HEALTH
UNIVERSITY OF UTAH

Department of Neurobiology and Anatomy
20 S 2030 E, BPRB 320
Salt Lake City, UT 84112
801.581-3653

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A postdoctoral position available in the Shcheglovitov Lab at the University of Utah to study the biochemical and functional properties of human neurons and organoids derived from patient-specific and CRISPR/Cas9-engineered induced pluripotent stem cells for modeling autism, intellectual disability, and epilepsy. We particularly invite applications from ambitious, exquisite, and motivated individuals with substantial neuroscience-related experience in molecular biology, biochemistry, physiology, or imaging. The work in our lab is currently centered around two NIH-funded research projects:

Project 1: **Cellular and molecular mechanisms disrupted in 22q13 deletion syndrome and autism.** We previously demonstrated that *SHANK3*-deficient human cortical neurons derived from induced pluripotent stem cells (iPSCs) acquired from 22q13 deletion syndrome patients with autism and intellectual disability have severely impaired excitatory synaptic transmission (Shcheglovitov et al., *Nature* 2013). However, the cellular and molecular mechanisms responsible for the development of these deficits remain unknown. The main goal of this project is to elucidate the cellular and molecular mechanisms responsible for the development of synaptic and connectivity deficits in *SHANK3*-deficient human neurons.

Project 2: Mechanisms of epilepsy in human neurodevelopmental disorders: focus on 22q13 deletion syndrome. Epilepsy is a major source of morbidity and mortality associated with autism. However, the cellular and molecular mechanisms responsible for epilepsy in these individuals remain largely unknown. We have developed a new method for making human cortical organoids with functional neural networks from induced pluripotent stem cells (iPSC) and generated iPSCs from 22q13 deletion syndrome patients with drug-resistant epilepsy. The main goal of this project is to investigate the cellular and molecular mechanisms of drug-resistant epilepsy using cortical organoids derived from iPSCs obtained from 22q13 deletion syndrome patients with drug-resistant epilepsy.

The University of Utah is one of the largest Research University in the American Midwest. It is located in Salt Lake City in the foothills of the Wasatch Mountains with several famous Ski Resorts and National Parks nearby. The university offers vibrant research environment with multiple state-of-art core research facilities and numerous interdisciplinary centers and initiatives, including NIH Center for Clinical and Translational Research, NIH Anticonvulsant Drug Development Program, Utah Neuroscience Initiative, and Utah Genome Project Initiative, to support innovative biomedical research.

The Department of Neurobiology and Anatomy is a highly collegial and collaborative department heavily invested in the “cutting-edge” neuroscience research. It provides exceptional mentoring support for postdocs interested in both academia and industry.

If you are interested in this opportunity, please email your CV and cover letter briefly describing your research interests to Dr. Alex Shcheglovitov (alexsh@neuro.utah.edu).