

1 Introduction

2 Neurodevelopmental disorders

3 Co-morbidity of NDDs

4 Expression studies

- what are the datasets available
- where am i going to get the gene lists from
- what gene ontologies am I getting with my genes
- lack of ID gene networks
- benchmark potentially?
- Issues with bulk rna?

5 Thesis aims

- To comprehensively characterize the expression properties of ID and CP genes in the normal human brain
 - To determine whether ID and CP genes are expressed in a cell-type specific manner using single-cell RNA-seq data
 - To characterize the developmental trajectory of gene expression for ID and CP genes and assess their expression during cellular maturation in brain organoids and assess their expression across multiple fetal developmental periods

- To characterize the spatial and temporal properties of ID and CP gene expression in the adult brain, by assessing age-dependent changes brain-region and cortical layer-specificity
- To determine whether convergent gene expression changes are observed in ID and CP in patient-derived cells with heterogenous mutations