The Role of Pcdh10, an Autism Candidate Gene, in Brain and Behavior Development
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Through PURM, I had the wonderful opportunity to work with a lively and dedicated group of researchers studying autism spectrum disorder (ASD). In Dr. Ted Brodkin’s lab, I was fortunate to gain exposure to both translational research using mice and clinical research involving human participants.

The goal of the translational research was to analyze social communication and behavioral phenotypes in the Pcdh10<sup>+/−</sup> mouse model relevant to ASD. Pcdh10<sup>+/−</sup> mice lack one copy of the protocadherin 10 gene, which is important for neural cell adhesion and the pruning of glutamatergic synapses in the brain. I quantified social approach behavior in Pcdh10<sup>+/−</sup> mice and examined the differences in high-frequency squeaks (ultrasonic vocalizations or USVs) emitted by Pcdh10<sup>+/−</sup> pups and wild-type littermates separated briefly from their mothers.

The clinical research component was composed of a behavioral intervention aimed at improving the social skills of high-functioning adults on the autism spectrum. Among other activities, participants were presented with role-play scenarios of social situations and coached on skillful ways to respond.

Through these projects, I learned a great deal about the use of mouse models and about the assessments of social communication and skills in mice and humans. In mouse studies, I became familiar with using TopScan software to measure mouse sniffing behavior and grew comfortable with the spectral characteristics of different mouse calls. In addition, in clinical research, I learned to score Contextual Assessment of Social Skills (CASS) videos, which are a role-play measure of social functioning in high-functioning adults with ASD.

The PURM program allowed me to explore both clinical and translational research and enriched my understanding of the research process. I am especially grateful to have had the opportunity to get to know those involved in the lab’s work, from other undergrads, to the social coaches, to the participants in the clinical study. The people I encountered introduced me to unfamiliar methods of analysis, made me aware of new possible career paths, and impressed upon me the varied manifestations of ASD. I thoroughly enjoyed the exposure I received to this field of research, and hope to continue it in the future.