Choriocapillaris participate in the progress of age-related macular degeneration by regulating COL10A1 expressed by retina pigment epithelial

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# Supplementary Materials

### differential expression of ligands along the trajectory

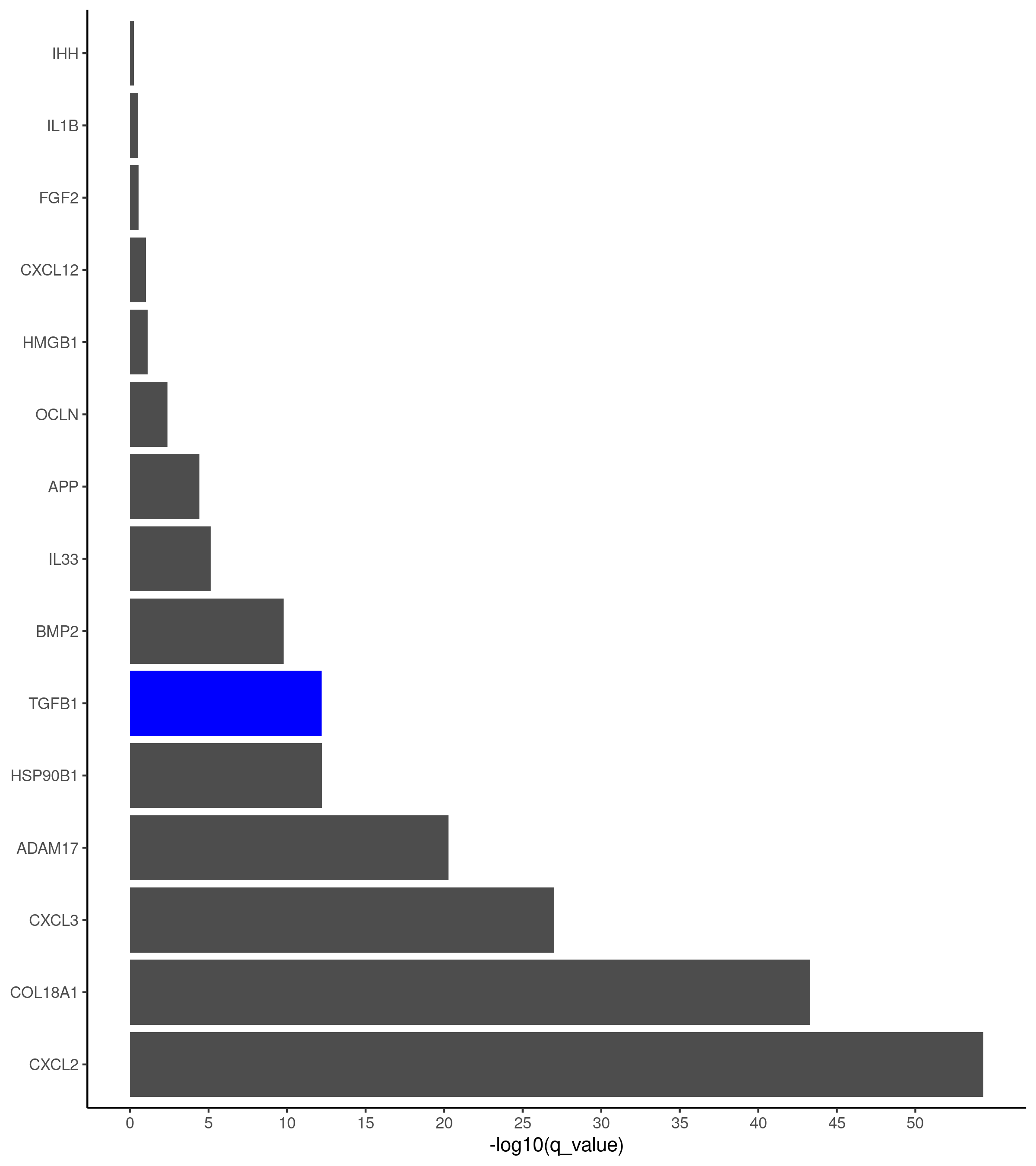


Figure S1: The statistical significance of ligands expressed along the trajectory in the choriocapillaris endothelial cells.

### differential expression of targets

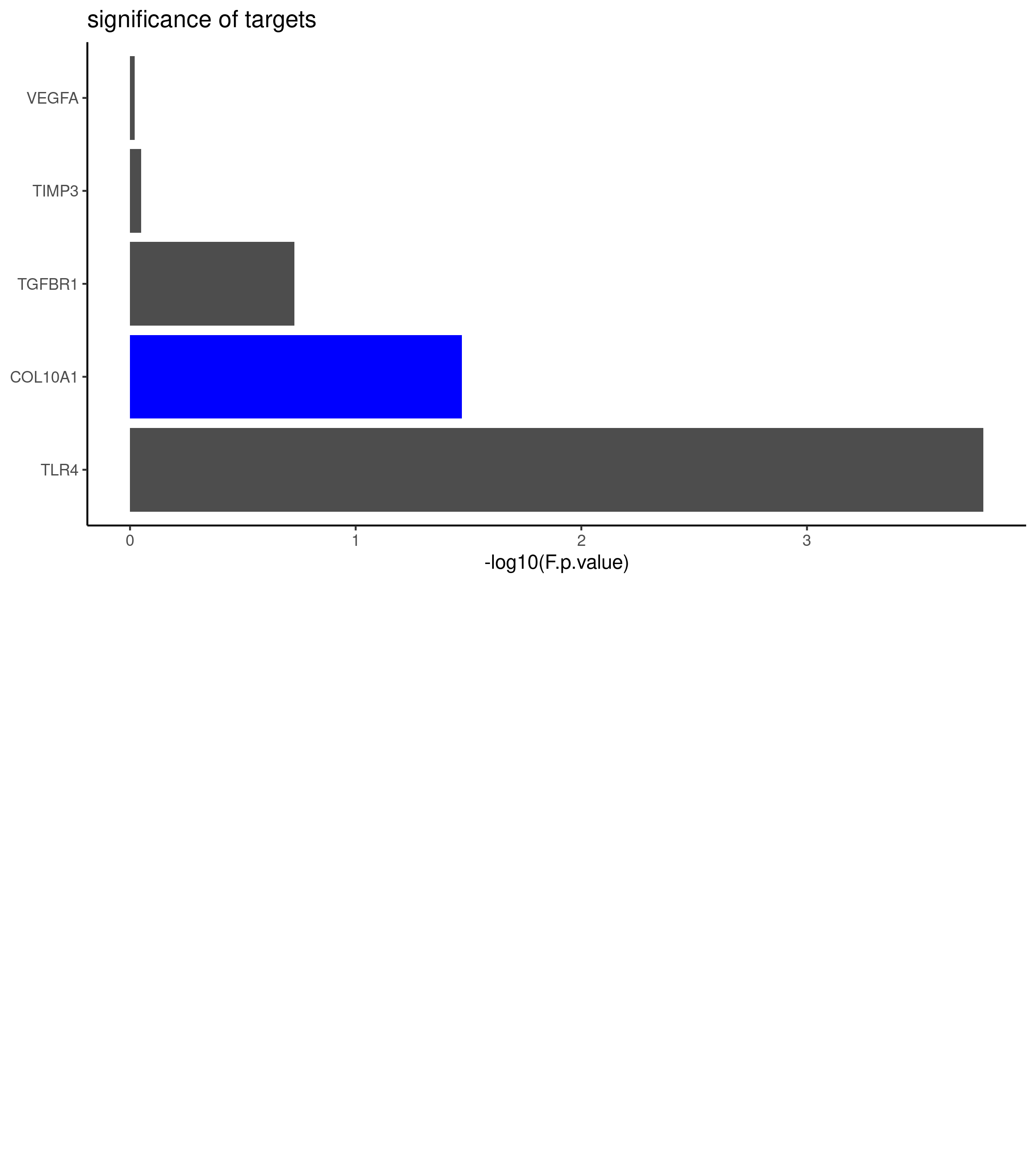


Figure S2: The expression of targets expressed in RPE, only COL10A1 and TLR4 are significantly differentially expressed among health(n = 3) and early AMD patients(n = 7).

### differential expression of COL18A1 in the CC endothelial cells

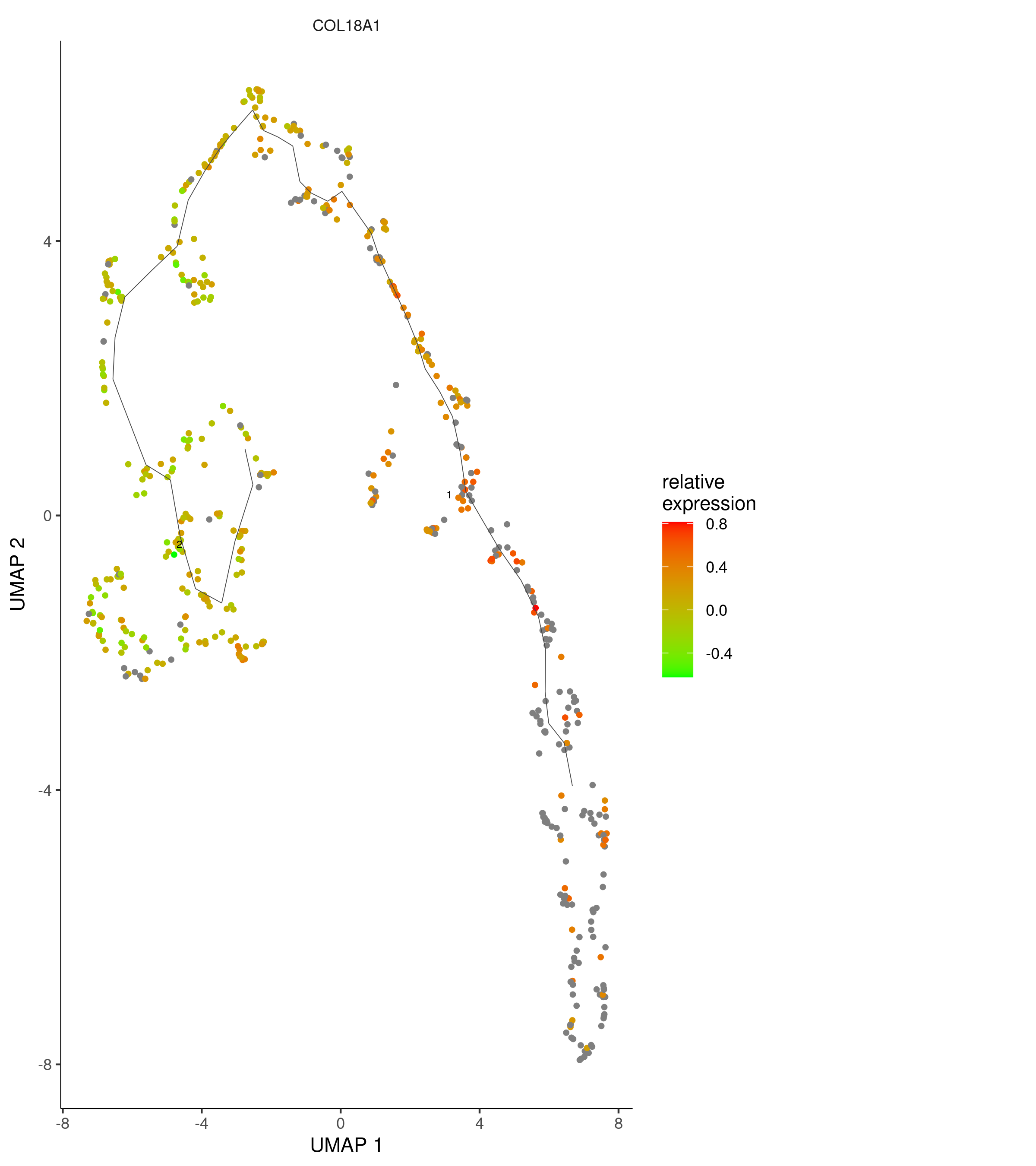


Figure S3: The expression of COL18A1 was elevated in the progress of AMD in the choriocapillaris endothelial cells.

### differential expression of regulators

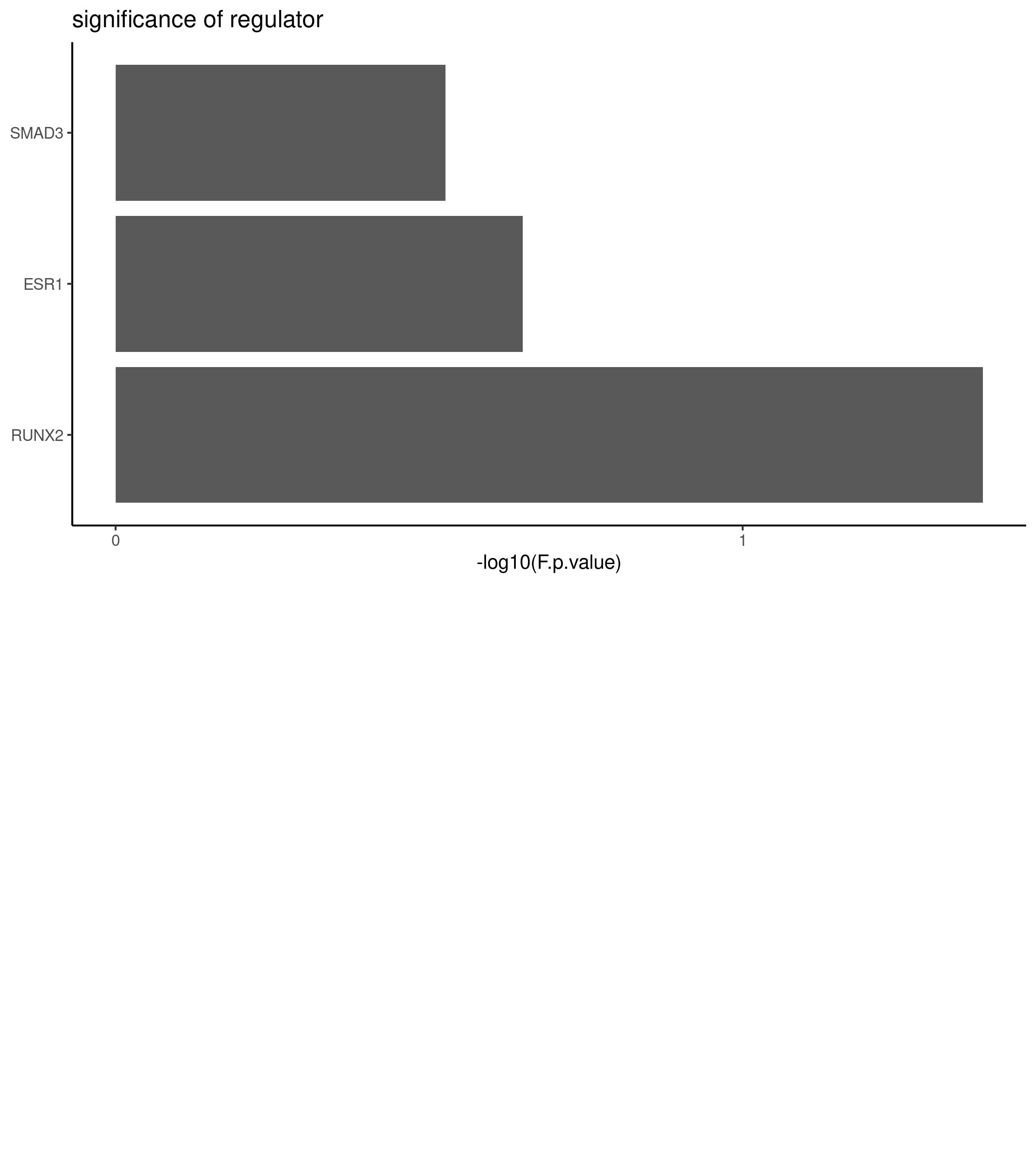


Figure S4: There are 4 transcription regulators that can regulator COL10A1’s expression, after filtering only RUNX2, SMAD3, and ESR1 are expressed, and only RUNX2 significantly down regulated in early AMD pathients(n = 3) compare to the health(n = 7).

### dimensional reduction of bulk-seq health and early AMD patients

Figure 6: Dimensional reduction of bulk-seq health(n = 7) and early AMD patients(n = 3), which show the high quality of the sequencing data, as health and early AMD patients can be clearly separated.

Figure S5: Dimensional reduction of bulk-seq health(n = 7) and early AMD patients(n = 3), which show the high quality of the sequencing data, as health and early AMD patients can be clearly separated.

### Software and R/Bioconductor packages

|  |  |
| --- | --- |
| Name | website |
| R | [https://www.r-project.org](https://www.r-project.org/) |
| RStudio | <https://rstudio.com/> |
| edgeR | <http://www.bioconductor.org/packages/release/bioc/html/edgeR.html> |
| limma | <http://www.bioconductor.org/packages/release/bioc/html/limma.html> |
| monocle3 | <http://cole-trapnell-lab.github.io/monocle-release/> |
| tidyverse | <https://www.tidyverse.org/> |
| cowplot | <https://github.com/wilkelab/cowplot> |
| RColorBrewer | <https://CRAN.R-project.org/package=RColorBrewer> |
| nichenetr | <https://github.com/saeyslab/nichenetr> |
| GEOquery | <http://www.bioconductor.org/packages/release/bioc/html/GEOquery.html> |
| ggridges | <https://CRAN.R-project.org/package=ggridges> |
| EnsDb.Hsapiens.v86 | <http://www.bioconductor.org/packages/release/data/annotation/html/EnsDb.Hsapiens.v86.html> |
| knitr | <https://yihui.org/knitr/> |
| rmarkdown | <https://github.com/rstudio/rmarkdown> |
| bookdown | <https://github.com/rstudio/bookdown> |

### sessionInfo

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## Running under: Ubuntu 18.04.4 LTS  
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## LAPACK: /usr/lib/x86\_64-linux-gnu/libopenblasp-r0.2.20.so  
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