Preparing files for GSEA

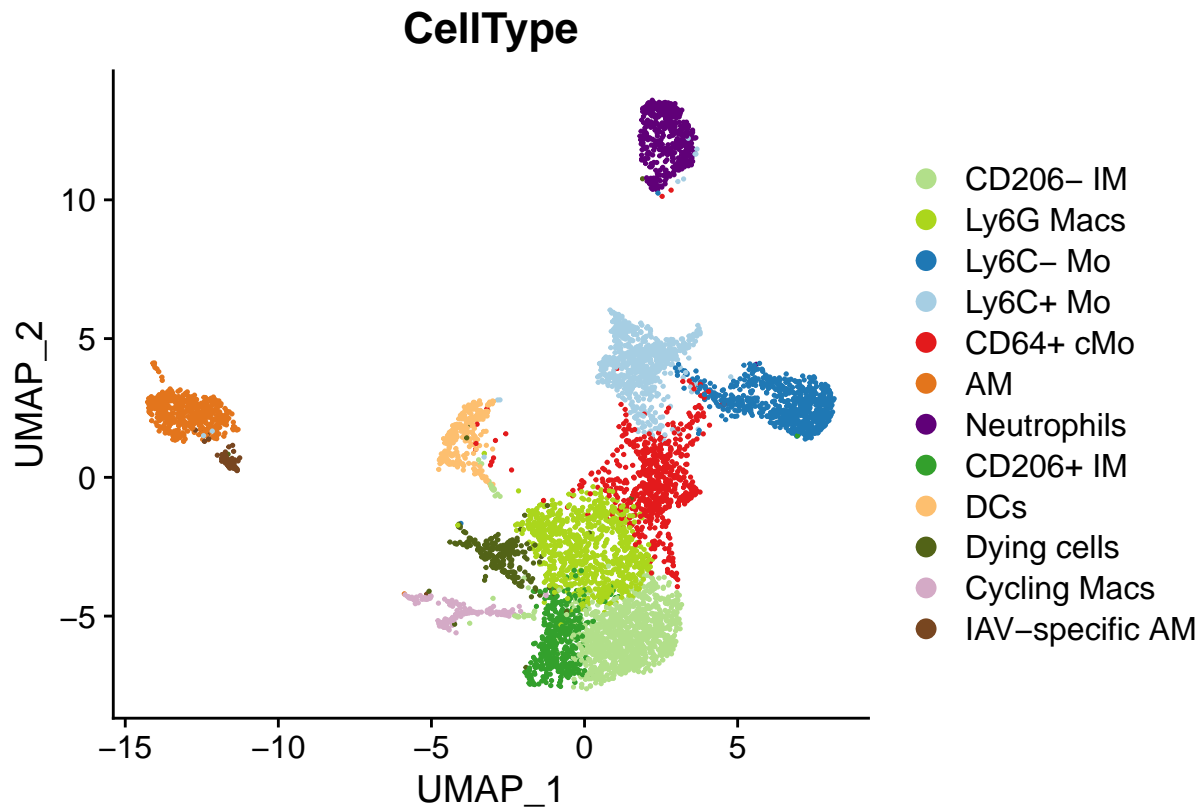## Abinet Joan

2023-06-06 11:31:07 +0200

Loading Package

```
suppressMessages(library(dplyr))
suppressMessages(library(Seurat))
suppressMessages(library(patchwork))
suppressMessages(library(ggplot2))
```

Loading seurat object

```
myeloid_cells_clustered <-
readRDS("../3-Visualisation_Clustering/Myeloid_cells_Final.rds")

colors <- c("#B2DF8A","#ABD61C","#1F78B4","#A6CEE3", "#E31A1C","#E3751C","#600078",
"#33A02C", "#FDBF6F", "#526317",  "#D4AAC6", "#784620")

DimPlot(myeloid_cells_clustered, reduction = "umap", cols = colors, group.by =
"CellType")
```

CellType

Legend:
- CD206− IM
- Ly6G Macs
- Ly6C− Mo
- Ly6C+ Mo
- CD64+ cMo
- AM
- Neutrophils
- CD206+ IM
- DCs
- Dying cells
- Cycling Macs
- IAV−specific AM

Generating gct file

```
avg = as.data.frame(myeloid_cells_clustered@assays[["RNA"]]@data)
df = data.frame(NAME=rownames(avg), Description="NA", stringsAsFactors = F)
df = cbind(df, avg)
df = rbind(c("#1.2", rep(NA, ncol(df)-1)), c(nrow(df), ncol(df)-2, rep(NA, ncol(df)-2)),
colnames(df), df)
write.table(df, file = "exprMat.gct", sep = "\t", row.names = F, col.names = F, na = "",
quote = F)
```

Generating cls file

```
myeloid_cells_clustered$group <- myeloid_cells_clustered$seurat_clusters
levels(myeloid_cells_clustered$group) <- c("Other","Motro","Other","Other","Other",
"Other", "Other", "Other", "Other","Other","Other","Other")

table(myeloid_cells_clustered$seurat_clusters)
table(myeloid_cells_clustered$group)


no_tot = ncol(avg)
no_classes = summary(myeloid_cells_clustered$group)
df = data.frame(matrix(ncol=no_tot))
df[1,] = c(no_tot, length(no_classes), 1, rep(NA, no_tot - 3))
line2 = "#"
line3 = as.vector(myeloid_cells_clustered$group)
```

```
for (i in 1:length(no_classes)){
  line2 = c(line2, as.vector(unique(myeloid_cells_clustered$group)[i]))
}
line2 = c(line2, rep(NA, no_tot - length(line2)))
df = rbind(df, line2, line3)
write.table(df, file = "MetaData.cls", sep = "\t", row.names = F, col.names = F, na = "",
quote = F)
```

The output of the GSEA is stored on GSEA Output. It's important to note that all the files except the one used to create dotplot have been removed.

```
sessionInfo()
```

```
## R version 4.0.3 (2020-10-10)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 20.04.6 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/liblapack.so.3
##
## locale:
##  [1] LC_CTYPE=en_US.UTF-8       LC_NUMERIC=C
##  [3] LC_TIME=fr_BE.UTF-8        LC_COLLATE=en_US.UTF-8
##  [5] LC_MONETARY=fr_BE.UTF-8    LC_MESSAGES=en_US.UTF-8
##  [7] LC_PAPER=fr_BE.UTF-8       LC_NAME=C
##  [9] LC_ADDRESS=C               LC_TELEPHONE=C
## [11] LC_MEASUREMENT=fr_BE.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
## [1] ggplot2_3.4.0      patchwork_1.1.2    SeuratObject_4.1.3 Seurat_4.3.0
## [5] dplyr_1.0.10
##
## loaded via a namespace (and not attached):
##   [1] Rtsne_0.16              colorspace_2.1-0       deldir_1.0-6
##   [4] ellipsis_0.3.2         ggridges_0.5.4         rstudioapi_0.14
##   [7] spatstat.data_3.0-0    farver_2.1.1           leiden_0.4.3
##  [10] listenv_0.9.0          ggrepel_0.9.2          fansi_1.0.4
##  [13] codetools_0.2-19       splines_4.0.3          knitr_1.42
##  [16] polyclip_1.10-4        jsonlite_1.8.4         ica_1.0-3
##  [19] cluster_2.1.0          png_0.1-8              uwot_0.1.14
##  [22] shiny_1.7.4            sctransform_0.3.5      spatstat.sparse_3.0-0
##  [25] compiler_4.0.3         httr_1.4.5             assertthat_0.2.1
##  [28] Matrix_1.5-3           fastmap_1.1.1          lazyeval_0.2.2
##  [31] cli_3.6.0              later_1.3.0            htmltools_0.5.4
##  [34] tools_4.0.3            igraph_1.4.1           gtable_0.3.1
##  [37] glue_1.6.2             RANN_2.6.1             reshape2_1.4.4
##  [40] Rcpp_1.0.10            scattermore_0.8        vctrs_0.5.2
##  [43] spatstat.explore_3.0-5 nlme_3.1-162           progressr_0.13.0
##  [46] lmtest_0.9-40          spatstat.random_3.1-3  xfun_0.37
##  [49] stringr_1.5.0          globals_0.16.2         mime_0.12
```

```
##  [52] miniUI_0.1.1.1          lifecycle_1.0.3        irlba_2.3.5.1
##  [55] goftest_1.2-3           future_1.32.0          MASS_7.3-53
##  [58] zoo_1.8-11              scales_1.2.1           promises_1.2.0.1
##  [61] spatstat.utils_3.0-1    parallel_4.0.3         RColorBrewer_1.1-3
##  [64] yaml_2.3.7              reticulate_1.27        pbapply_1.7-0
##  [67] gridExtra_2.3           stringi_1.7.12         highr_0.10
##  [70] rlang_1.0.6             pkgconfig_2.0.3        matrixStats_0.63.0
##  [73] evaluate_0.20           lattice_0.20-41        ROCR_1.0-11
##  [76] purrr_1.0.1             tensor_1.5             htmlwidgets_1.6.1
##  [79] labeling_0.4.2          cowplot_1.1.1          tidyselect_1.2.0
##  [82] parallelly_1.34.0       RcppAnnoy_0.0.20       plyr_1.8.8
##  [85] magrittr_2.0.3          R6_2.5.1               generics_0.1.3
##  [88] DBI_1.1.3               pillar_1.8.1           withr_2.5.0
##  [91] fitdistrplus_1.1-8      survival_3.2-7         abind_1.4-5
##  [94] sp_1.6-0                tibble_3.1.8           future.apply_1.10.0
##  [97] KernSmooth_2.23-20      utf8_1.2.3             spatstat.geom_3.0-6
## [100] plotly_4.10.1           rmarkdown_2.19         grid_4.0.3
## [103] data.table_1.14.8       digest_0.6.31          xtable_1.8-4
## [106] tidyr_1.2.1             httpuv_1.6.9           munsell_0.5.0
## [109] viridisLite_0.4.1
```