

Data exploratory analysis

Antonia Chroni for SJCRH DNB_BINF_Core

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1 Set up

2 Session Info

```
## R version 4.4.0 (2024-04-24)
## Platform: x86_64-linux-gnu
## Running under: Ubuntu 22.04.4 LTS
##
## Matrix products: default
## BLAS:   /usr/lib/x86_64-linux-gnu/openblas-pthread/libblas.so.3
## LAPACK: /usr/lib/x86_64-linux-gnu/openblas-pthread/libopenblas-p0.3.20.so; LAPACK vers
##
## locale:
##  [1] LC_CTYPE=en_US.UTF-8      LC_NUMERIC=C
##  [3] LC_TIME=en_US.UTF-8      LC_COLLATE=en_US.UTF-8
##  [5] LC_MONETARY=en_US.UTF-8  LC_MESSAGES=en_US.UTF-8
##  [7] LC_PAPER=en_US.UTF-8     LC_NAME=C
##  [9] LC_ADDRESS=C             LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C
##
## time zone: Etc/UTC
## tzcode source: system (glibc)
##
## attached base packages:
## [1] grid      stats4    stats      graphics  grDevices  utils      datasets
## [8] methods  base
##
## other attached packages:
##  [1] yaml_2.3.10             tinytex_0.54
##  [3] lubridate_1.9.3         dplyr_1.1.4
##  [5] readr_2.1.5             tidyr_1.3.1
##  [7] tibble_3.2.1            tidyverse_2.0.0
##  [9] tidytext_0.4.2          stringr_1.5.1
## [11] SoupX_1.6.2             shiny_1.9.1
## [13] SeuratObject_5.0.2      Seurat_4.4.0
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## [15] R.utils_2.12.3          R.oo_1.27.0
## [17] R.methodsS3_1.8.2       rlist_0.4.6.2
## [19] reshape2_1.4.4         RColorBrewer_1.1-3
## [21] purrr_1.0.2            patchwork_1.3.0
## [23] optparse_1.7.5         leiden_0.4.3.1
## [25] knitr_1.49             irlba_2.3.5.1
## [27] igraph_2.1.1           harmony_1.2.1
## [29] Rcpp_1.0.13-1          ggthemes_5.1.0
## [31] ggrepel_0.9.6          ggpmisc_0.6.1
## [33] ggpp_0.5.8-1           ggh4x_0.2.8
## [35] GGally_2.2.1           future_1.34.0
## [37] fs_1.6.5              forcats_1.0.0
## [39] flextable_0.9.7        flexmix_2.3-19
## [41] lattice_0.22-6         data.table_1.16.2
## [43] cowplot_1.1.3          clustree_0.5.1
## [45] ggraph_2.2.1           numbat_1.4.2
## [47] Matrix_1.7-0           RcppPlanc_1.0.0
## [49] scooter_0.0.0.9004      infercnv_1.22.0
## [51] SingleR_2.8.0          celldex_1.16.0
## [53] scDblFinder_1.20.0     scater_1.34.0
## [55] ggplot2_3.5.1          scuttle_1.16.0
## [57] SingleCellExperiment_1.28.1 SummarizedExperiment_1.36.0
## [59] Biobase_2.66.0         GenomicRanges_1.58.0
## [61] GenomeInfoDb_1.42.0    IRanges_2.40.0
## [63] S4Vectors_0.44.0       BiocGenerics_0.52.0
## [65] MatrixGenerics_1.18.0  matrixStats_1.4.1
## [67] miQC_1.14.0            remotes_2.5.0
## [69] devtools_2.4.5         usethis_3.0.0
## [71] BiocManager_1.30.25
##
## loaded via a namespace (and not attached):
## [1] ica_1.0-3              plotly_4.10.4
## [3] zlibbioc_1.52.0        tidyselect_1.2.1
## [5] bit_4.5.0              doParallel_1.0.17
## [7] rjson_0.2.23           blob_1.2.4
## [9] urlchecker_1.0.1       S4Arrays_1.6.0
## [11] parallel_4.4.0         png_0.1-8
## [13] cli_3.6.3              ggplotify_0.1.2
## [15] askpass_1.2.1          openssl_2.2.2
## [17] goftest_1.2-3          textshaping_0.4.0
## [19] BiocIO_1.16.0          bluster_1.16.0
## [21] officer_0.6.7          tokenizers_0.3.0
## [23] BiocNeighbors_2.0.0    uwot_0.2.2
## [25] curl_6.0.1            mime_0.12
## [27] evaluate_1.0.1         tidytree_0.4.6
## [29] coin_1.4-3             stringi_1.8.4
## [31] rjags_4-16             parallelDist_0.2.6
## [33] XML_3.99-0.17          httpuv_1.6.15
## [35] AnnotationDbi_1.68.0   magrittr_2.0.3
## [37] rappdirs_0.3.3         splines_4.4.0
## [39] getopt_1.20.4          logger_0.4.0

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## [41]	sctransform_0.4.1	ggbeeswarm_0.7.2
## [43]	sessioninfo_1.2.2	DBI_1.2.3
## [45]	HDF5Array_1.34.0	jquerylib_0.1.4
## [47]	withr_3.0.2	systemfonts_1.1.0
## [49]	rprojroot_2.0.4	xgboost_1.7.8.1
## [51]	lmtest_0.9-40	tidygraph_1.3.1
## [53]	formatR_1.14	rtracklayer_1.66.0
## [55]	htmlwidgets_1.6.4	SparseArray_1.6.0
## [57]	reticulate_1.40.0	zoo_1.8-12
## [59]	XVector_0.46.0	hahmmr_1.0.0
## [61]	UCSC.utils_1.2.0	RhpcBLASctl_0.23-42
## [63]	timechange_0.3.0	foreach_1.5.2
## [65]	fansi_1.0.6	caTools_1.18.3
## [67]	ggtree_3.10.1	rhdf5_2.50.0
## [69]	quantreg_5.99	janeaustenr_1.0.0
## [71]	alabaster.schemas_1.6.0	gridGraphics_0.5-1
## [73]	ellipsis_0.3.2	lazyeval_0.2.2
## [75]	phyclust_0.1-34	survival_3.5-8
## [77]	scattermore_1.2	BiocVersion_3.20.0
## [79]	crayon_1.5.3	RcppAnnoy_0.0.22
## [81]	progressr_0.15.0	tweenr_2.0.3
## [83]	scistree_1.2.0	later_1.3.2
## [85]	ggridges_0.5.6	codetools_0.2-20
## [87]	profvis_0.4.0	KEGGREST_1.46.0
## [89]	Rtsne_0.17	limma_3.62.1
## [91]	gdtools_0.4.1	Rsamtools_2.22.0
## [93]	filelock_1.0.3	pkgconfig_2.0.3
## [95]	xml2_1.3.6	spatstat.univar_3.1-1
## [97]	GenomicAlignments_1.42.0	aplot_0.2.3
## [99]	spatstat.sparse_3.1-0	alabaster.base_1.6.1
## [101]	ape_5.8	viridisLite_0.4.2
## [103]	xtable_1.8-4	fastcluster_1.2.6
## [105]	plyr_1.8.9	httr_1.4.7
## [107]	tools_4.4.0	globals_0.16.3
## [109]	pkgbuild_1.4.5	beeswarm_0.4.0
## [111]	nlme_3.1-164	futile.logger_1.4.3
## [113]	lambda.r_1.2.4	dbplyr_2.5.0
## [115]	ExperimentHub_2.14.0	MatrixModels_0.5-3
## [117]	digest_0.6.37	farver_2.1.2
## [119]	tzdb_0.4.0	SnowballC_0.7.1
## [121]	yulab.utils_0.1.8	viridis_0.6.5
## [123]	glue_1.8.0	cachem_1.1.0
## [125]	BiocFileCache_2.14.0	polyclip_1.10-7
## [127]	generics_0.1.3	Biostrings_2.74.0
## [129]	mvtnorm_1.3-2	parallelly_1.39.0
## [131]	pkgload_1.4.0	statmod_1.5.0
## [133]	here_1.0.1	ragg_1.3.3
## [135]	ScaledMatrix_1.14.0	fontBitstreamVera_0.1.1
## [137]	pbapply_1.7-2	httr2_1.0.6
## [139]	spam_2.11-0	dqrng_0.4.1
## [141]	utf8_1.2.4	graphlayouts_1.2.1

## [143]	gtools_3.9.5	alabaster.se_1.6.0
## [145]	gridExtra_2.3	GenomeInfoDbData_1.2.13
## [147]	rhdf5filters_1.18.0	RCurl_1.98-1.16
## [149]	memoise_2.0.1	rmarkdown_2.29
## [151]	scales_1.3.0	gypsum_1.2.0
## [153]	RANN_2.6.2	fontLiberation_0.1.0
## [155]	spatstat.data_3.1-4	cluster_2.1.6
## [157]	spatstat.utils_3.1-1	hms_1.1.3
## [159]	fitdistrplus_1.2-1	munsell_0.5.1
## [161]	colorspace_2.1-1	rlang_1.1.4
## [163]	quadprog_1.5-8	DelayedMatrixStats_1.28.0
## [165]	sparseMatrixStats_1.18.0	dotCall64_1.2
## [167]	ggforce_0.4.2	xfun_0.49
## [169]	alabaster.matrix_1.6.0	coda_0.19-4.1
## [171]	TH.data_1.1-2	iterators_1.0.14
## [173]	modeltools_0.2-23	abind_1.4-8
## [175]	libcoin_1.0-10	treeio_1.26.0
## [177]	ggsci_3.2.0	Rhdf5lib_1.28.0
## [179]	futile.options_1.0.1	bitops_1.0-9
## [181]	promises_1.3.0	RSQLite_2.3.8
## [183]	sandwich_3.1-1	DelayedArray_0.32.0
## [185]	compiler_4.4.0	alabaster.ranges_1.6.0
## [187]	beachmat_2.22.0	SparseM_1.84-2
## [189]	polynom_1.4-1	listenv_0.9.1
## [191]	fontquiver_0.2.1	edgeR_4.4.0
## [193]	AnnotationHub_3.14.0	BiocSingular_1.22.0
## [195]	tensor_1.5	MASS_7.3-60.2
## [197]	uuid_1.2-1	BiocParallel_1.40.0
## [199]	spatstat.random_3.3-2	R6_2.5.1
## [201]	fastmap_1.2.0	multcomp_1.4-26
## [203]	fastmatch_1.1-4	vipor_0.4.7
## [205]	ROCR_1.0-11	ggstats_0.7.0
## [207]	rsvd_1.0.5	nnet_7.3-19
## [209]	gtable_0.3.6	phangorn_2.12.1
## [211]	KernSmooth_2.23-22	miniUI_0.1.1.1
## [213]	deldir_2.0-4	htmltools_0.5.8.1
## [215]	RcppParallel_5.1.9	bit64_4.5.2
## [217]	spatstat.explore_3.3-3	lifecycle_1.0.4
## [219]	zip_2.3.1	restfulr_0.0.15
## [221]	sass_0.4.9	vctrs_0.6.5
## [223]	spatstat.geom_3.3-4	scraper_1.34.0
## [225]	ggfun_0.1.7	sp_2.1-4
## [227]	future.apply_1.11.3	bslib_0.8.0
## [229]	pillar_1.9.0	gplots_3.2.0
## [231]	metapod_1.14.0	locfit_1.5-9.10
## [233]	jsonlite_1.8.9	argparse_2.2.3