

# Curing the Epilepsies 2020: Setting Research Priorities

**Natcher Center  
National Institutes of Health  
Bethesda, Maryland  
April 13-15, 2020**

## Conference Co-chairs:

### **Annapurna Poduri, MD, MPH**

Associate Professor in Neurology, Harvard Medical School  
Director, Epilepsy Genetics Program, Boston Children's Hospital, Boston, MA  
Chair of the AES Epilepsy Research Benchmark Stewards Committee

### **Vicky Whittemore, PhD**

Program Director, Division of Neuroscience, NINDS, NIH, Bethesda, MD  
Co-Chair of the AES Epilepsy Research Benchmark Stewards Committee

## Monday April 13, 2020

7:00 AM      **REGISTRATION**

8:00 AM      *Welcome*  
Francis Collins, MD, PhD  
Director, National Institutes of Health

8:10 AM      *Introduction*  
Walter Koroshetz, MD  
Director, National Institute of Neurological Disorders and Stroke, NIH

8:30 AM      *Keynote Address: Advancing Research on the Epilepsies*  
Ivan Soltesz, PhD  
Stanford University

## **Morning Session (9:00 AM – 12:00 PM)**

**Benchmark Area I: Understand the causes of the epilepsies and epilepsy-related neurologic, psychiatric, and somatic conditions.**

*Session Chair: Bernard Chang, MD*

9:00 AM      *Perspective*

Gabi Conecker and/or JayEtta Hecker

- 9:10 AM *Overview of Benchmark Area I*  
Bernard Chang, MD  
Harvard Medical School
- 9:20 AM *Priorities in genetics: new gene discoveries, rare vs. common disorders, and implications for therapy*  
Heather Mefford, MD, PhD  
University of Washington
- 9:40 AM *Priorities in basic mechanisms: ion channels, the mTOR pathway, and interneuronopathies*  
Alfred George, MD  
Feinberg School of Medicine, Northwestern University
- 10:00 AM *Priorities in acquired epilepsy: infection and inflammation*  
Karen Wilcox, PhD  
University of Utah
- 10:20 AM Break**
- 10:40 AM *Priorities in acquired epilepsy: autoimmunity*  
Sean Pittock, MD  
Mayo Clinic
- 11:00 AM *Priorities in epidemiology: causes and risk factors, including those in later life*  
Daniel Pastula, MD  
University of Colorado School of Medicine
- 11:20 AM *Priorities in comorbidities: bidirectional relationships between epilepsy and other neuropsychiatric disorders*  
Vaishnav Krishnan, PhD  
Baylor College of Medicine
- 11:40 AM *Discussion*

**12:30 PM Lunch**

**Afternoon Session (1:00 – 4:00 PM)**

**Benchmark Area II: Prevent epilepsy and its progression.**

*Session Chair: Devin Binder, PhD*

- 1:30 PM *Perspective*  
Army Specialist Tyler McGibbon
- 1:40 PM *Overview of Benchmark Area II*  
Devin Binder, PhD  
University of California, Riverside
- 1:50 PM *Preventing Epilepsy Using Vigabatrin in Infants with Tuberous Sclerosis Complex (PREVeNT) trial*  
Martina Bebin, MD  
University of Alabama, Birmingham
- 2:05 PM *Design and implementation of antiepileptogenesis trials*  
Pavel Klein, MD  
Mid-Atlantic Epilepsy and Sleep Center
- 2:20 PM *Biomarkers of epileptogenesis*  
Denes Agoston, MD, PhD  
Uniformed Services University
- 2:40 PM *Astrocyte mechanisms and translational targets*  
Tore Eid, PhD  
Yale School of Medicine
- 3:00 PM Break**
- 3:20 PM *Posttraumatic epilepsy mechanisms and translational targets*  
Viji Santhakumar, PhD  
University of California, Riverside
- 3:40 PM *Epigenetic mechanisms and targets*  
Avtar Roopra, PhD  
University of Wisconsin, Madison
- 4:00 PM *Genetics, genomics, novel animal models*  
Wayne Frankel, PhD  
Columbia University Medical Center
- 4:20 PM *Discussion*
- 5:00 PM Breakout Sessions for Areas I and II**
- 6:30 PM Adjourn and Dinner on Your Own**

**Tuesday April 14, 2020**

8:00 AM      **REGISTRATION**

**Morning Session (8:30 AM – 12:00 PM)**

**Benchmark Area III: Improve treatment options for controlling seizures and epilepsy-related conditions without side effects.**

*Session Chair: Steve Traynelis, PhD*

8:30 AM      *Perspective*  
Kraig Peterson

8:40 AM      *Overview of Benchmark Area III*  
Steve Traynelis, PhD  
Emory University School of Medicine

8:50 AM      *Novel study designs to treat rare epilepsies*  
Dennis Dlugos, MD  
Children's Hospital of Philadelphia

9:10 AM      *Treatments for neonatal seizures*  
Janet Soul, MD  
Boston Children's Hospital

9:30 AM      *Antisense oligo therapy*  
Lori Isom, PhD  
University of Michigan

**9:50 AM      Break**

10:10 AM     *Genetic therapy*  
Dimitri Kullmann, PhD  
University College of London

10:30 AM     *Neural devices*  
Martha Morrell, MD  
Stanford University

10:50 AM     *Neurosurgery*  
Kathryn Davis, MD  
Hospital of the University of Pennsylvania

11:10 AM *Discussion*

**12:00 PM Lunch**

**Afternoon Session (1:00 – 4:00 PM)**

**Benchmark Area IV: Limit or prevent adverse consequences of seizures and their treatment across the lifespan.**

*Session Chairs: Miya Asato, PhD and Jana Jones, PhD*

1:00 PM *Perspective*  
Brandy Parker

1:10 PM *Overview of Benchmark Area IV*  
Frances Jensen, MD  
Perelman School of Medicine, University of Pennsylvania

1:20 PM *Examining adverse impact of seizures on nonseizure outcomes*  
Madison Berl, PhD  
Children's National Health System

1:40 PM *Examine the impact of antiseizure medications on nonseizure outcomes*  
Rani Sarkis, MD  
Brigham and Women's Hospital

2:00 PM *Identify windows of incidence of epilepsy in the aging population*  
Alice Lam, MD, PhD  
Massachusetts General Hospital

2:20 PM *Pharmacological treatment: risks and benefits on maternal, fetal, and postnatal outcomes*  
Kimford Meador, MD  
Stanford University

**2:40 PM Break**

3:00 PM *Risk factors and mechanisms involved in non-epileptic seizures (NES)*  
Curt LaFrance, MD  
Brown University

3:20 PM *SUDEP mechanisms and advancements in clinical knowledge*  
Samden Lhatoo, MD  
McGovern Medical School, University of Texas

3:40 PM *Discussion*

**4:30 PM Panel Discussion – Comments from the Community**

*Moderator: Brandy Fureman, PhD*

**Panelists:**

Tracy Dixon-Salazar, PhD

Heidi Grabenstatter, PhD

Mike Hammer, PhD

Megan O’Boyle

Steve Roberds, PhD

**5:30 PM Breakout Sessions for Areas III and IV**

**7:00 PM Adjourn and Dinner on Your Own**

**Wednesday April 15, 2020**

**Session V: Benchmarks for Research on the Epilepsies**

**8:30 AM Breakout Session Summaries and Full Group Discussion: New Opportunities  
Beyond the Current Benchmarks**

*Moderator – Dan Lowenstein, MD*

**10:30 AM Closing Remarks - Walter J. Koroshetz, M.D., Director, NINDS, NIH**