|  |
| --- |
| sessioninfo::session\_info()  **─ Session info ──────────────────────────────────────────────────────────────────────────────────**  *setting*  *value*  version R version 4.3.1 (2023-06-16 ucrt)  os Windows 11 x64 (build 22621)  system x86\_64, mingw32  ui RStudio  language (EN)  collate English\_United States.utf8  ctype English\_United States.utf8  tz America/Phoenix  date 2024-09-13  rstudio 2023.09.1+494 Desert Sunflower (desktop)  pandoc 3.1.1 @ C:/Program Files/RStudio/resources/app/bin/quarto/bin/  tools/ (via rmarkdown)  **─ Packages ──────────────────────────────────────────────────────────────────────────────────────**  *package*  *\** *version*  *date (UTC)* *lib* *source*  abind 1.4-5 2016-07-21 [1] CRAN (R 4.3.0)  AnnotationDbi \* 1.64.1 2023-11-03 [1] Bioconductor  AnnotationHub 3.8.0 2023-04-25 [1] Bioconductor  assertthat 0.2.1 2019-03-21 [1] CRAN (R 4.3.1)  backports 1.4.1 2021-12-13 [1] CRAN (R 4.3.0)  beachmat 2.16.0 2023-04-25 [1] Bioconductor  Biobase \* 2.60.0 2023-04-25 [1] Bioconductor  BiocFileCache 2.8.0 2023-04-25 [1] Bioconductor  BiocGenerics \* 0.46.0 2023-04-25 [1] Bioconductor  BiocManager 1.30.22 2023-08-08 [1] CRAN (R 4.3.2)  BiocParallel 1.34.2 2023-05-22 [1] Bioconductor  BiocSingular 1.16.0 2023-04-25 [1] Bioconductor  BiocVersion 3.17.1 2022-11-04 [1] Bioconductor  Biostrings 2.68.1 2023-05-16 [1] Bioconductor  bit 4.0.5 2022-11-15 [1] CRAN (R 4.3.1)  bit64 4.0.5 2020-08-30 [1] CRAN (R 4.3.1)  bitops 1.0-7 2021-04-24 [1] CRAN (R 4.3.0)  blob 1.2.4 2023-03-17 [1] CRAN (R 4.3.1)  boot 1.3-28.1 2022-11-22 [2] CRAN (R 4.3.1)  broom 1.0.5 2023-06-09 [1] CRAN (R 4.3.1)  bslib 0.5.1 2023-08-11 [1] CRAN (R 4.3.1)  cachem 1.0.8 2023-05-01 [1] CRAN (R 4.3.1)  car 3.1-2 2023-03-30 [1] CRAN (R 4.3.1)  carData 3.0-5 2022-01-06 [1] CRAN (R 4.3.1)  celldex \* 1.10.1 2023-05-25 [1] Bioconductor  circlize \* 0.4.15 2022-05-10 [1] CRAN (R 4.3.1)  cli 3.6.1 2023-03-23 [1] CRAN (R 4.3.1)  clue 0.3-64 2023-01-31 [1] CRAN (R 4.3.1)  cluster 2.1.4 2022-08-22 [2] CRAN (R 4.3.1)  codetools 0.2-19 2023-02-01 [2] CRAN (R 4.3.1)  colorspace 2.1-0 2023-01-23 [1] CRAN (R 4.3.1)  ComplexHeatmap \* 2.16.0 2023-04-25 [1] Bioconductor  cowplot \* 1.1.1 2020-12-30 [1] CRAN (R 4.3.1)  crayon 1.5.2 2022-09-29 [1] CRAN (R 4.3.1)  crosstalk 1.2.0 2021-11-04 [1] CRAN (R 4.3.1)  curl 5.0.2 2023-08-14 [1] CRAN (R 4.3.1)  data.table \* 1.14.8 2023-02-17 [1] CRAN (R 4.3.1)  DBI 1.1.3 2022-06-18 [1] CRAN (R 4.3.1)  dbplyr 2.3.3 2023-07-07 [1] CRAN (R 4.3.1)  DelayedArray 0.26.7 2023-07-28 [1] Bioconductor  DelayedMatrixStats 1.22.6 2023-08-28 [1] Bioconductor  deldir 1.0-9 2023-05-17 [1] CRAN (R 4.3.0)  DESeq2 \* 1.40.2 2023-06-25 [1] Bioconductor  digest 0.6.33 2023-07-07 [1] CRAN (R 4.3.1)  doParallel 1.0.17 2022-02-07 [1] CRAN (R 4.3.1)  dotCall64 1.1-0 2023-10-17 [1] CRAN (R 4.3.2)  DoubletFinder \* 2.0.4 2023-11-27 [1] **Github (chris-mcginnis-ucsf/DoubletFinder@853e2de)**  dplyr \* 1.1.3 2023-09-03 [1] CRAN (R 4.3.1)  DT \* 0.29 2023-08-29 [1] CRAN (R 4.3.1)  edgeR \* 3.42.4 2023-06-01 [1] Bioconductor  ellipsis 0.3.2 2021-04-29 [1] CRAN (R 4.3.1)  evaluate 0.21 2023-05-05 [1] CRAN (R 4.3.1)  ExperimentHub 2.8.1 2023-07-12 [1] Bioconductor  fansi 1.0.4 2023-01-22 [1] CRAN (R 4.3.1)  farver 2.1.1 2022-07-06 [1] CRAN (R 4.3.1)  fastmap 1.1.1 2023-02-24 [1] CRAN (R 4.3.1)  fields \* 15.2 2023-08-17 [1] CRAN (R 4.3.1)  filelock 1.0.2 2018-10-05 [1] CRAN (R 4.3.1)  fitdistrplus 1.1-11 2023-04-25 [1] CRAN (R 4.3.1)  fontawesome 0.5.2 2023-08-19 [1] CRAN (R 4.3.1)  forcats \* 1.0.0 2023-01-29 [1] CRAN (R 4.3.2)  foreach 1.5.2 2022-02-02 [1] CRAN (R 4.3.1)  future 1.33.0 2023-07-01 [1] CRAN (R 4.3.1)  future.apply 1.11.0 2023-05-21 [1] CRAN (R 4.3.1)  gage \* 2.47.1 2024-02-05 [1] **Github (datapplab/gage@d99df9a)**  gageData \* 2.38.0 2023-04-27 [1] Bioconductor  generics 0.1.3 2022-07-05 [1] CRAN (R 4.3.1)  GenomeInfoDb \* 1.36.3 2023-09-08 [1] Bioconductor  GenomeInfoDbData 1.2.10 2023-09-13 [1] Bioconductor  GenomicRanges \* 1.52.0 2023-04-25 [1] Bioconductor  GetoptLong 1.0.5 2020-12-15 [1] CRAN (R 4.3.1)  ggdendro \* 0.1.23 2022-02-16 [1] CRAN (R 4.3.1)  ggplot2 \* 3.4.4 2023-10-12 [1] CRAN (R 4.3.2)  ggrepel \* 0.9.3 2023-02-03 [1] CRAN (R 4.3.1)  ggridges 0.5.4 2022-09-26 [1] CRAN (R 4.3.1)  GlobalOptions 0.1.2 2020-06-10 [1] CRAN (R 4.3.1)  globals 0.16.2 2022-11-21 [1] CRAN (R 4.3.0)  glue \* 1.6.2 2022-02-24 [1] CRAN (R 4.3.1)  GO.db 3.18.0 2023-11-27 [1] Bioconductor  goftest 1.2-3 2021-10-07 [1] CRAN (R 4.3.0)  graph 1.80.0 2023-10-24 [1] Bioconductor  gridExtra \* 2.3 2017-09-09 [1] CRAN (R 4.3.1)  gtable 0.3.4 2023-08-21 [1] CRAN (R 4.3.1)  hdf5r \* 1.3.8 2023-01-21 [1] CRAN (R 4.3.1)  hms 1.1.3 2023-03-21 [1] CRAN (R 4.3.1)  htmltools 0.5.6 2023-08-10 [1] CRAN (R 4.3.1)  htmlwidgets 1.6.2 2023-03-17 [1] CRAN (R 4.3.1)  httpuv 1.6.11 2023-05-11 [1] CRAN (R 4.3.1)  httr 1.4.7 2023-08-15 [1] CRAN (R 4.3.1)  ica 1.0-3 2022-07-08 [1] CRAN (R 4.3.0)  igraph 1.5.1 2023-08-10 [1] CRAN (R 4.3.1)  interactiveDisplayBase 1.38.0 2023-04-25 [1] Bioconductor  IRanges \* 2.34.1 2023-06-22 [1] Bioconductor  irlba 2.3.5.1 2022-10-03 [1] CRAN (R 4.3.2)  iterators 1.0.14 2022-02-05 [1] CRAN (R 4.3.1)  jquerylib 0.1.4 2021-04-26 [1] CRAN (R 4.3.1)  jsonlite 1.8.7 2023-06-29 [1] CRAN (R 4.3.1)  KEGGgraph 1.60.0 2023-04-25 [1] Bioconductor  KEGGREST 1.40.0 2023-04-25 [1] Bioconductor  KernSmooth \* 2.23-21 2023-05-03 [2] CRAN (R 4.3.1)  knitr 1.44 2023-09-11 [1] CRAN (R 4.3.1)  labeling 0.4.3 2023-08-29 [1] CRAN (R 4.3.1)  later 1.3.1 2023-05-02 [1] CRAN (R 4.3.1)  lattice 0.21-8 2023-04-05 [2] CRAN (R 4.3.1)  lazyeval 0.2.2 2019-03-15 [1] CRAN (R 4.3.1)  leiden 0.4.3 2022-09-10 [1] CRAN (R 4.3.1)  lifecycle 1.0.4 2023-11-07 [1] CRAN (R 4.3.2)  limma \* 3.56.2 2023-06-04 [1] Bioconductor  listenv 0.9.0 2022-12-16 [1] CRAN (R 4.3.1)  lme4 1.1-34 2023-07-04 [1] CRAN (R 4.3.1)  lmtest 0.9-40 2022-03-21 [1] CRAN (R 4.3.1)  locfit 1.5-9.8 2023-06-11 [1] CRAN (R 4.3.2)  lubridate \* 1.9.3 2023-09-27 [1] CRAN (R 4.3.2)  magrittr \* 2.0.3 2022-03-30 [1] CRAN (R 4.3.1)  maps 3.4.1 2022-10-30 [1] CRAN (R 4.3.1)  MASS 7.3-60 2023-05-04 [2] CRAN (R 4.3.1)  Matrix \* 1.6-3 2023-11-14 [1] CRAN (R 4.3.2)  MatrixGenerics \* 1.12.3 2023-07-30 [1] Bioconductor  matrixStats \* 1.0.0 2023-06-02 [1] CRAN (R 4.3.1)  memoise 2.0.1 2021-11-26 [1] CRAN (R 4.3.1)  mime 0.12 2021-09-28 [1] CRAN (R 4.3.0)  miniUI 0.1.1.1 2018-05-18 [1] CRAN (R 4.3.1)  minqa 1.2.6 2023-09-11 [1] CRAN (R 4.3.1)  monocle3 \* 1.3.4 2023-09-13 [1] **Github (cole-trapnell-lab/monocle3@2b17745)**  munsell 0.5.0 2018-06-12 [1] CRAN (R 4.3.1)  nlme 3.1-162 2023-01-31 [2] CRAN (R 4.3.1)  nloptr 2.0.3 2022-05-26 [1] CRAN (R 4.3.1)  org.Hs.eg.db \* 3.17.0 2023-12-04 [1] Bioconductor  parallelly 1.36.0 2023-05-26 [1] CRAN (R 4.3.0)  patchwork \* 1.1.3 2023-08-14 [1] CRAN (R 4.3.1)  pathview \* 1.40.0 2023-04-25 [1] Bioconductor  pbapply 1.7-2 2023-06-27 [1] CRAN (R 4.3.1)  pillar 1.9.0 2023-03-22 [1] CRAN (R 4.3.1)  pkgconfig 2.0.3 2019-09-22 [1] CRAN (R 4.3.1)  plotly 4.10.2 2023-06-03 [1] CRAN (R 4.3.1)  plyr 1.8.8 2022-11-11 [1] CRAN (R 4.3.1)  png 0.1-8 2022-11-29 [1] CRAN (R 4.3.0)  polyclip 1.10-4 2022-10-20 [1] CRAN (R 4.3.0)  progressr 0.14.0 2023-08-10 [1] CRAN (R 4.3.1)  promises 1.2.1 2023-08-10 [1] CRAN (R 4.3.1)  proxy 0.4-27 2022-06-09 [1] CRAN (R 4.3.1)  purrr \* 1.0.2 2023-08-10 [1] CRAN (R 4.3.1)  R.methodsS3 \* 1.8.2 2022-06-13 [1] CRAN (R 4.3.0)  R.oo \* 1.25.0 2022-06-12 [1] CRAN (R 4.3.0)  R.utils \* 2.12.2 2022-11-11 [1] CRAN (R 4.3.1)  R6 2.5.1 2021-08-19 [1] CRAN (R 4.3.1)  ragg 1.2.5 2023-01-12 [1] CRAN (R 4.3.1)  RANN 2.6.1 2019-01-08 [1] CRAN (R 4.3.1)  rappdirs 0.3.3 2021-01-31 [1] CRAN (R 4.3.1)  RColorBrewer \* 1.1-3 2022-04-03 [1] CRAN (R 4.3.0)  Rcpp 1.0.11 2023-07-06 [1] CRAN (R 4.3.1)  RcppAnnoy 0.0.21 2023-07-02 [1] CRAN (R 4.3.1)  RCurl 1.98-1.12 2023-03-27 [1] CRAN (R 4.3.1)  readr \* 2.1.4 2023-02-10 [1] CRAN (R 4.3.1)  remotes 2.4.2.1 2023-07-18 [1] CRAN (R 4.3.2)  reshape2 1.4.4 2020-04-09 [1] CRAN (R 4.3.1)  reticulate \* 1.32.0 2023-09-11 [1] CRAN (R 4.3.1)  Rgraphviz 2.44.0 2023-04-25 [1] Bioconductor  rjson 0.2.21 2022-01-09 [1] CRAN (R 4.3.0)  rlang 1.1.1 2023-04-28 [1] CRAN (R 4.3.1)  rmarkdown 2.24 2023-08-14 [1] CRAN (R 4.3.1)  ROCR \* 1.0-11 2020-05-02 [1] CRAN (R 4.3.1)  RSQLite 2.3.1 2023-04-03 [1] CRAN (R 4.3.1)  rstatix \* 0.7.2 2023-02-01 [1] CRAN (R 4.3.1)  rstudioapi 0.15.0 2023-07-07 [1] CRAN (R 4.3.1)  rsvd 1.0.5 2021-04-16 [1] CRAN (R 4.3.1)  Rtsne 0.16 2022-04-17 [1] CRAN (R 4.3.1)  S4Arrays 1.2.0 2023-10-24 [1] Bioconductor  S4Vectors \* 0.38.1 2023-05-02 [1] Bioconductor  sass 0.4.7 2023-07-15 [1] CRAN (R 4.3.1)  ScaledMatrix 1.8.1 2023-05-03 [1] Bioconductor  scales 1.2.1 2022-08-20 [1] CRAN (R 4.3.1)  scattermore 1.2 2023-06-12 [1] CRAN (R 4.3.1)  sctransform \* 0.4.1 2023-10-19 [1] CRAN (R 4.3.2)  sessioninfo 1.2.2 2021-12-06 [1] CRAN (R 4.3.3)  Seurat \* 4.4.0 2023-09-28 [1] CRAN (R 4.3.1)  SeuratObject \* 5.0.1 2023-11-17 [1] CRAN (R 4.3.2)  SeuratWrappers \* 0.3.1 2023-09-13 [1] **Github (satijalab/seurat-wrappers@d28512f)**  shape 1.4.6 2021-05-19 [1] CRAN (R 4.3.0)  shiny \* 1.7.5 2023-08-12 [1] CRAN (R 4.3.1)  ShinyCell \* 2.1.0 2023-11-28 [1] **Github (SGDDNB/ShinyCell@8b5e608)**  shinyhelper \* 0.3.2 2019-11-09 [1] CRAN (R 4.3.1)  SingleCellExperiment \* 1.22.0 2023-04-25 [1] Bioconductor  SingleR \* 2.2.0 2023-04-25 [1] Bioconductor  sp 2.0-0 2023-06-22 [1] CRAN (R 4.3.1)  spam \* 2.10-0 2023-10-23 [1] CRAN (R 4.3.2)  sparseMatrixStats 1.12.2 2023-07-02 [1] Bioconductor  spatstat.data 3.0-1 2023-03-12 [1] CRAN (R 4.3.1)  spatstat.explore 3.2-3 2023-09-07 [1] CRAN (R 4.3.1)  spatstat.geom 3.2-5 2023-09-05 [1] CRAN (R 4.3.1)  spatstat.random 3.1-6 2023-09-09 [1] CRAN (R 4.3.1)  spatstat.sparse 3.0-2 2023-06-25 [1] CRAN (R 4.3.1)  spatstat.utils 3.0-3 2023-05-09 [1] CRAN (R 4.3.1)  stringi 1.7.12 2023-01-11 [1] CRAN (R 4.3.0)  stringr \* 1.5.1 2023-11-14 [1] CRAN (R 4.3.2)  SummarizedExperiment \* 1.30.2 2023-06-06 [1] Bioconductor  survival 3.5-5 2023-03-12 [2] CRAN (R 4.3.1)  systemfonts 1.0.4 2022-02-11 [1] CRAN (R 4.3.1)  tensor 1.5 2012-05-05 [1] CRAN (R 4.3.0)  terra 1.7-46 2023-09-06 [1] CRAN (R 4.3.1)  textshaping 0.3.6 2021-10-13 [1] CRAN (R 4.3.1)  tibble \* 3.2.1 2023-03-20 [1] CRAN (R 4.3.1)  tidyr \* 1.3.0 2023-01-24 [1] CRAN (R 4.3.1)  tidyselect 1.2.0 2022-10-10 [1] CRAN (R 4.3.1)  tidyverse \* 2.0.0 2023-02-22 [1] CRAN (R 4.3.2)  timechange 0.3.0 2024-01-18 [1] CRAN (R 4.3.2)  tzdb 0.4.0 2023-05-12 [1] CRAN (R 4.3.1)  utf8 1.2.3 2023-01-31 [1] CRAN (R 4.3.1)  uwot 0.1.16 2023-06-29 [1] CRAN (R 4.3.1)  vctrs 0.6.3 2023-06-14 [1] CRAN (R 4.3.1)  viridis 0.6.4 2023-07-22 [1] CRAN (R 4.3.1)  viridisLite \* 0.4.2 2023-05-02 [1] CRAN (R 4.3.1)  withr 2.5.2 2023-10-30 [1] CRAN (R 4.3.2)  xfun 0.40 2023-08-09 [1] CRAN (R 4.3.1)  XML 3.99-0.15 2023-11-02 [1] CRAN (R 4.3.2)  xtable 1.8-4 2019-04-21 [1] CRAN (R 4.3.1)  XVector 0.40.0 2023-04-25 [1] Bioconductor  yaml 2.3.7 2023-01-23 [1] CRAN (R 4.3.0)  zlibbioc 1.46.0 2023-04-25 [1] Bioconductor  zoo 1.8-12 2023-04-13 [1] CRAN (R 4.3.1)  [1] C:/Users/user/AppData/Local/R/win-library/4.3  [2] C:/Program Files/R/R-4.3.1/library  **─────────────────────────────────────────────────────────────────────────────────────────────────** |
|  |
| |  | | --- | |  | |