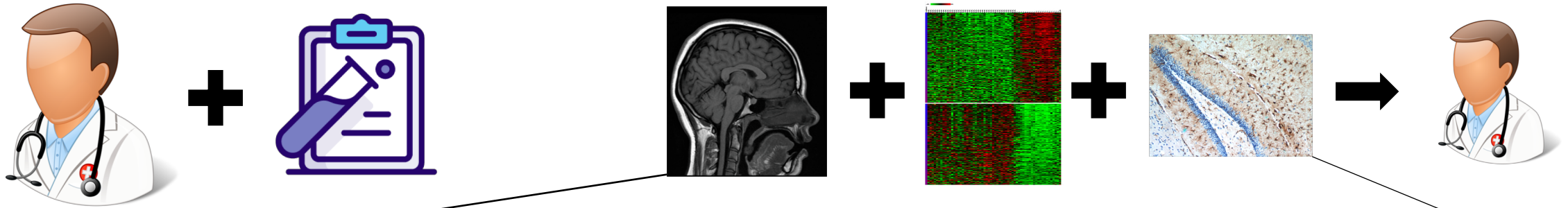


MRI + Molecular integration for Alzheimer's diagnosis

By- Ameya Kulkarni, PhD Candidate (Genetics + Comp Bio)

Current diagnostic method (Physician)

Novel diagnostic method (ML-Data Integration)



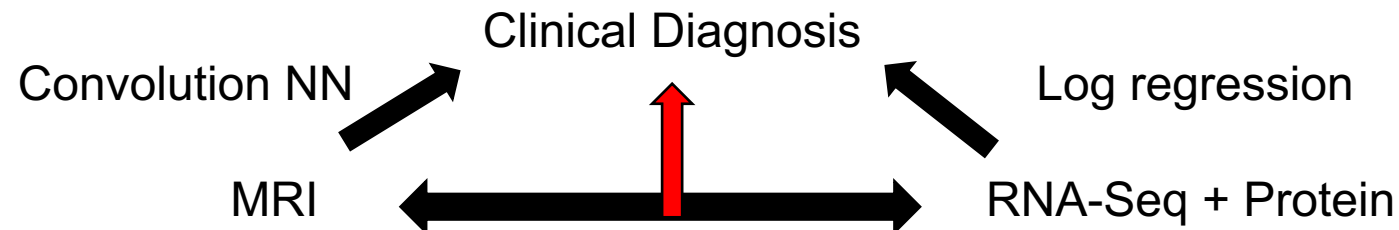
Datasets (OASIS: **4GB** of 735 3D MRI + Allen Brain Atlas: **3TB** of RNA-Seq + Protein data 377 samples from 5 brain regions)

Preprocessing steps

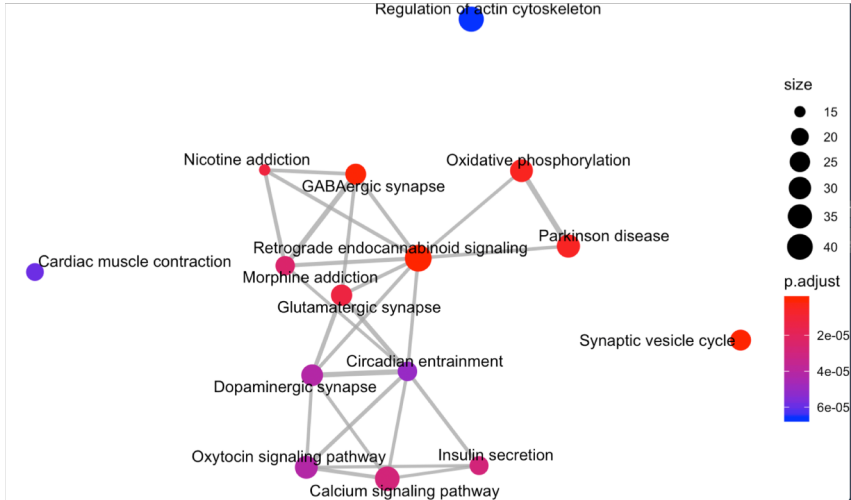
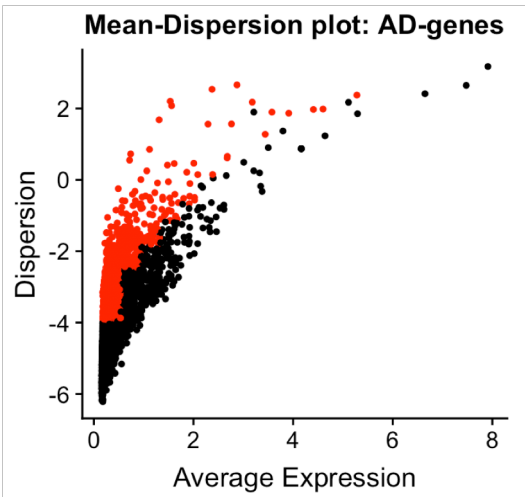
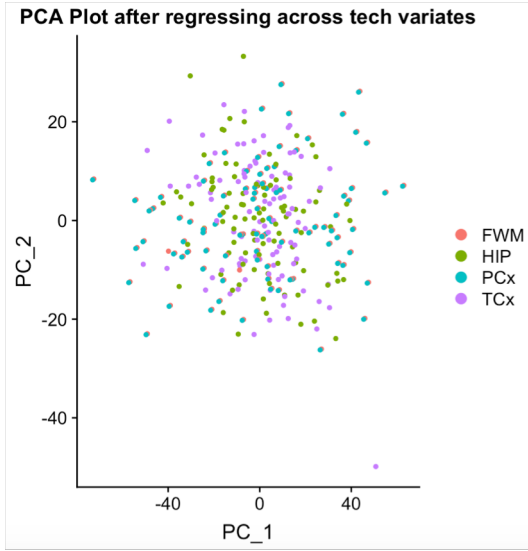
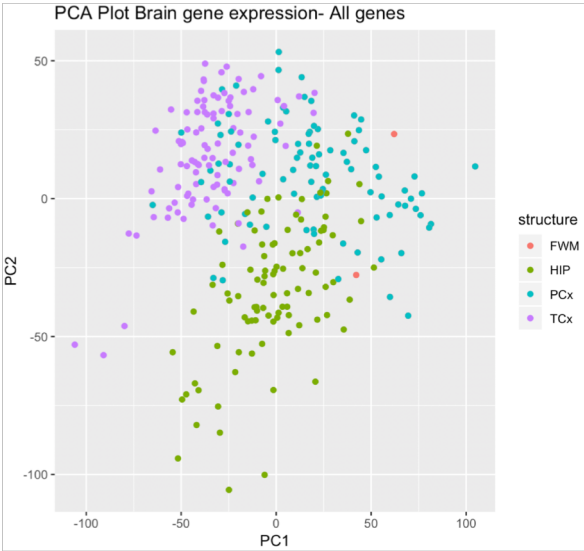
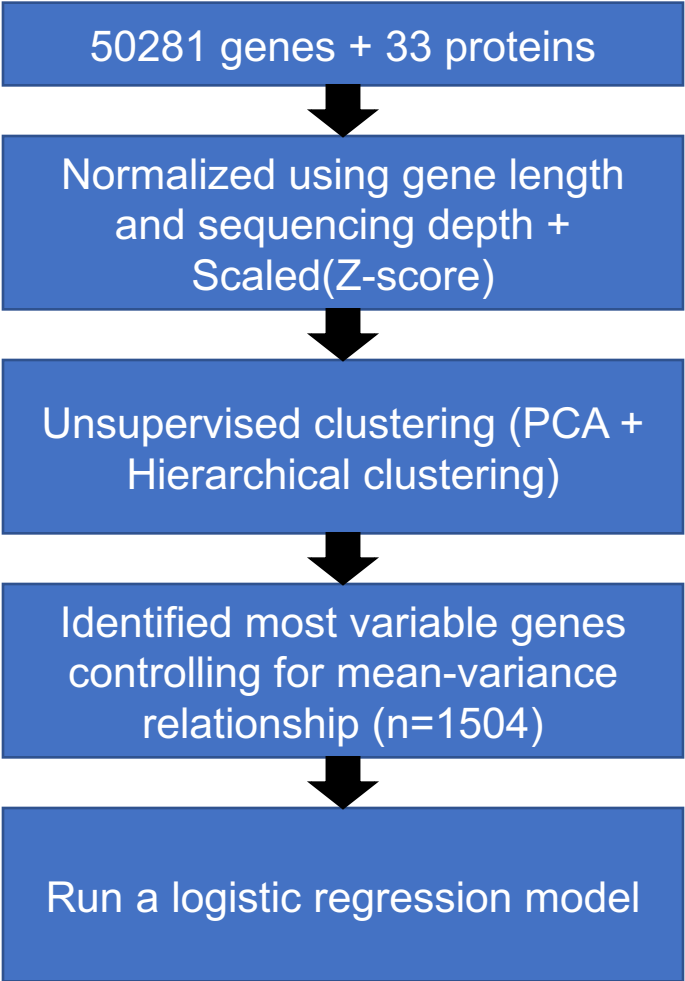
MRI (Skull stripping, Image restructuring...)

RNA-Seq (Gene alignment, quantification...)

Workflow



Gene expression model reveals brain-structure specific heterogeneity and important biological pathways in AD for drug discovery



Pipeline for processing MRI data and novel methods to integrate with gene expression data

