

Notes 3.6: Case Study (part 1)**Gene Expression Profiling in Frontal Cortex
of HIV Patients with Major Depression**

A team of researchers is studying HIV patients with major depressive disorder (MDD). They are interested in which biological processes exhibit different activity levels in the frontal cortex of HIV patients with MDD, compared to HIV patients without MDD. The researchers can use gene expression as a proxy measurement for the activity level of thousands of biological processes. They designed and performed a gene expression experiment using 4 HIV samples and 4 HIV+MDD samples (so 8 .cel files; data set GSE17440 on NCBI's GEO website).

We want to perform an appropriate statistical analysis to identify and characterize the genes of interest to this team of researchers.