DGEs_human_donortime_plots

Purpose:

To plot the human/HBV (with donor and time serving as factors in the design) as volcano plots. This includes the July 2018 samples.

Required libraries

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggplot2)
library(ggrepel)
library(stringr)
```

Visualizing the DGE output by volcano plots.

```
##The location of the DGE files  generated so that they can be read in
DGE_files <- "Human DGEs_donortime"
DGE_R <- basename(Sys.glob(file.path(DGE_files, "*.txt")))
DGE_R
```

```
## [1] "2018-07-31human_donor_timehumangenes-d28_vs_d8_HBV_analysis_results.txt"
## [2] "2018-07-31human_donor_timehumangenes-d28_vs_d8_coinf_analysis_results.txt"
## [3] "2018-07-31human_donor_timehumangenes-d28_vs_d8_mock_analysis_results.txt"
```

```
##Function to read in the DGE files
exptDGEs <- function(files) {
  d <- read.delim(files, header = TRUE)
}

##Read in all the files
all_DGEs <- lapply(file.path(DGE_files, DGE_R), exptDGEs)
names(all_DGEs) <- sub(".txt", "", DGE_R)
names(all_DGEs)
```

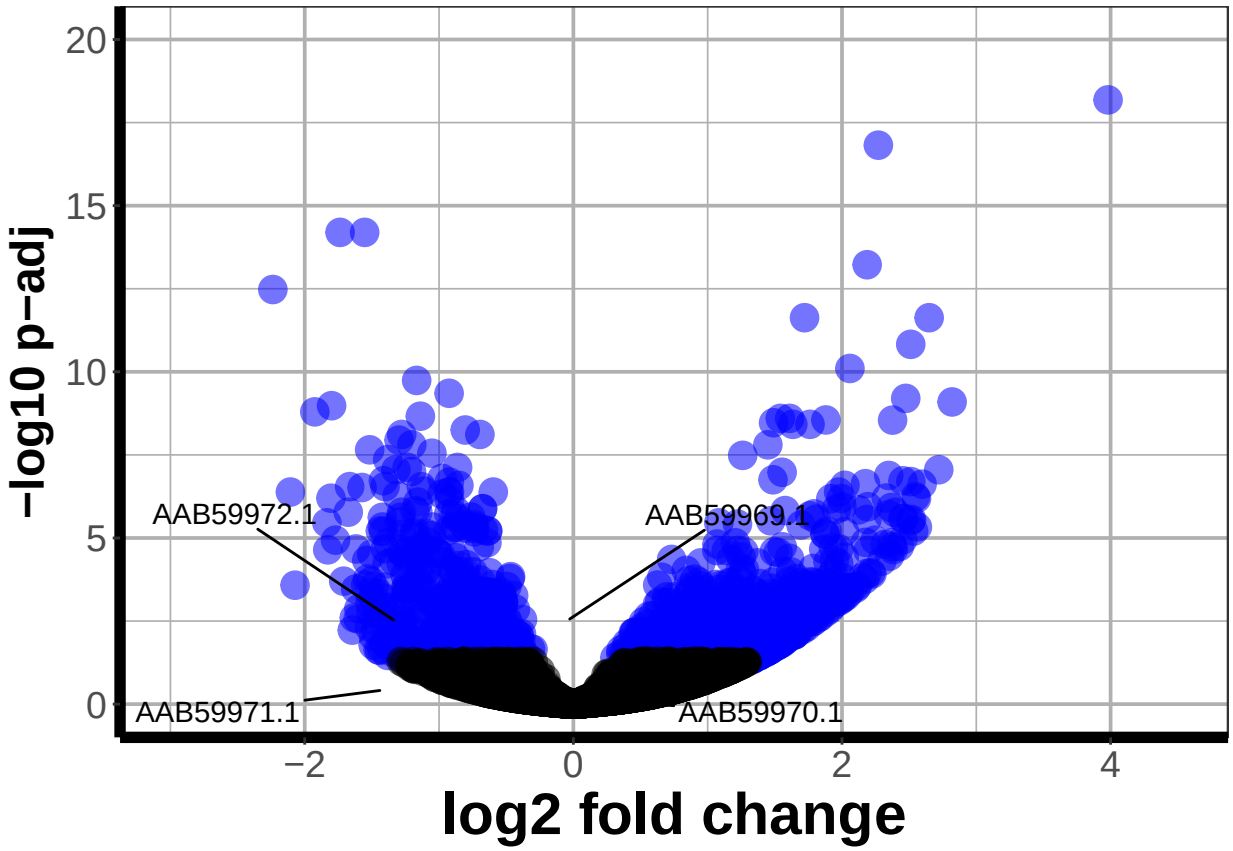
```
## [1] "2018-07-31human_donor_timehumangenes-d28_vs_d8_HBV_analysis_results"
## [2] "2018-07-31human_donor_timehumangenes-d28_vs_d8_coinf_analysis_results"
## [3] "2018-07-31human_donor_timehumangenes-d28_vs_d8_mock_analysis_results"
```

```
##Function to generate the volcano plots; here all the axes labels are intact
##and HBV genes labeled.
 for(i in 1:3) {
  index <- all_DGEs[[i]]
output_name <- str_replace(names(all_DGEs[i]), "^[0-9]*-*-[0-9]*-*[0-9]*\\s","") %>%
  str_replace("_*\\s*analysis", "")
```

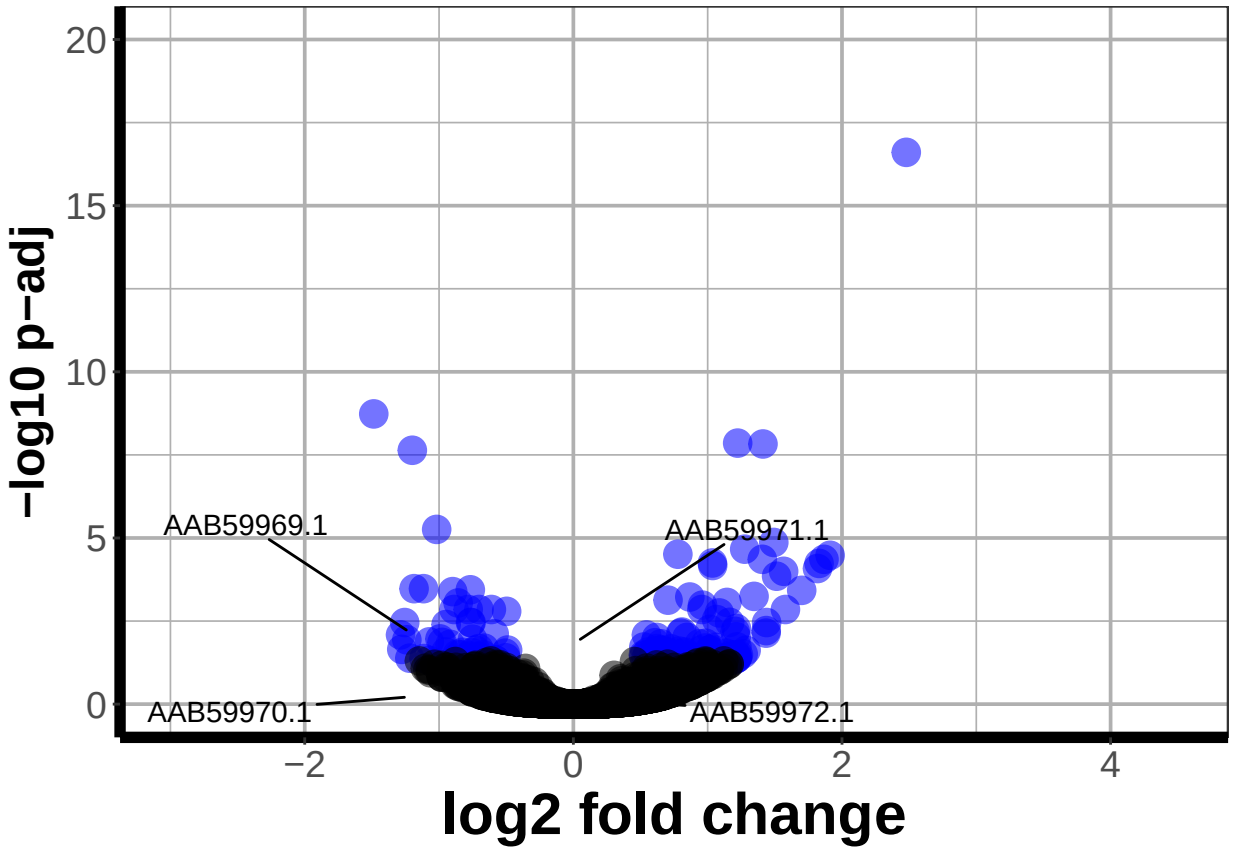
```
index$filleffect <- with(index, factor(ifelse(padj > 0.05, 0, 1)))
print(ggplot(data=index, aes(x=log2FoldChange, y=-log10(padj), color =filleffect)) +
  geom_point(aes(colour=filleffect, alpha=0.4, size=1)) +
    scale_colour_manual(values = c("black", "blue")) +
    theme(legend.position = "none") +
    xlab("log2 fold change") + ylab("-log10 p-adj") +
    ##I know from running these first with the "natural" axes what limits will work
    ##for all the graphs
    coord_cartesian(xlim = c(-3, 4.5), ylim = c(0, 20)) +
          geom_text_repel(
     data = index[grep("AAB59972.1|AAB59970.1|AAB59969.1|AAB59971.1", index$X),],
      mapping = aes(label = X),
      size = 4,
      box.padding = unit(0.4, "lines"),
      point.padding = unit(4, "lines")) +
    theme_bw() +
    theme(legend.position = "none",
          axis.title.x = element_text(face = "bold", size = 22),
          axis.text = element_text(size = 14),
          plot.title = element_blank(),
          panel.grid.major = element_line(size = 0.65,
                                          color = "gray69"),
          panel.grid.minor = element_line(size = 0.3, color = "gray69"),
          axis.line = element_line(size = 2),
          axis.title.y = element_text(face = "bold", size = 18)))

ggsave(file.path("Human DGEs_donortime", paste(Sys.Date(), output_name,
"donortimeDGEs_unfiltered_labeled.png")), units = 'in', height = 10,
width = 10, dpi = 300, device = "png")

}
```

```
## Warning: Removed 45000 rows containing missing values (geom_point).
```

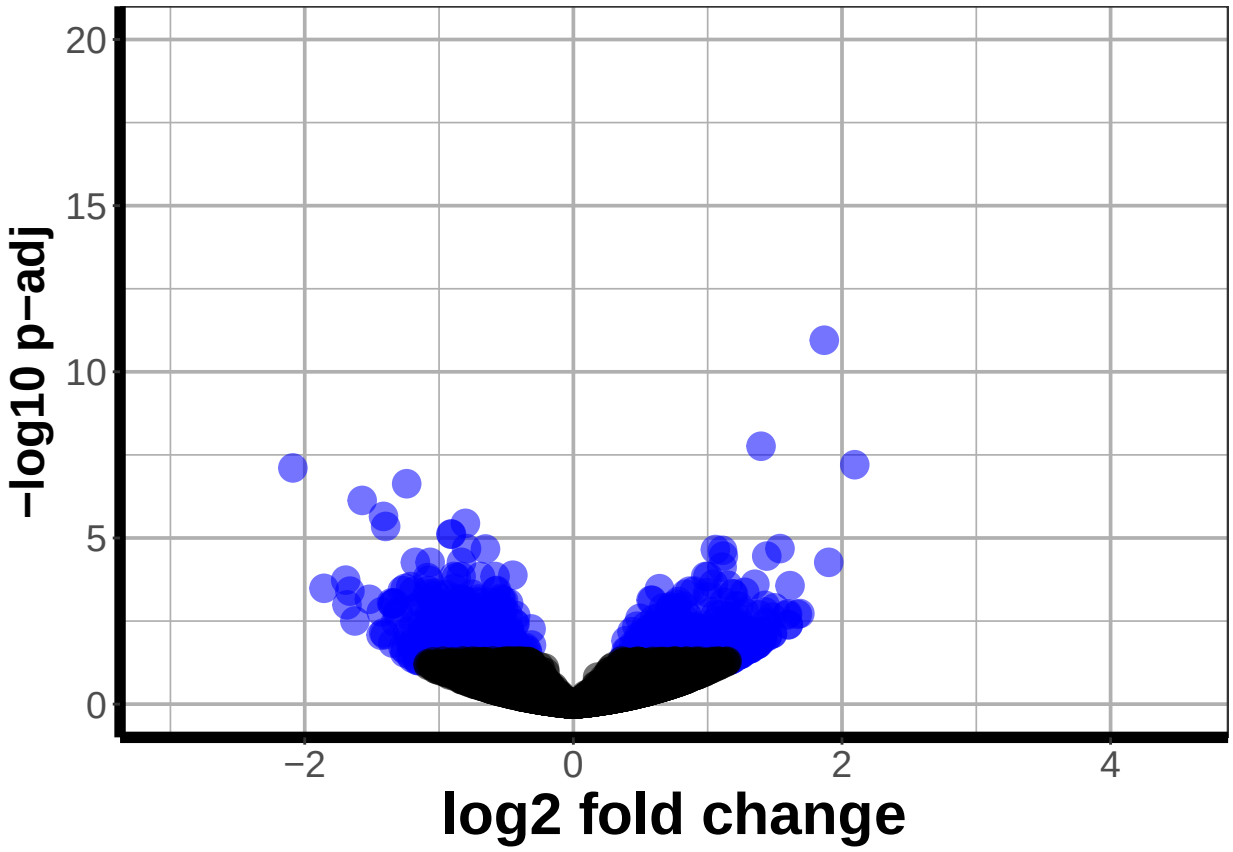
```
## Warning: Removed 45000 rows containing missing values (geom_point).
```




```
## Warning: Removed 45234 rows containing missing values (geom_point).
## Warning: Removed 45234 rows containing missing values (geom_point).
```




```
## Warning: Removed 46300 rows containing missing values (geom_point).
## Warning: Removed 4 rows containing missing values (geom_text_repel).
## Warning: Removed 46300 rows containing missing values (geom_point).
## Warning: Removed 4 rows containing missing values (geom_text_repel).
```



Session Info

```
sessionInfo()
```

```
## R version 3.3.3 (2017-03-06)
## Platform: x86_64-apple-darwin13.4.0 (64-bit)
## Running under: macOS Sierra 10.12.6
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
## [1] stringr_1.3.0 ggrepel_0.7.0 ggplot2_2.2.1 dplyr_0.7.4
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_0.12.16     knitr_1.20       bindr_0.1.1      magrittr_1.5
##  [5] munsell_0.4.3    colorspace_1.3-2 R6_2.2.2         rlang_0.2.0
##  [9] plyr_1.8.4       tools_3.3.3      grid_3.3.3       gtable_0.2.0
## [13] htmltools_0.3.6  lazyeval_0.2.1   yaml_2.1.19      assertthat_0.2.0
## [17] rprojroot_1.3-2  digest_0.6.15    tibble_1.4.2     bindrcpp_0.2.2
## [21] glue_1.2.0       evaluate_0.10.1  rmarkdown_1.9    labeling_0.3
## [25] stringi_1.1.7    pillar_1.2.2     scales_0.5.0     backports_1.1.2
## [29] pkgconfig_2.0.1
```