CLUSTERING RARE EPILEPSIES FOR RESEARCH, TRIALS & CARE

2023 BREAKFAST

DECEMBER 2, 2023
ORLANDO, FL
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**SPECIAL THANKS**

A special thanks to the AES Ad hoc Breakfast Planning Work Group including: Priya Balasubramanian, Laura Lubbers, Vanessa Vogel Farley, Caitlin Grzeskowiak, Yssa DeWoody; Vicky Whittemore, Christina SanInocencio, and Ilene Miller.
**Heather Mefford** is a physician scientist and Member in the Center for Pediatric Neurological Disease Research at St. Jude Children’s Research Hospital. She completed the MD and PhD in Genetics at University of Washington, after which she completed a Pediatrics residency and Medical Genetics fellowship at UW and Seattle Children’s Hospital. Her research is dedicated to gene discovery in pediatric neurological diseases, focusing on epilepsies, with the goal to leverage information about genetic etiology to develop precision therapies. Her work helped define the genetic landscape of rare developmental and epileptic encephalopathies using cutting edge genomic technologies. Using engineered and patient-derived cells, her group develops cellular models of genetic epilepsy for characterization and testing potential targeted therapies. She is a scientific advisor for several patient advocacy groups, co-chairs the ClinGen Neurodevelopmental Disorder Clinical Domain Working Group and Epilepsy Gene Curation Working Group, was co-PI for the Epi4K Consortium, and is Secretary of the Board for the American Society of Human Genetics.

**Dennis Lal** holds the position of Associate Professor and serves as the Director of the Center for Neurogenetics at UTHouston in the United States. His academic journey encompasses a Bachelor of Science degree in Biochemistry, a Master’s degree in Genetics, and a Ph.D. in Neurogenetics, all of which he obtained with honors from the University of Cologne in Germany. Driven by his passion for cutting-edge research, he delved into postdoctoral training in quantitative Epilepsy genetics, first at the University of Cologne and later at the prestigious Broad Institute of Harvard, M.I.T., and Massachusetts General Hospital in the USA. Throughout his postdoctoral work, his primary focus remained on Statistical genetics and Computational biology. Even while remotely leading these research programs as a group leader, Dr. Lal embarked on a new chapter in his career as a faculty member at the renowned Cleveland Clinic. Here, his attention turned to the crucial domains of physician education and research programs in clinical neurogenetics, biomedical data science, and the development of software designed to enhance the application of genomic information in clinical care.

**Dr. Randall Kaye** has over 30 years of experience in the medical field and has served as Executive Vice President and Chief Medical Officer since March 2022. Prior to joining Longboard, Dr. Kaye was Chief Medical Officer of Neurana Pharmaceuticals, a biotechnology company focused on the treatment of neuromuscular conditions. Prior to Neurana, he served as Chief Medical Officer of Click Therapeutics, Inc., a leader in digital healthcare innovation, where he was involved in the development of software as a prescription medical treatment for a number of chronic debilitating conditions. Prior to Click, he served as Chief Scientific Officer of SSI Strategy Holdings LLC, where he oversaw clinical development, medical affairs and pharmacovigilance. In conjunction with his role at SSI Strategy, he served as Chief Medical Officer of Axsome Therapeutics, Inc. Earlier in his career, Dr. Kaye held the positions of Chief Medical Officer of Avanir Pharmaceuticals, Inc., which was acquired by Otsuka Pharmaceutical Co., and Vice President, Medical Affairs of Scios Inc. and InterMune, Inc. He also held clinical development and medical affairs positions at Pfizer Inc. Dr. Kaye earned an M.D., M.P.H. and B.S. at George Washington University, completed his pediatric training at UMASS Medical Center and finished his academic training as a postdoctoral Research Fellow at Harvard Medical School.

**Dr. Still** has been trained as a biomedical scientist and received a Ph.D. in Neuroscience from the University of Virginia. She has 10+ years of research experience from both academic institutions and the National Institutes of Health. She has a passion for communicating science to a variety of audiences and has worked as a grant writer and a freelance contributor to scientific news outlets. Kate serves as the Phelan-McDermid Syndrome Foundation (PMSF) Scientific Director, is the Chair of the PMSF Scientific Advisory Committee, and is Principal Investigator of the Phelan-McDermid syndrome DataHub. She is spearheading many new projects aimed at accelerating research in Phelan-McDermid syndrome and is passionate about progress for families.

**Mustafa Sahin** is a developmental neurobiologist and a pediatric neurologist at Boston Children's Hospital and Harvard Medical School. He received his Sc.B. degree from Brown University, his M.D. and Ph.D. from Yale School of Medicine. He completed a pediatrics residency at Children's Hospital of Philadelphia and a child neurology residency at Boston Children's Hospital. Dr. Sahin is a Professor of Neurology at Harvard Medical School and the Rosamund Stone Zander Chair at Boston Children's Hospital. At Boston Children's, Dr. Sahin is the Director of the Translational Research Program and the Rosamund Stone Zander Translational Neuroscience Center. He is the co-PI of the Intellectual and Developmental Disabilities Research Center (IDDRC) at BCH. He directs a national consortium to study biomarkers and comparative pathobiology of TSC, PHTS and Phelan McDermid Syndrome, three genetic disorders associated with autism and intellectual disability.
Megan Abbott is currently a pediatric epilepsy fellow at Children's Hospital Colorado, embarking on a career in clinical research focused on outcome measures in developmental and epileptic encephalopathies (DEE). Over time, she has developed an increasing passion for neurogenetic conditions related to epilepsy. Looking ahead, she aims to establish new multi-disciplinary clinics, generate gene-specific datasets, and devise outcome measures applicable to various DEE populations. Having grown up with a brother with special needs, she has both a personal and professional connection to working with families of children with special needs. Megan is honored and excited to begin this work in the hope that we can advance more conditions towards clinical trial readiness and eventually disease modifying therapies.

Wei-Liang Chen is a board-certified clinical neurophysiologist and medical geneticist with a primary focus on rare genetic epilepsy. He leads the Epileptic Encephalopathy Program, a multidisciplinary clinic at Children's National, and has conducted extensive clinical research in the realm of rare genetic disorders. His unique expertise lies in molecular genetics, and is currently overseeing the genetic core for the PERC IS SIG team. His work revolves around unraveling and managing rare neurogenetic conditions, specifically emphasizing the molecular underpinnings and genotype-phenotype correlations. He brings together neurophysiology and molecular diagnostics in his practice and research, allowing him to lead this proposal effectively. Over the years, he has fostered strong collaborations with molecular geneticists, resulting in advanced genetic testing methodologies. Additionally, his experience extends to international collaborations, enriching my contributions to the field.

Nitish Chourasia is a board-certified pediatric neurologist and epileptologist interested in evaluation and treatment of rare genetic epilepsies. His clinical and research focuses on deep phenotyping of rare genetic epilepsies(ex. CHD2). His research also involves evaluation of parental perspectives in genetic testing and its impact in care.

Alina Ivaniuk's primary research focus employs computational phenotyping to reconstruct comprehensive longitudinal phenotypic profiles and reveal comorbidities in rare genetic epilepsies, in particular CDKL5 deficiency disorder and conditions associated with 15q abnormalities. She is also investigating the outcomes of invasive epilepsy treatments within the context of germline genetic epilepsies. Finally, she is applying bioinformatical approaches to enhance the precision of clinical genetic variant interpretation.

Isabel Haviland is a postdoctoral research fellow working with Dr. Heather Olson at Boston Children's Hospital (BCH) and Harvard Medical School. She has focused primarily on clinical research in CDKL5 deficiency disorder (CDD), as well as contributing to research in pediatric epilepsy genetics more broadly. She has published articles on neurologic treatment and therapies in CDD, on unique variant types in CDD that impact precision diagnosis, and on the impact of genetic testing on medical management in pediatric epilepsies. In 2022, she was selected as a fellow in the T32 Translational Post-Doctoral Training Program in Neurodevelopment at BCH. For this fellowship, one of her projects is focused on expanding genotype-phenotype correlations in CDD, including leading the study of a recently identified large cohort of individuals with independent functional abilities and/or seizure freedom, with the goal of determining if there are genetic patterns in this cohort that could ultimately have therapeutic potential.

Aurelie Hanin received her training in Paris, France, where she completed, in 2021, her Ph.D. in neurosciences under the guidance of Professor Vincent Navarro. Since January 2022, she has been a postdoctoral researcher at Yale University, under the supervision of Dr Lawrence Hirsch. Her research initially focused on identifying biological biomarkers to aid in diagnosing and monitoring status epilepticus (SE) and assessing patient outcomes. Her current research is centered on New-Onset Refractory Status Epilepticus (NORSE) and rare autoimmune encephalitides. She aims to identify inflammation biomarkers and better understand mechanisms by which immune modulations contribute to the development of seizures. Additionally, she works on identifying biomarkers explaining long-term sequelae, notably post-NORSE epilepsy, to improve patient outcomes. Her research activity is conducted in association with the NORSE Institute and the French family association Paratonnerre.
**Julie Xian** is currently a first-year medical student in the Johns Hopkins Medical Scientist Training Program. Prior to pursuing MD/PhD training at Hopkins, she was involved in neurogenetics research in Dr. Ingo Helbig’s lab at Children’s Hospital of Philadelphia, where her work was focused on delineating the genetic and clinical landscape of pediatric epilepsies and neurodevelopmental disorders, including STXBP1 and SYNGAP1-related disorders. Her research expertise included developing scalable computational frameworks to delineate genotype-phenotype correlations, reconstruct natural disease histories, and assess clinical outcomes through big data approaches in these conditions. Her work on STXBP1-related disorders led her to be awarded the American Epilepsy Society Grass Foundation Young Investigator Award in 2021. Julie’s interest in bridging the development of these computational phenotyping methods in the lab with tangible impacts in the clinical setting has led her to pursue MD/PhD training to become a future physician scientist.

**Aran Groves** is passionate about advancing the understanding of rare epilepsies through collaborative data sets and informatics tools. He’s actively contributed to collecting genotypic and phenotypic correlations in CDKL5, participating in an international collaboration to enhance treatment metrics for future clinical trials. Additionally, he leads a project on infantile spasms, utilizing the Pediatric Epilepsy Learning Healthcare System to explore determinants of comorbidities. This system gathers electronic health information from multiple sites, providing a valuable platform for studying various rare pediatric epilepsies. His work aims to improve diagnostics and treatment strategies, leveraging technology and collaborative efforts for a comprehensive approach.

**Peter Galer** has been researching rare childhood genetic epilepsies since 2017, and the field continues to engage, fascinate, and drive him on multiple levels. These disorders are tremendously diverse and complex, thus require investigation through countless perspectives and modalities. He is constantly learning and applying knowledge from diverse fields ranging from genetics and physiology to data science and machine learning. So little is still known about the mechanisms and optimal treatment of these disorders, and the potential impact for patients and their families from this work is immeasurable. He has been to clinics and met patients and their families with these often devastating disorders. Every bit of extra knowledge can make an immeasurable impact. In his work with these disorders, his passion for discovery and most of all translational, impactful research never ceases.

**Dr. Knowles** basic, translational and clinical research lab focuses on the contribution of neuron-glial interactions to the pathogenesis of pediatric epilepsy. Her research group is particularly interested in generalized epilepsies, and developmental and epileptic encephalopathies. Most recently, the Knowles lab demonstrated an unexpected contribution of activity-dependent myelination to generalized epilepsy progression (J.K. Knowles et al, Nature Neuroscience, 2022). Dr. Knowles is also a clinician who provides specialty care for children rare genetic forms of epilepsy.

**Dr. Edmonds** is actively involved in treating children with complex and drug-resistant epilepsy. His clinical research interests include analyzing epilepsy networks, specifically corticothalamic connections regarding seizure onset and the potential of targeted neurostimulation therapy, as well as evaluating the genetic mosaicism of patients with hemimegalencephaly and implementing a multidisciplinary approach for these patients including those who ultimately may benefit from targeted therapy based on genetic results. He is excited for this opportunity to build connections with the rare epilepsy community and collaborate on projects going forward.”
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