Theme #3 - NINDS BRAIN initiative and Neural Engineering Challenges - <i>Nick Langhal, PhD, Betty Kim, MD, PhD, Babek Kateb MD, Society for Brain Mapping and Therapeutics (SBMT)/Brain Mapping, Jin Hyung Lee, PhD, Kevin Bennet, PhD, Chair Division of Engineering, Co-director Mayo Neural Engineering Labs, Mayo Clinic</i> <i>Moderator: Alfredo Quinones-Hinojosa, MD</i>
4:00	e-Posters
4:30	Adjourn

WEDNESDAY, OCTOBER 25, 2017**Neuroscience & Convergence of Other Science Disciplines:
Neuroscience, Physical, Engineering, and Cognitive Computing Science Challenges Discoveries**

Moderators: Leonard Petrucelli, PhD, W. David Freeman, MD

8:00	Registration and Continental Breakfast
	Thematic Global Challenges Facing Basic, Translational, and Materials Neuroscience
8:30	Introduction and Welcome <i>Moderator: W. David Freeman, M.D. and Len Petrucelli, PhD</i>
8:35	Convergence Keynote: History of the National Academy of Medicine and Facilitating Neuroscience Convergence <i>Victor J. Dzau, MD</i>
9:00	3-D Brain Tissue Visualization Technique <i>Betty Kim, MD, PhD</i>
9:30	Ontogenetic fMRI and the Investigation of Global Brain Circuit Mechanisms <i>Jin Hyung Lee, PhD</i>
10:00	Genome Editing- CRISPR-Cas9 Challenges in Treating Neurological Diseases <i>David Deyle, MD</i>
10:30	Q&A
10:45	Break
11:00	Neuroregeneration using Mesenchymal Stem Cells-Mayo Regenerative Update <i>Abba Zubair, MD, PhD</i>
11:40	Break/Speaker Q&A
12:00 p.m.	Lunch and Networking
1:00	Neuroscience Organ on a Chip Design for Rapid Phase I Drug Discovery <i>James Hickman, PhD</i>
1:30	Neural Circuits and Mayo Neural Engineering Research <i>Kevin Bennet, PhD, MBA Mayo Clinic</i>
2:00	Theme #4 - Artificial Intelligence and Machine Learning CEOs and Scientists: AI Experiments with Google – Machine Learning and Drawing Art <i>David Albert, MD; Jason Hallstrom, PhD</i> <i>Moderator: W. David Freeman, MD</i>
2:30	Theme #5 - Mobile Health: The US \$300Billion Pendulum Swing from Sick care to Wellness Care and Monitoring Patients at Home <i>David Albert, MD; Hugh Lloyd Jukes, Ravinder Sajwan, panelists TBA</i> <i>Moderator: W. David Freeman, MD</i>
3:00	Theme #6 - Bench to Bedside Translation: What is the Next Quantum Jump? Q&A Session <i>Panelists- CRISPR—David Deyle MD, James Hickman, PhD, Brad Rabinovitz, Margaret Sutherland, PhD</i> <i>Moderators: W. David Freeman, MD and Len Petrucelli, PhD</i> Questions and Answers/ Online Examination /Adjourn

SAVE THE DATE

CONVERGENCE NEUROSCIENCE

RITZ-CARLTON

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NOVEMBER 8–10, 2018



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