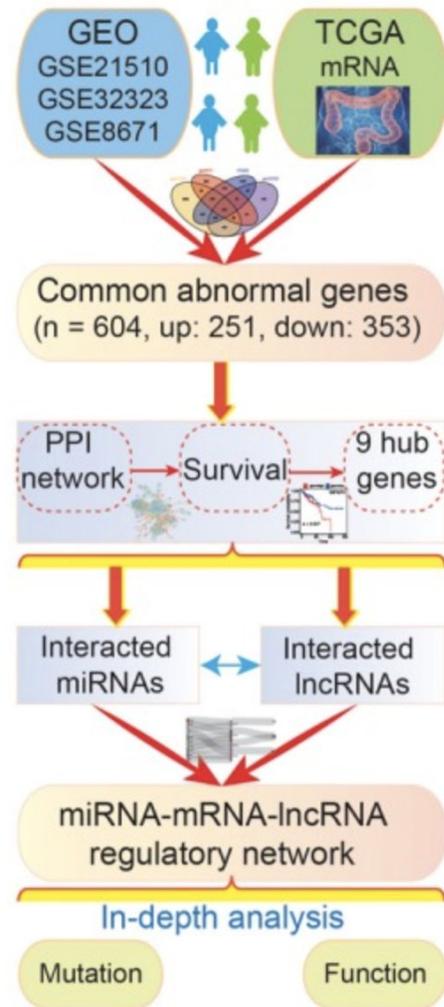

Final Deliverables

— Alec Kingsley —

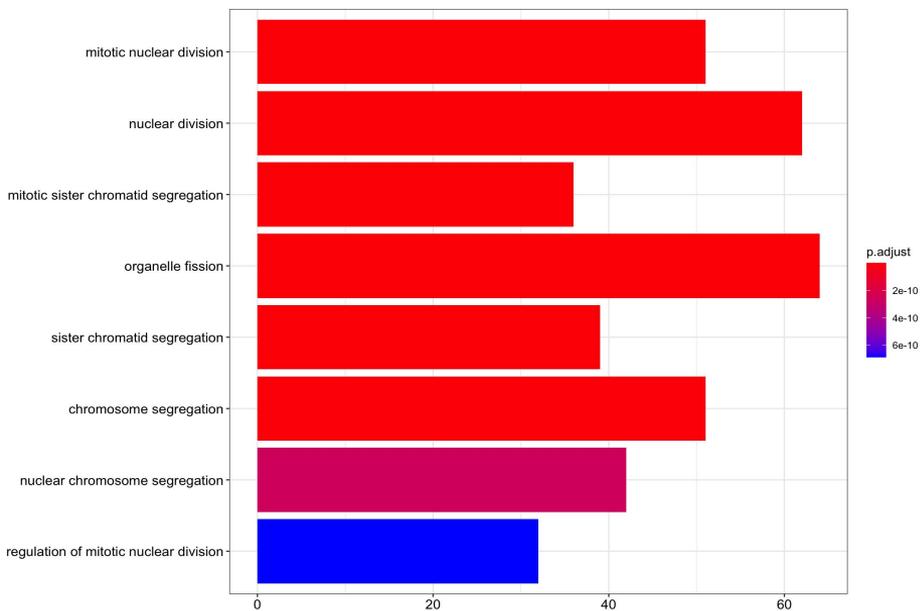
Pipeline Analysis

- The paper's pipeline involved taking CRC expression data from 3 GEO datasets and data from The Cancer Genome Atlas
- The quality control and normalization methods used in the paper's pipeline were unspecified
- Similarities to our pipeline
 - Functional analysis (KEGG pathways and GO terms)
 - PPI networks (STRING database)
- Differences
 - Survival Analysis
 - Identification of hub genes
 - Creation and analysis of ceRNA network

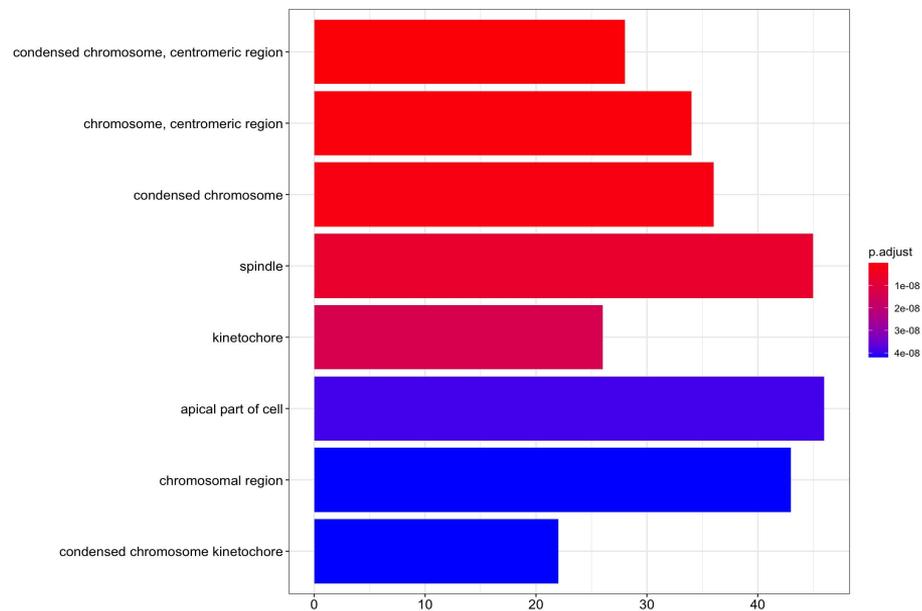


GO Term Barplots

Biological Process

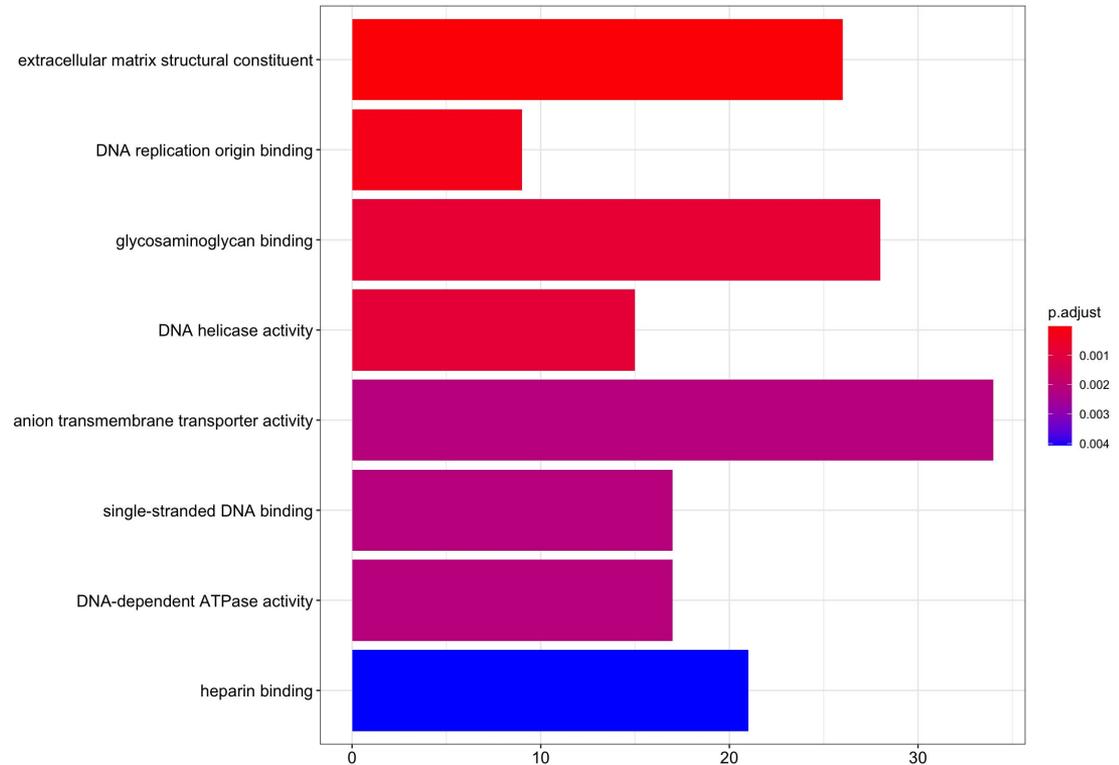


Cellular Component



GO Term Barplots pt 2

Molecular Function



Things Learned

- Technical skills
 - Genomic data processing and analysis from normalization to functional analysis to creation of PPI networks
- Tools
 - R , Python, metascape, STRING
- Soft skills
 - Resumes, elevator pitches, presentations, working with groups, divergent thinking

Challenges Faced

- Learning to write and debug code in R
- Started this with very little experience in R
- Had issues with properly formatting functions and getting data to be in the right format for the next step
- However, with the help of R training and office hours, as well as working with my group to fix each others code I was able overcome these challenges.

Ideas for The Fall Session

- If timing allows, the addition of some level of survival analysis to a pipeline like ours would be interesting
- Generalizing the R script they create to be able to run on different microarray datasets without modification

Achievement Highlights

- Working with groups to complete the deliverables and give presentations
- Becoming more proficient with R and learning the basics of tools like python, metasploit, and STRONG
- Learning to conduct a basic pipeline and to interpret these pipelines in general

Bioinformatics

- Before this internship I didn't fully understand how extensive the field of bioinformatics with both all the levels involved and in wide variety of tools and analysis available.
- Learning how much depth there is to bioinformatics makes me excited to learn even more about it