2018 ASF/Dup15q Research Symposium Abstract

Invited speaker: Gail Mandel, Ph.D., Senior Scientist
Vollum Institute, Oregon Health & Science University

I will present some of our recent studies on Rett syndrome, a neurological disease due to mutations in the transcriptional repressor, Methyl CpG Binding Protein 2 (MeCP2). Based on our studies, and those of others, which indicate a role for non-neuronal cell types in Rett syndrome, as well as neurons, we are testing an approach for repairing MeCP2 mutations *in situ* that would be viable in all affected cell types. I will focus on our recently published results with site-directed RNA editing that exploit an engineered enzyme native to brain, termed Adenosine Deaminase Acting on RNA. By delivering our specialized editing components into primary neurons isolated from mice with the MeCP2 patient mutation, $Mecp2^{317G>A}$, we efficiently recode the mutation back to wild type sequence and restore stability and DNA binding ability to the repaired protein. Future studies based on this system will be discussed.