

Sunday, November 3<sup>rd</sup>, 2019

6:30 pm – 8:30 pm **Pre-registration reception and poster session**

Day 1, Monday, November 4<sup>th</sup>, 2019

8:00 am – 9:00 am **Registration**

9:00 am – 9:15 am **Opening remarks**  
**Majid** and **Lynn Jafar**, Co-Founders Loulou Foundation

9:15 am – 9:30 am **Voice of the Patient**  
**Rick Upp**, CDKL5 dad; IFCR Board member; past chair, CDKL5 Alliance

9:30 am – 10:00 am **CDKL5 Review**  
**Daniel Lavery**, Loulou Foundation

10:00 am – 11:00 am **Session 1: CDKL5 molecular function and dysfunction**  
**Chair:** **Charlotte Kilstrup-Nielsen**, University of Insubria  
**Speakers:**

- *CLIP170 regulation*  
**Charlotte Kilstrup-Nielsen**, University of Insubria
- *Microtubule dynamics in the pathogenesis and treatment of CNS disorders and CDKL5 Deficiency Disorder (CDD).*  
**Massimiliano Bianchi**, Trinity College, Dublin
- *Insights into CDKL5 Deficiency Disorder from Lessons Learned from a Green Algae*  
**Cecilia Lo**, University of Pittsburgh
- *Regulation of CDKL5 Expression Pattern in Developing Mouse*  
**Data blitz**
- *Cortical Neurons*  
**Theresa Bartels**, University of Cambridge

11:00 am – 11:30 am **Coffee break**

11.30am – 12.30pm **Session 2: Cell-based functions of CDKL5**  
**Chair:** **Michael Cousin**, University of Edinburgh  
**Speakers:**

- *Presynaptic dysfunction in CDKL5 deficiency disorder*  
**Michael Cousin**, University of Edinburgh
- *Impact of CDKL5 on human neural networks*  
**Alysson Muotri**, University of California, San Diego, School of Medicine

**Data blitz**

- *Development of a high-content assay for neuronal cilia in CDKL5 Deficiency Disorder*  
**Alessia Di Nardo**, Boston Children's Hospital
- *What are the functional consequences of CDKL5 dysregulation in patient derived neuronal cells?*  
**Nicole Van Bergen**, Murdoch Children's Research Institute

**Panel discussion**  
**Charlotte Kilstrup-Nielsen**, University of Insubria  
**Massimiliano Bianchi**, Trinity College, Dublin  
**Cecilia Lo**, University of Pittsburgh  
**Alysson Muotri**, University of California, San Diego, School of Medicine

12:30 am – 1:45 pm    **Lunch break and poster session**

1:45 pm – 3:15 pm

## **Session 3: CDKL5 Behavioral and Circuit Function**

**Chair:** **Eric Marsh**, Children's Hospital of Philadelphia

### **Speakers:**

- *Modelling CDKL5 Deficiency Disorder in Mice*  
**Zhaolan (Joe) Zhou**, University of Pennsylvania
- *Utilizing the CDKL5 R59X model for targeted preclinical therapeutic trials*  
**Frances Jensen**, University of Pennsylvania
- *Circuit refinement and novel functional biomarkers in CDD*  
**Michela Fagiolini**, Boston Children's Hospital
- *Sleep phenotyping in the CDKL5 knockout mouse model*  
**Liqin Cao**, University of Tsukuba, Japan
- *Delineating pathogenic mechanisms in a novel mouse expressing a carboxyl-terminal CDKL5 mutation*  
**James Eubanks**, University of Toronto

### **Data blitz**

- *Translational Research for Repositioning TAK-063 in CDKL5 Deficiency Disorder – A Potential New Treatment*  
**Christine Charman**, Takeda Pharmaceutical
- *Cellular hyperexcitability in the piriform cortex of CDKL5 KO rats*  
**Peter Kind**, University of Edinburgh

### **Panel discussion**

**Michela Fagiolini**, Boston Children's Hospital  
**Zhaolan (Joe) Zhou**, University of Pennsylvania  
**Frances Jensen**, University of Pennsylvania  
**Liqin Cao**, University of Tsukuba, Japan

3:15 pm – 3:45 pm

## **Coffee break**

3:45 pm – 5:15 pm

## **Session 4: Breakout Sessions:**

### **Readiness for Disease-Modifying Therapies for CDD: The CDKL5 Forum Translational Toolbox**

#### **Breakout topics:**

1. Genetics, molecular and functional biology of CDD  
*A think tank on basic biology: what do we still need to know that is mission-critical for successful development of safe and effective therapeutics for CDD?*  
Moderator: **Sila Ultanir**, Francis Crick Institute
2. In vitro assay development for CDD drug discovery  
*What is the state of development of in vitro screens and assay/reagent development for CDD drug discovery? Can we propose a screening cascade for lead identification?*  
Moderator: **Priscilla Negraes**, StemoniX
3. In vivo assays and behavioral pharmacology for CDD drug discovery and development  
*What is the state of animal model development for CDD? Can we propose a standard battery of assessments to model PK/PD relationships in the clinic?*  
Moderator: **Rodney Samaco**, Baylor College of Medicine
4. Translational biomarker discovery and validation for CDD  
*What molecular and fluid biomarkers would meet the standards for*

*translation into the clinic to establish target engagement and PK/PD relationships in CDD?*

Moderator: **Massimiliano Bianchi**, Trinity College Dublin

5. Clinical Trial Design and Execution

*What does a good target product profile and clinical development plan look like for CDD? What are the challenges in clinical trial design? Where could the CDD community innovate in trial design and execution?*

Moderator: **Ana Mingorance**, Loulou Foundation

6. Clinical outcome measures development for CDD (Epilepsy)

*What epilepsy endpoints are critical to establish endpoints for registration of CDD therapies? What is the path to enabling these?*

Moderator: **Dimitrios Arkilo**, Takeda Pharma

7. Clinical outcome measures development for CDD (Non-epilepsy)

*What are the most relevant non-epilepsy symptoms to target? Which should be prioritized and what is the path to validating these?*

Moderator: **Tauhid Ali**, Takeda Pharma

8. Patient partnership in development of therapies for CDD

*How can industry effectively partner with patients, their families and the foundations to accelerate therapy development for CDD?*

Moderator: **Sangeeta Jethwa**, University Children's Hospital, Basel

5:15 pm – 7:30 pm **Break**

7:30 pm

**Forum Dinner: Museum of Science, Boston**

**Museum of Science**, 1 Museum of Science Driveway, Boston, MA 02114

*Cocktails 7:30 pm – 8:15 pm on Blue Wing (lobby level)*

*Dinner 8:15 pm – 10:30 pm*

Guest speaker: Dean George Daley, Harvard Medical School

**CDKL5 Forum Awards ceremony**

## Day 2, Tuesday, November 5<sup>th</sup>, 2019

9:00 am – 9:30 am **Review of previous day's highlights and breakout sessions**

**Daniel Lavery**, Loulou Foundation

9:30 am – 11:00 am **Session 5: Gene therapy and genome-targeting strategies**

**Chair: Ronald Crystal**, Weill Cornell Medical College

**Speakers:**

- *Challenges of gene therapy and editing to the CNS*  
**James Wilson**, University of Pennsylvania
- *Artificial Escape from XCI by DNA methylation editing of the CDKL5 gene*  
**Kyle Fink**, University of California, Davis Medical Center
- *Base Editing and Prime Editing: Genome Editing Without Double-Strand Breaks*  
**David Liu**, Broad Institute and Harvard University

**Panel discussion**

**James Wilson**, University of Pennsylvania

**Kyle Fink**, University of California, Davis Medical Center

**David Liu**, Broad Institute and Harvard University

11:00 am – 11:30 am **Coffee break**

11:30 am – 12:15pm	<b>Keynote Lecture</b> <i>Catalyzing Translational Innovation</i> <b>Chris Austin</b> , MD PhD, Director, NCATS
12:15pm – 12:30pm	<b>CDKL5 Alliance Intro &amp; Update</b> <b>Carol-Anne Partridge</b> , CDKL5 Alliance chair
12:30 am – 1:45 pm	<b>Lunch break and poster session</b>
1:45 pm – 3:00 pm	<b>Session 6: Clinical trial readiness</b> <b>Chair:</b> <b>Mustafa Sahin</b> , Boston Children's Hospital <b>Speakers:</b> <ul style="list-style-type: none"> <li><i>Genomic and transcriptomic approaches for detection and understanding of neurogenetic and neurodegenerative disorders</i>  <b>David Rowitch</b>, University of Cambridge</li> <li><i>Learnings from a no-charge genetic testing program in pediatric epilepsy</i>  <b>Tom Hitchcock</b>, Invitae</li> <li><i>Visual acuity as a quantitative and dynamic translatable outcome measure in CDD</i>  <b>Heather Olson</b>, Boston Children's Hospital</li> <li><i>Towards Electrophysiologic Biomarkers: Experience from ASD, Rett: Translation to CDD</i>  <b>Timothy Roberts</b>, Children's Hospital of Philadelphia</li> </ul> <b>Panel discussion</b> <b>Heather Olson</b> , Boston Children's Hospital <b>David Rowitch</b> , University of Cambridge <b>Timothy Roberts</b> , Children's Hospital of Philadelphia <b>Tom Hitchcock</b> , Invitae
3:00 pm – 3:30 pm	<b>Coffee break</b>
3:30 pm – 4:45 pm	<b>Session 7: Clinical trial design and execution</b> <b>Chair:</b> <b>Omar Khwaja</b> , Voyager Therapeutics <b>Speakers:</b> <ul style="list-style-type: none"> <li><i>Developing Clinical Outcome Measures for CDD</i>  <b>Scott Demarest</b>, University of Colorado</li> <li><i>CDD clinical trials: determining what counts and what can be counted</i>  <b>Ana Mingorance</b>, Loulou Foundation</li> <li><i>Standardization of measures such as seizure and non-seizure endpoints: strategies moving forward in pre-competitive space</i>  <b>Dimitrios Arkilo</b>, Takeda Pharmaceuticals</li> <li><i>How to design clinical studies for small populations</i>  <b>Lisa Kammerman</b>, Kammerman Consulting LLC</li> <li><i>Marigold Study: Phase 3 Study of Ganaxolone in CDKL5 Deficiency Disorder</i>  <b>Julia Tsai</b>, Marinus Pharmaceuticals</li> <li><i>New opportunities in genomic medicine</i>  <b>Timothy Yu</b>, Boston Children's Hospital</li> </ul>
4:45 pm – 5:15 pm	<b>Open discussion</b>
5:15 pm – 5:30 pm	<b>Closing remarks</b>
5:30 pm	<b>Forum close</b>