Analysis of RNA-Seq Data

Piero Palacios Bernuy

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Abstract

This document is part of a series of the analysis of Omics data. Especifycally, here is showed how to analyze bulk RNA-Seq data with Bioconductor packages. Also, it’s showcased how to make plots of the rna data in the context of differentially gene expression and gene-sets.

## 1 Introduction

hola

## 2 Data & Methods

Source: [Article Notebook](https://pipaber.github.io/RNA-Seq/index.qmd.html)

pre-filtering

Source: [Article Notebook](https://pipaber.github.io/RNA-Seq/index.qmd.html)

re-leveling

Source: [Article Notebook](https://pipaber.github.io/RNA-Seq/index.qmd.html)

differential gene expression

log2 fold change (MLE): dex trt vs untrt   
Wald test p-value: dex trt vs untrt   
DataFrame with 16596 rows and 6 columns  
 baseMean log2FoldChange lfcSE stat pvalue  
 <numeric> <numeric> <numeric> <numeric> <numeric>  
ENSG00000000003 709.880 -0.3839261 0.1008515 -3.806846 1.40750e-04  
ENSG00000000419 521.156 0.2041705 0.1116546 1.828590 6.74611e-02  
ENSG00000000457 237.573 0.0352858 0.1412422 0.249825 8.02723e-01  
ENSG00000000460 58.035 -0.0923157 0.2792981 -0.330527 7.41002e-01  
ENSG00000000971 5826.538 0.4237405 0.0893546 4.742236 2.11372e-06  
... ... ... ... ... ...  
ENSG00000273448 14.02944 0.0583225 0.483593 0.120603 0.904006  
ENSG00000273472 11.08483 -0.4087635 0.558196 -0.732294 0.463989  
ENSG00000273486 15.47814 -0.1516640 0.471121 -0.321922 0.747512  
ENSG00000273487 8.17605 1.0408751 0.678127 1.534926 0.124802  
ENSG00000273488 8.59778 0.1088526 0.618005 0.176136 0.860187  
 padj  
 <numeric>  
ENSG00000000003 1.09455e-03  
ENSG00000000419 1.85852e-01  
ENSG00000000457 9.04035e-01  
ENSG00000000460 8.71680e-01  
ENSG00000000971 2.48262e-05  
... ...  
ENSG00000273448 0.954503  
ENSG00000273472 0.675274  
ENSG00000273486 0.874323  
ENSG00000273487 0.292586  
ENSG00000273488 0.933030

Source: [Article Notebook](https://pipaber.github.io/RNA-Seq/index.qmd.html)

## 3 Conclusion

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## References