P259: Response to reviews

Dendritic cells (pDC)

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Contents

Background

Analyses performed in response to reviews for publication in JACI.

Setup

Load packages

```
# Data manipulation and figures
library(tidyverse)
library(ggpubr)
library(readxl)
library(patchwork)
#Print pretty tables to Rmd
library(knitr)
library(kableExtra)
```

Set seed

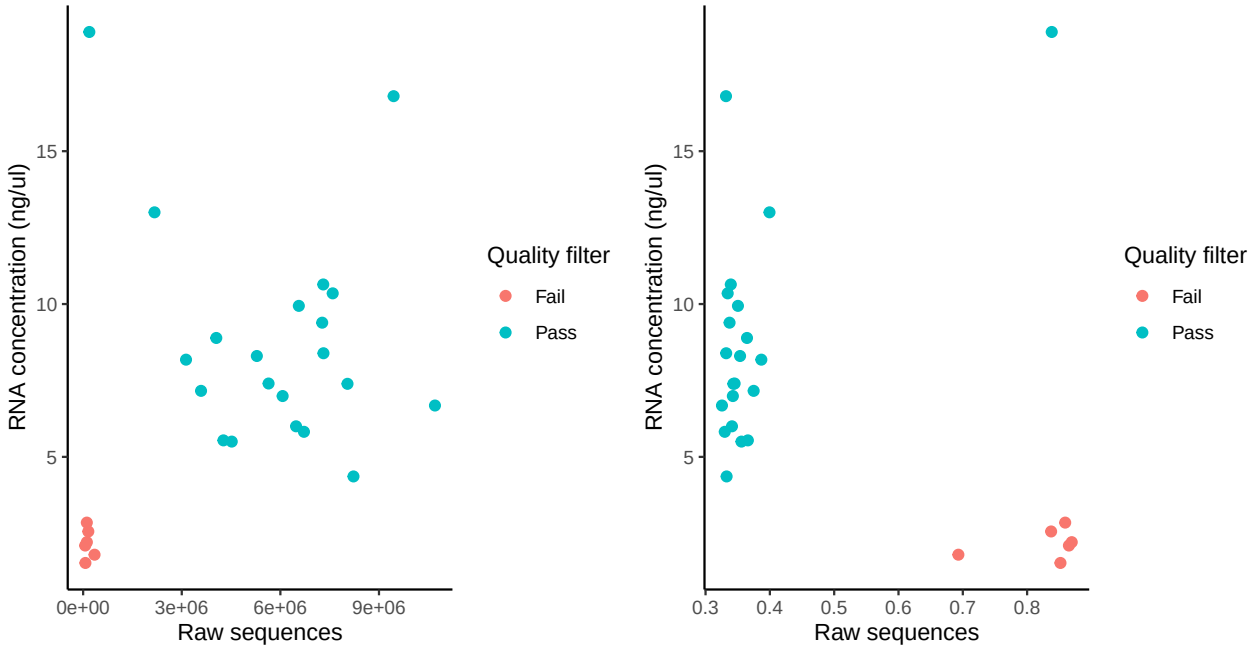
```
set.seed(589)
```

Custom functions

```
#To extract and format p-value from lmFit
source("https://raw.githubusercontent.com/kdillmcfarland/R_bioinformatic_scripts/master/limma.extract.p
```

Low-quality libraries

Determine if low-quality libraries removed from analysis are associated with low input RNA. All filtered libraries with low raw sequences and high CV coverage also had low input RNA.



Viral load

Data

RV sequences were extracted from RNA-seq libraries and quantified using methods similar to human data. Normalized RV counts were calculated as total RV sequences / total non-human sequences * 1E6

Run limma contrasts model

In both experiments, viral loads were significantly higher in virus-infected samples and there were no differences between EOS supernatant or AntiIL5 treatment groups.

\begin{table}[H]

\caption{P259_1}

Variable	Fold change	FDR
none_HRV - none_none	8925.1701	0.0005
EOS.supp_HRV - EOS.supp_none	10188.7785	0.0003
EOS.supp_none - none_none	121.6079	0.9524
EOS.supp_HRV - none_HRV	1385.2163	0.4630

\end{table}

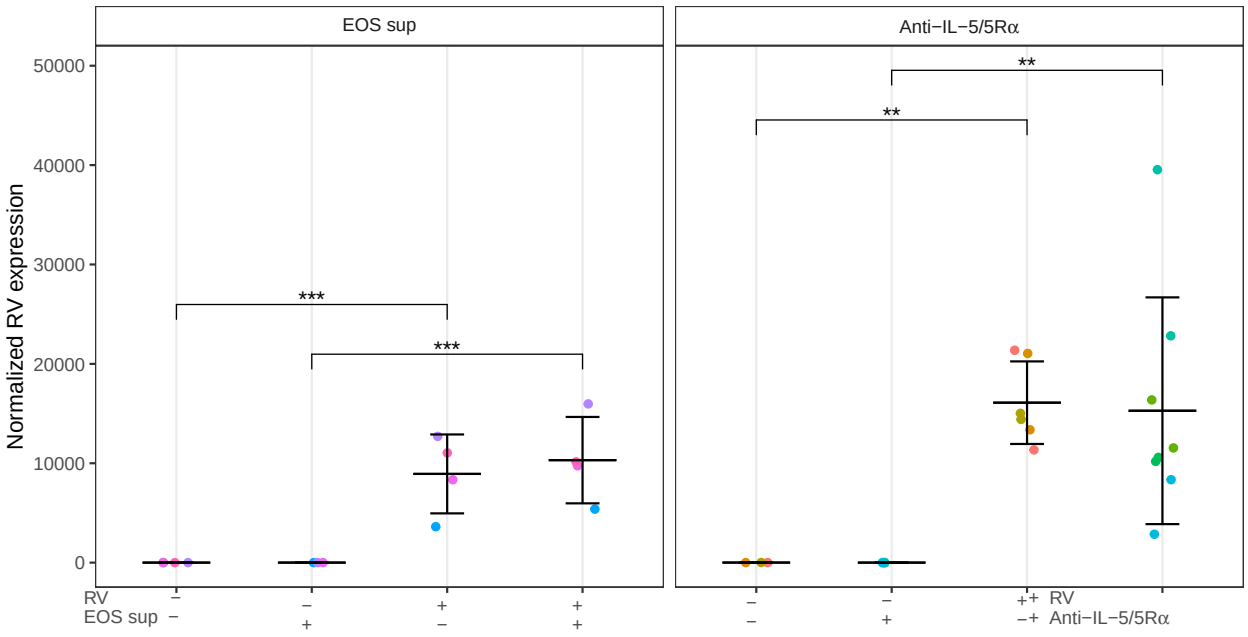
\begin{table}[H]

\caption{P259_2}

Variable	Fold change	FDR
none_HRV - none_none	16087.8889	0.0025
AntiIL5_HRV - AntiIL5_none	15280.7569	0.0012
AntiIL5_none - none_none	-4.8334	0.9994
AntiIL5_HRV - none_HRV	-811.9653	0.8689

\end{table}

Plot



R session

```
sessionInfo()
```

```
## R version 4.1.1 (2021-08-10)
## Platform: x86_64-apple-darwin17.0 (64-bit)
## Running under: macOS Big Sur 10.16
##
## Matrix products: default
## BLAS:   /Library/Frameworks/R.framework/Versions/4.1/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/4.1/Resources/lib/libRlapack.dylib
##
## 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] limma_3.48.3          kableExtra_1.3.4.9000 knitr_1.36
##  [4] patchwork_1.1.1       readxl_1.3.1          ggpubr_0.4.0
##  [7] forcats_0.5.1         stringr_1.4.0         dplyr_1.0.7
```

```
## [10] purrr_0.3.4           readr_2.0.2           tidyr_1.1.4
## [13] tibble_3.1.5          ggplot2_3.3.5         tidyverse_1.3.1
##
## loaded via a namespace (and not attached):
##  [1] fs_1.5.0             lubridate_1.8.0      bit64_4.0.5
##  [4] RColorBrewer_1.1-2   webshot_0.5.2        httr_1.4.2
##  [7] tools_4.1.1          backports_1.2.1      utf8_1.2.2
## [10] R6_2.5.1             rpart_4.1-15         Hmisc_4.6-0
## [13] DBI_1.1.1            colorspace_2.0-2     nnet_7.3-16
## [16] withr_2.4.2          gridExtra_2.3        tidyselect_1.1.1
## [19] bit_4.0.4            curl_4.3.2           compiler_4.1.1
## [22] cli_3.0.1            rvest_1.0.2          htmlTable_2.3.0
## [25] xml2_1.3.2           labeling_0.4.2       checkmate_2.0.0
## [28] scales_1.1.1         systemfonts_1.0.2    digest_0.6.28
## [31] foreign_0.8-81       rmarkdown_2.11       svglite_2.0.0
## [34] rio_0.5.27           jpeg_0.1-9           base64enc_0.1-3
## [37] pkgconfig_2.0.3      htmltools_0.5.2      dbplyr_2.1.1
## [40] fastmap_1.1.0        highr_0.9            htmlwidgets_1.5.4
## [43] rlang_0.4.12         rstudioapi_0.13      generics_0.1.0
## [46] farver_2.1.0         jsonlite_1.7.2       vroom_1.5.5
## [49] zip_2.2.0            car_3.0-11           magrittr_2.0.1
## [52] Formula_1.2-4        Matrix_1.3-4         Rcpp_1.0.7
## [55] munsell_0.5.0        fansi_0.5.0          abind_1.4-5
## [58] lifecycle_1.0.1      stringi_1.7.5        yaml_2.2.1
## [61] carData_3.0-4        grid_4.1.1           parallel_4.1.1
## [64] crayon_1.4.1         lattice_0.20-45      splines_4.1.1
## [67] haven_2.4.3          hms_1.1.1            pillar_1.6.4
## [70] ggsignif_0.6.3       reprex_2.0.1         glue_1.4.2
## [73] evaluate_0.14        latticeExtra_0.6-29  data.table_1.14.2
## [76] modelr_0.1.8         png_0.1-7            vctrs_0.3.8
## [79] tzdb_0.1.2           cellranger_1.1.0     gtable_0.3.0
## [82] assertthat_0.2.1     xfun_0.27            openxlsx_4.2.4
## [85] broom_0.7.9          rstatix_0.7.0        survival_3.2-13
## [88] viridisLite_0.4.0    cluster_2.1.2        statmod_1.4.36
## [91] ellipsis_0.3.2
```