# BB512/BB612 - Homework III

Apr 28, 2022

Use the GSE55945 GEO dataset to perform the required analyses:

```
library(GEOquery)
gset <- getGEO("GSE55945", GSEMatrix = TRUE, getGPL = TRUE)
gset <- gset[[1]]
```

1. [20 pt] Transform and normalize the expression data
2. [40 pt] Determine the differentially expressed probes (DEGs) using `limma`, comparing "Malignant prostate tissue" vs. "Benign prostate tissue". Filter DEGs so that $|\text{LFC}| > 1$ and $\text{FDR} < 0.05$. Display results in a volcano plot.
3. [40 pt] Using the filtered DEGs, perform enrichment analysis on KEGG pathways.