

Preparing files for GSEA

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Loading Package

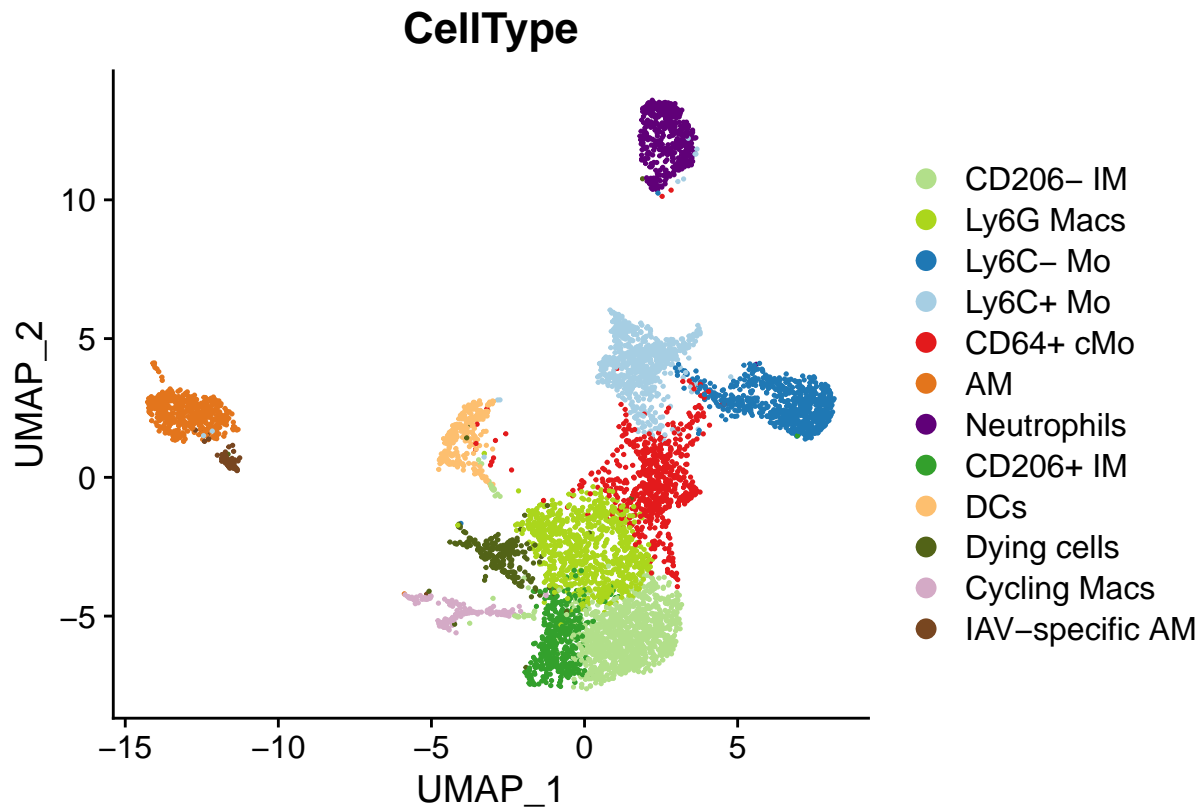
```
suppressMessages(library(dplyr))
suppressMessages(library(Seurat))
suppressMessages(library(patchwork))
suppressMessages(library(ggplot2))
```

Loading seurat object

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

colors <- c("#B2DF8A", "#ABD61C", "#1F78B4", "#A6CEE3", "#E31A1C", "#E377C2", "#600078",
"#33A02C", "#FDBF6F", "#526317", "#D4AAC6", "#784620")

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



Generating gct file

```
avg = as.data.frame(myeloid_cells_clustered@assays[["RNA"]]  
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” directory. It’s important to note that all the files except the one used to create dotplot were removed.

```
sessionInfo()
```

```

## R version 4.3.1 (2023-06-16)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 22.04.3 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 version 3.10.0
##
## 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
##
## time zone: Europe/Brussels
## tzcode source: system (glibc)
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods    base
##
## other attached packages:
## [1] ggplot2_3.4.2      patchwork_1.1.2    SeuratObject_4.1.3 Seurat_4.3.0
## [5] dplyr_1.1.2
##
## loaded via a namespace (and not attached):
##  [1] deldir_1.0-9          pbapply_1.7-2        gridExtra_2.3
##  [4] rlang_1.1.1          magrittr_2.0.3       RcppAnnoy_0.0.21
##  [7] spatstat.geom_3.2-4  matrixStats_1.0.0    gggridges_0.5.4
## [10] compiler_4.3.1       png_0.1-8            vctrs_0.6.3
## [13] reshape2_1.4.4       stringr_1.5.0        pkgconfig_2.0.3
## [16] fastmap_1.1.1        ellipsis_0.3.2       labeling_0.4.2
## [19] utf8_1.2.3           promises_1.2.0.1     rmarkdown_2.23
## [22] purrr_1.0.1          xfun_0.39            jsonlite_1.8.7
## [25] goftest_1.2-3        highr_0.10           later_1.3.1
## [28] spatstat.utils_3.0-3  irlba_2.3.5.1        parallel_4.3.1
## [31] cluster_2.1.4        R6_2.5.1             ica_1.0-3
## [34] stringi_1.7.12       RColorBrewer_1.1-3   spatstat.data_3.0-1
## [37] reticulate_1.30      parallelly_1.36.0    lmtest_0.9-40
## [40] scattermore_1.2      Rcpp_1.0.11          knitr_1.43

```

## [43]	tensor_1.5	future.apply_1.11.0	zoo_1.8-12
## [46]	sctransform_0.3.5	httpuv_1.6.11	Matrix_1.6-0
## [49]	splines_4.3.1	igraph_1.5.0.1	tidyselect_1.2.0
## [52]	rstudioapi_0.14	abind_1.4-5	yaml_2.3.7
## [55]	spatstat.random_3.1-5	codetools_0.2-19	miniUI_0.1.1.1
## [58]	spatstat.explore_3.2-1	listenv_0.9.0	lattice_0.21-8
## [61]	tibble_3.2.1	plyr_1.8.8	withr_2.5.0
## [64]	shiny_1.7.4.1	ROCR_1.0-11	evaluate_0.21
## [67]	Rtsne_0.16	future_1.33.0	survival_3.5-5
## [70]	polyclip_1.10-4	fitdistrplus_1.1-11	pillar_1.9.0
## [73]	KernSmooth_2.23-22	plotly_4.10.2	generics_0.1.3
## [76]	sp_2.0-0	munsell_0.5.0	scales_1.2.1
## [79]	globals_0.16.2	xtable_1.8-4	glue_1.6.2
## [82]	lazyeval_0.2.2	tools_4.3.1	data.table_1.14.8
## [85]	RANN_2.6.1	dotCall64_1.0-2	leiden_0.4.3
## [88]	cowplot_1.1.1	grid_4.3.1	tidyr_1.3.0
## [91]	colorspace_2.1-0	nlme_3.1-162	cli_3.6.1
## [94]	spatstat.sparse_3.0-2	spam_2.9-1	fansi_1.0.4
## [97]	viridisLite_0.4.2	uwot_0.1.16	gtable_0.3.3
## [100]	digest_0.6.33	progressr_0.13.0	ggrepel_0.9.3
## [103]	farver_2.1.1	htmlwidgets_1.6.2	htmltools_0.5.5
## [106]	lifecycle_1.0.3	httr_1.4.6	mime_0.12
## [109]	MASS_7.3-60		