Creating Dotplot

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Contents

Loading package

```r
suppressMessages(library(ggplot2))
suppressMessages(library("forcats"))
suppressMessages(library(formatR))
```

Function adapting the format of tsv file

```r
modify_GSEA_data <- function(GSEA_results){
  GSEA_results<- GSEA_results[order(GSEA_results$NES, decreasing = T),]

  GSEA_results$NAME <- gsub("_", " ", GSEA_results$NAME)
  GSEA_results$NAME <- substr(GSEA_results$NAME, start = 6, stop =
nchar(GSEA_results$NAME))
  GSEA_results
}
```

The most relevant ontologies were selected and written in the file "Plot-gsea-Peri vs Intra.docx". The complete list of ontology are described in tsv files.

Dotplot perilesional vs intralesional

```r
# loading table
dir <- "../output/perivvsintra/"
# BP
GSEA_BP_res <- read.table(paste0(dir,
"my_analysis.Gsea.1684311691666_BP2/gsea_report_for_perilesional_1684311691666.tsv"),
header = T, sep = "\t")
GSEA_BP_res <- modify_GSEA_data(GSEA_BP_res)
GSEA_BP_res <- GSEA_BP_res[c(6,9,12,16,20,28,53),]

# MF
GSEA_MF_res <- read.table(paste0(dir,
"my_analysis.Gsea.1684310907505_MF/gsea_report_for_perilesional_1684310907505.tsv"),
header = T, sep = "\t")
```

```r
GSEA_MF_res <- modify_GSEA_data(GSEA_MF_res)
GSEA_MF_res <- GSEA_MF_res[c(3,11),]

# CC
GSEA_CC_res <- read.table(paste0(dir,
"my_analysis.Gsea.1684311503281_CC/gsea_report_for_perilesional_1684311503281.tsv"),
header = T, sep = "\t")
GSEA_CC_res <- modify_GSEA_data(GSEA_CC_res)
GSEA_CC_res <- GSEA_CC_res[c(1,10,14,18),]

GSEA_Data <- rbind(GSEA_MF_res, GSEA_CC_res, GSEA_BP_res)
GSEA_Data <- GSEA_Data[order(GSEA_Data$NES, decreasing = F),]
row.names(GSEA_Data) <- NULL

# define the column has a factor so that the order of Ontology is maintain in the plot.
GSEA_Data$NAME <- factor(GSEA_Data$NAME, levels = GSEA_Data$NAME)

ggplot(GSEA_Data, aes(x = NES,y =NAME, size = SIZE, color = FDR.q.val)) + geom_point() +
ggtitle("GSEA - Perilesional vs Intralesional") + scale_color_gradient(low = "red", high
= "blue") + theme_bw()+ scale_size(range = c(3,10))
```
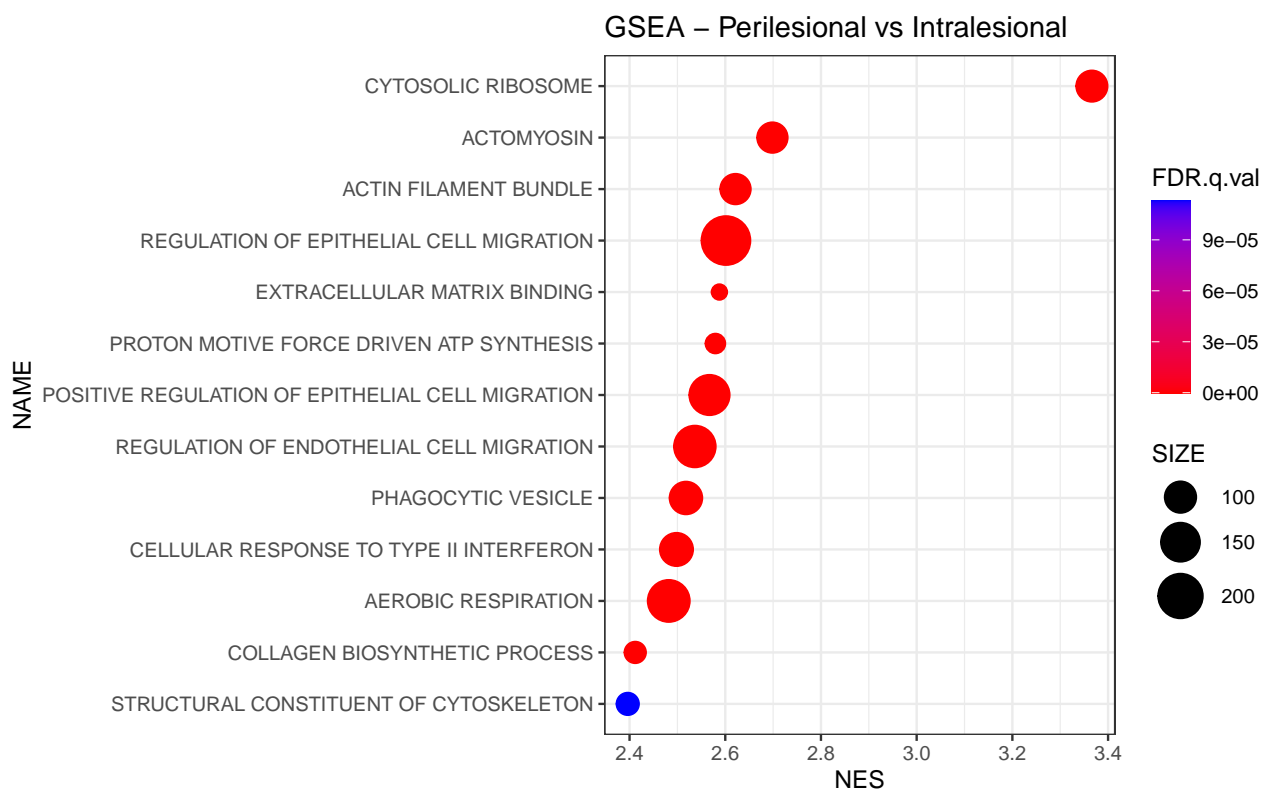


```r
# ggsave("GSEA_PerivsIntra.pdf", width = 12, height = 8)
```

Dotplot intralesional vs perilesional

```r
# BP
GSEA_BP_res <- read.table(paste0(dir,
"my_analysis.Gsea.1684311691666_BP2/gsea_report_for_intralesional_1684311691666.tsv"),
header = T, sep = "\t")
```

```r
GSEA_BP_res <- modify_GSEA_data(GSEA_BP_res)
GSEA_BP_res <- GSEA_BP_res[rev(rownames(GSEA_BP_res)),]
GSEA_BP_res <- GSEA_BP_res[c(1,2,21,78),]

# MF
GSEA_MF_res <- read.table(paste0(dir,
"my_analysis.Gsea.1684310907505_MF/gsea_report_for_intralesional_1684310907505.tsv"),
header = T, sep = "\t")
GSEA_MF_res <- modify_GSEA_data(GSEA_MF_res)
GSEA_MF_res <- GSEA_MF_res[rev(rownames(GSEA_MF_res)),]
GSEA_MF_res <- GSEA_MF_res[c(2,4,6),]

# CC
GSEA_CC_res <- read.table(paste0(dir,
"my_analysis.Gsea.1684311503281_CC/gsea_report_for_intralesional_1684311503281.tsv"),
header = T, sep = "\t")
GSEA_CC_res <- modify_GSEA_data(GSEA_CC_res)
GSEA_CC_res <- GSEA_CC_res[rev(rownames(GSEA_CC_res)),]
GSEA_CC_res <- GSEA_CC_res[c(2,3,5,9),]

GSEA_Data <- rbind(GSEA_MF_res, GSEA_CC_res, GSEA_BP_res)
GSEA_Data <- GSEA_Data[order(GSEA_Data$NES, decreasing = F),]
row.names(GSEA_Data) <- NULL

# define the column has a factor so that the order of Ontology is maintain in the plot.
GSEA_Data$NAME <- factor(GSEA_Data$NAME, levels = GSEA_Data$NAME)

ggplot(GSEA_Data, aes(x = NES,y =NAME, size = SIZE, color = FDR.q.val)) + geom_point() +
ggtitle("GSEA - Intralesional vs Perilesional") + scale_color_gradient(low = "red", high
= "blue") + theme_bw()+ scale_size(range = c(3,10))
```
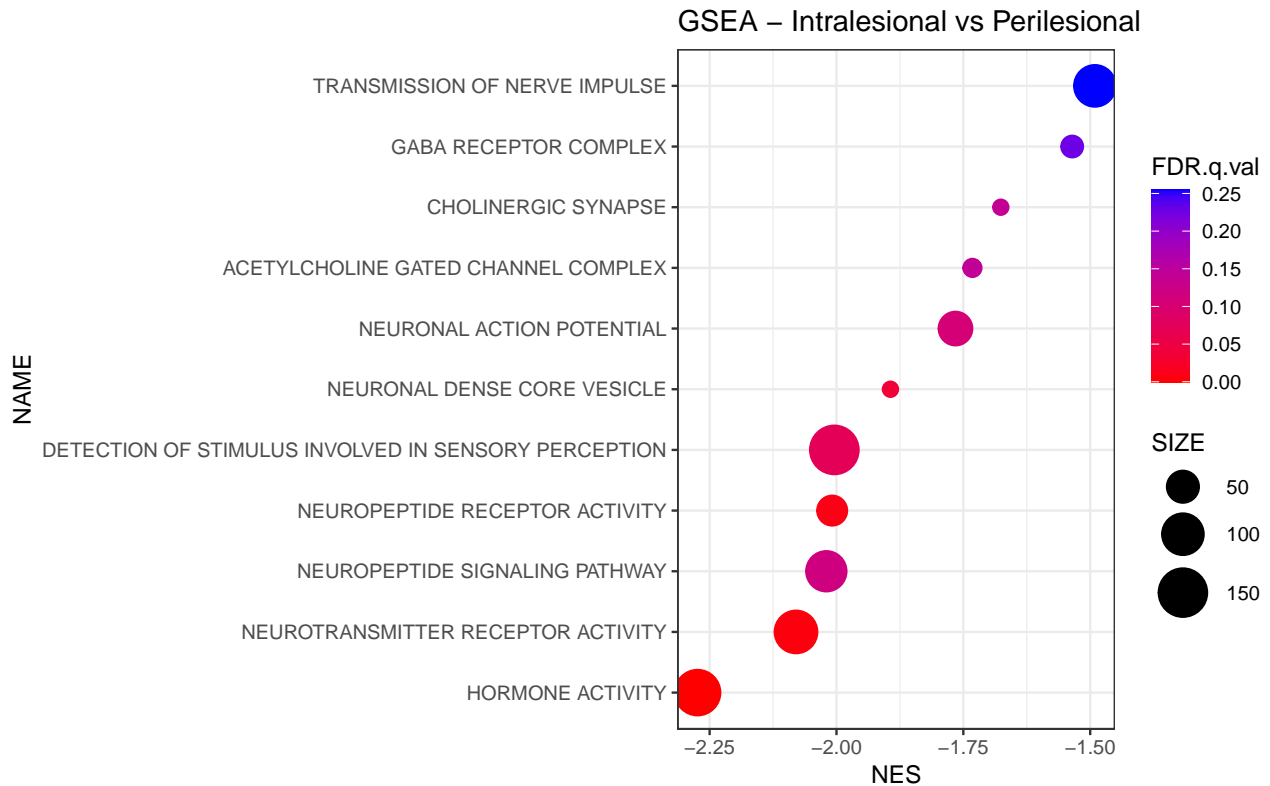
GSEA – Intralesional vs Perilesional

```
#ggsave("GSEA_IntravsPeri.pdf", width = 12, height = 8)
```

```
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/libopenblasp-r0.3.20.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] formatR_1.14  forcats_1.0.0 ggplot2_3.4.2
##
```

```
## loaded via a namespace (and not attached):
##  [1] vctrs_0.6.3      cli_3.6.1        knitr_1.43       rlang_1.1.1
##  [5] xfun_0.39        highr_0.10       generics_0.1.3   labeling_0.4.2
##  [9] glue_1.6.2       colorspace_2.1-0 htmltools_0.5.5  scales_1.2.1
## [13] fansi_1.0.4      rmarkdown_2.23   grid_4.3.1       evaluate_0.21
## [17] munsell_0.5.0    tibble_3.2.1     fastmap_1.1.1    yaml_2.3.7
## [21] lifecycle_1.0.3  compiler_4.3.1   dplyr_1.1.2      pkgconfig_2.0.3
## [25] rstudioapi_0.14  farver_2.1.1     digest_0.6.33    R6_2.5.1
## [29] tidyselect_1.2.0 utf8_1.2.3       pillar_1.9.0     magrittr_2.0.3
## [33] withr_2.5.0      tools_4.3.1      gtable_0.3.3
```