

Tuesday, October 24, 2017

Global Impact of Neuroscience Disorders and Opportunities for Convergence Discoveries

CME Course Co-Directors: Kevin Bennet, PhD, MBA, W. David Freeman, MD; Kevin Barrett, MD, MSc; Leonard Petrucelli PhD, Michael Pizzi, DO, PhD; Alejandro Rabinstein, MD; Alfredo Quinones-Hinojosa, MD

7:15 a.m. Registration and Continental Breakfast

Thematic Global Challenges in Human Neurosciences - Diseases, Cognitive, Artificial Intelligence and Bioinformatics

8:00 Introduction and Welcome

Moderator: W. David Freeman, MD

8:30 History of Neurosciences Evolution and Global Neuroscience Challenges

W. David Freeman, MD

8:35 Scientific Breakthroughs Coming for Lou Gehrig's Disease (Amyotrophic Lateral Sclerosis)

Leonard Petrucelli, PhD, Neuroscience

9:00 Global Epilepsy: Current Challenges and Potential Future Solutions

Greg Worrell, MD

9:30 Advancing Global Health through Patient Centered Outcomes: ICHOM

Ryan Uitti, MD

10:00 Global Impact of Spine Disorders on Human Population by 2050

H. Gordon Deen, MD

10:30 Speaker Q&A Panel

10:45 Break

11:00 Global Impact of Stroke and Cerebrovascular Disorders: World Health Organization and Advances

Thomas G. Brott, MD

11:30 NINDS-Update on BRAIN Initiative & Neural Engineering

Nick Langhals, PhD

12:00 pm Lunch and Networking Tracks and Meetings

1:00 The Future of Health Care: the US \$300 Billion Pendulum Swing from Sick Care to Wellness Care and Monitoring Patients at Home and Beyond, a UK Perspective in Your Home

Hugh Lloyd Jukes

1:30 Alzheimer's Disease- Future Therapies

Neil Graff-Radford, MD

2:00 Machine Learning

David E. Albert, MD

- 2:30 **Theme #1** - Engineering New Convergences in Public Health and Policy
Guru Madhavan, PhD
Moderator: Alejandro Rabinstein, MD and Michael Pizzi, DO, PhD
- 3:00 **Theme #2** - Translating Big Data to Action and Future of Big Data and the Precision Medicine Initiative - Q&A Dennis Murphree, Jr., Ph.D., Jason Hallstrom, PhD, Stephen Hart, PhD, *Mike Huerta PhD*
Moderator: W. David Freeman, MD
- 3:30 **Theme #3** - NINDS BRAIN initiative and Neural Engineering Challenges - Nick Langhals, 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
Moderator: Kevin Bennet, MD
- 4:00 e-Posters
- 4:30 Adjourn

Wednesday, October 25, 2017

Neuroscience & Convergence of Other Science Disciplines

Day #2: Neuroscience, Physical, Engineering, and Cognitive Computing Science Challenges & Discoveries

Moderator: W.David Freeman, MD, Mike Pizzi, DO, PhD

- 8:00 Registration and Continental Breakfast
Thematic Global Challenges Facing Basic, Translational, and Materials Neuroscience
- 8:30 Introduction and Welcome
Moderator: W. David Freeman, M.D.
- 8:35 **Convergence Keynote:**
History of the National Academy of Medicine and Facilitating Neuroscience Convergence
Victor J. Dzau, MD
- 9:00 3-D Brain Tissue Visualization Technique
Betty Kim, MD, PhD
- 9:30 Ontogenetic fMRI and the Investigation of Global Brain Circuit Mechanisms
Jin Hyung Lee, PhD
- 10:00 Genome Editing- CRISPr-Cas9 Challenges in Treating Neurological Diseases
David Deyle, MD
- 10:30 Q&A

- 10:45 Break
- 11:00 Neuroregeneration using Mesenchymal Stem Cells-Mayo Regenerative Update
Abba Zubair, MD, PhD
- 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
James Hickman, PhD
- 1:30 Neural Circuits and Mayo Neural Engineering Research
Kevin Bennet, PhD , MBA Mayo Clinic
- 2:00 **Theme #4** – Artificial Intelligence and Machine Learning CEOs and Scientists: AI Experiments with Google – Machine Learning and Drawing Art
David Albert, MD; Matt Berseth; Jason Hallstrom, PhD; Che Ngufor, Ph.D.; Ted Willich
Moderator: W. David Freeman, MD
- 2:30 **Theme #5** - Mobile Health: The US \$300Billion Pendulum Swing from Sick care to Wellness Care and Monitoring Patients at Home
David Albert, MD; Hugh Lloyd Jukes, Ravinder Sajwan
panelists TBA
Moderator: W. David Freeman, MD
- 3:00 **Theme #6** - Bench to Bedside Translation: What is the Next Quantum Jump? Q&A Session
Panelists- CRISPR—David Deyle MD, James Hickman, PhD, Brad Rabinovitz,
Moderators: W. David Freeman, MD and Mike Pizzi, DO, PhD
- 3:30 Questions and Answers/ Online Examination /Adjourn