

1

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> ## To begin ###
> source("../Sources/Load_Functions.R")
> Load_Functions()
>
> Data_Directory = "../Data"
> Results_Directory = "../Results/"
>
> ## Data description and importation
> Project_Name = "Tutorial"
> Filter = NULL
> Sep = "\t"
>
> Data_Files = Load_Data_Files(Data_Directory, Project_Name, Filter, Sep)
>
> Project_Name = Data_Files$Project_Name
> Target = Data_Files$Target
> Raw_Counts = Data_Files$Raw_Counts
> Annotation = Data_Files$Annotation
> Reference_Enrichment = Data_Files$Reference_Enrichment

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2

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> ## Quality controls
> Filter_Strategy = "NbReplicates"
> CPM_Cutoff = 1
> Color_Group = NULL
> Normalization_Method = "TMM"
>
> Quality_Control(Data_Directory, Results_Directory, Project_Name, Target,
+               Raw_Counts, Filter_Strategy, Color_Group, CPM_Cutoff,
+               Normalization_Method)

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3

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> ## Statistical model
> Replicate = TRUE
> Interaction = TRUE
>
> Model = GLM_Contrasts(Results_Directory, Project_Name, Target, Replicate, Interaction)
> GLM_Model = Model$GLM_Model
> Contrasts = Model$Contrasts

```

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> ## Differential analysis
> Alpha_DiffAnalysis = 0.05
> Index_Contrast = 1:nrow(Contrasts)
> NbGenes_Profiles = 20
> NbGenes_Clustering = 50
>
> DiffAnalysis.edgeR(Data_Directory, Results_Directory, Project_Name,
+               Target, Raw_Counts, GLM_Model, Contrasts, Index_Contrast,
+               Filter_Strategy, Alpha_DiffAnalysis, NbGenes_Profiles,
+               NbGenes_Clustering,
+               CPM_Cutoff, Normalization_Method)

```

7.1

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> ## DEG enrichment
> Alpha_Enrichment = 0.01
> Title=NULL
> Enrichment(Results_Directory, Project_Name, Title, Reference_Enrichment, Alpha_Enrichment)

```

5

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> ## Venn diagrams
> Title="Interaction_with_Genotypes_1_and_2"
> Groups = Contrasts$Contrasts[24:28]
> Operation="Union"
>
> Venn_IntersectUnion(Data_Directory, Results_Directory, Project_Name, Title,
+               Groups, Operation)

```

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> ## Co-expression
> Coexpression_coseq(Data_Directory, Results_Directory, Project_Name,
+               Title, Target, Raw_Counts, Color_Group)

```

7.2

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> ## Cluster enrichment
> Enrichment(Results_Directory, Project_Name, Title, Reference_Enrichment, Alpha_Enrichment)
>
> ## Save parameters and package versions
> Save_Parameters()

```