ANALYSIS OF PRAD HUB GENES

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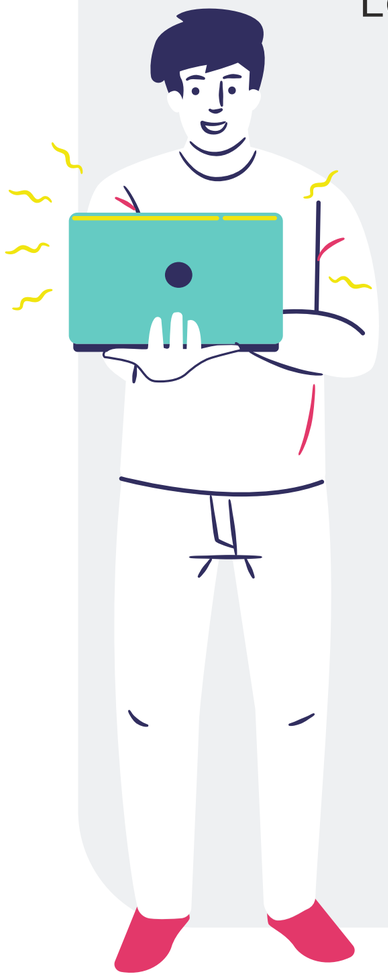
Group 14



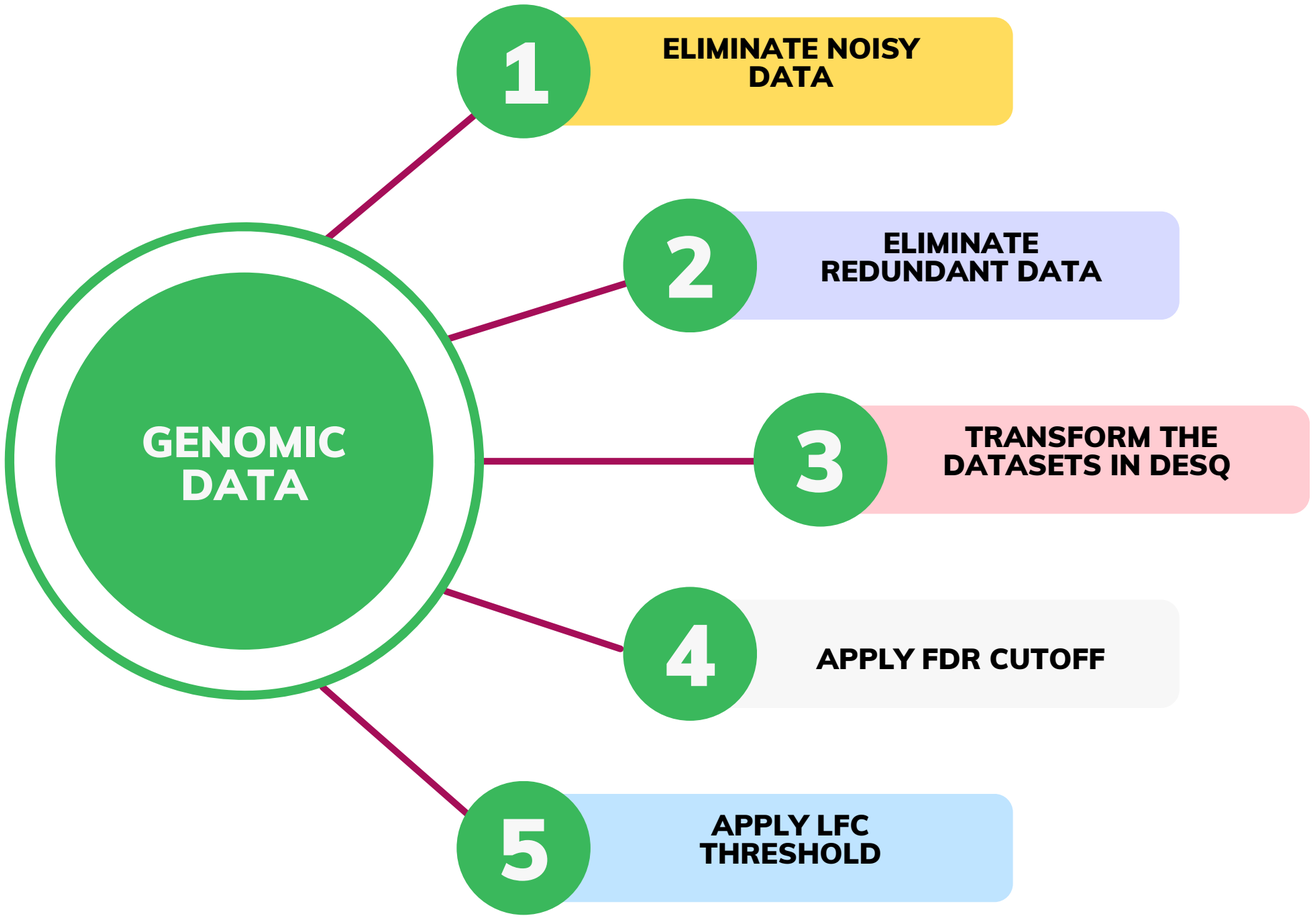
INTRODUCTION

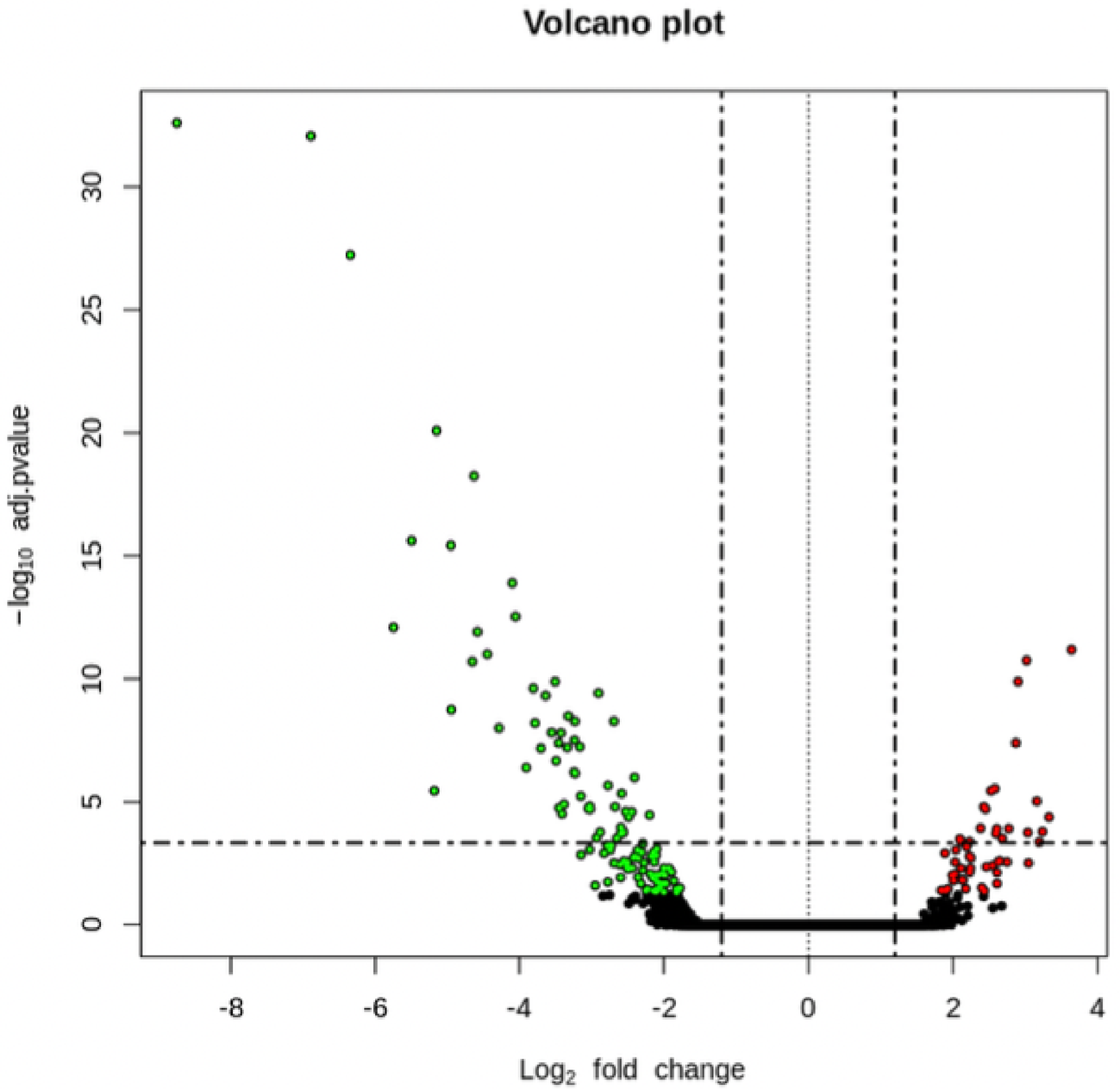
Prostate Adenocarcinoma (**PRAD**) is a **common cancer affecting men** in late adulthood and it is **often treatable.** As a result of early diagnosis, the **mortality rate** of PRAD **fall**, although the **incidence** of PRAD continues to **rise**. It is very important to help develop new therapies and early screening tests.

OUR GENOMIC DATA

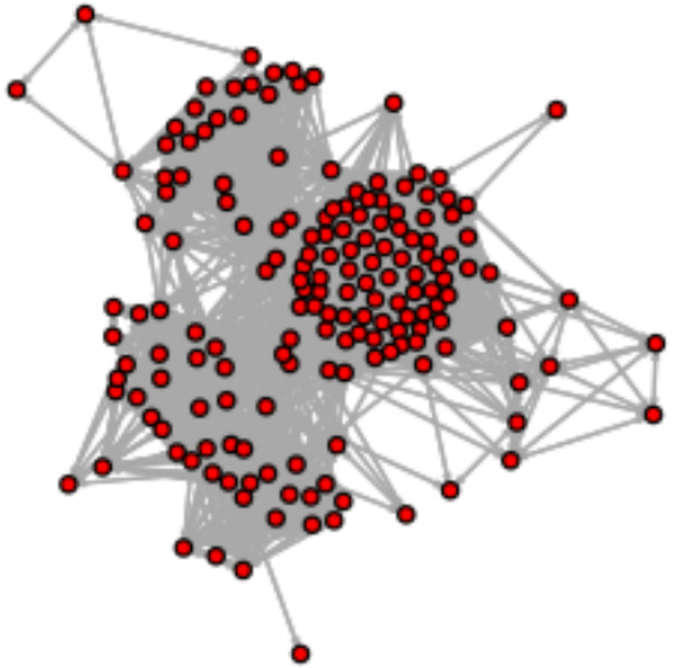
From the **Cancer Genome Atlas** we retrieved a collection of **genomic data of about 18000 genes and 500 patients**. For our analysis we handled **two datasets** extracted from TCGA: the **tumor tissue** and the **normal tissue**.

DATA CLEANING AND FEATURE ENGINEERING

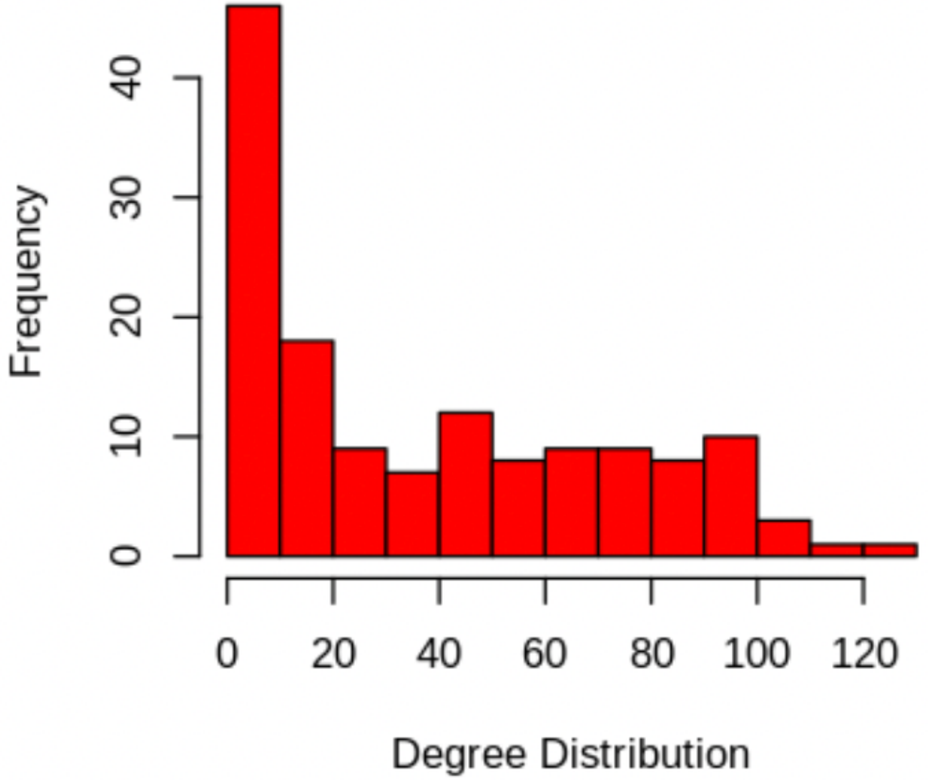



Volcano plot
−log10 adj.pvalue
0
5
10
15
20
25
30
-8
-6
-4
-2
0
2
4
Log2 fold change

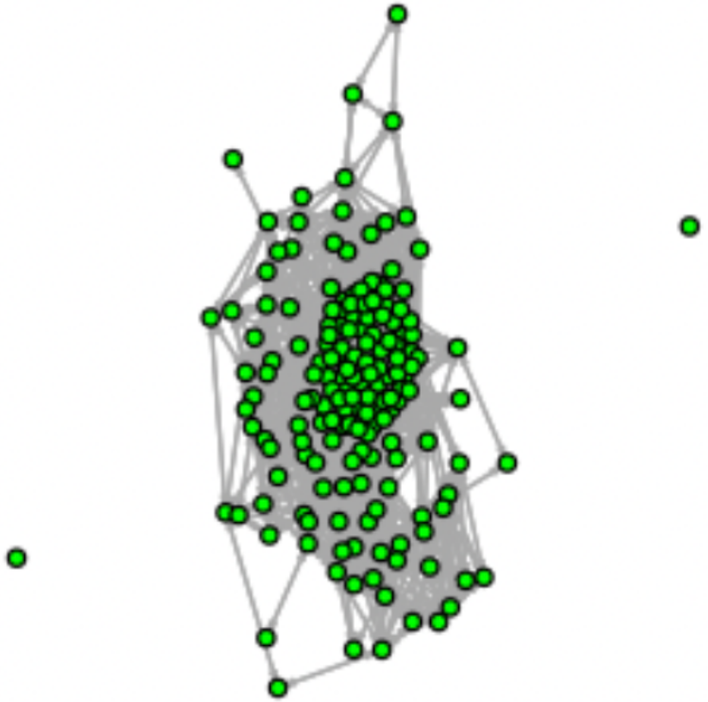
Co-expression network TUMOR



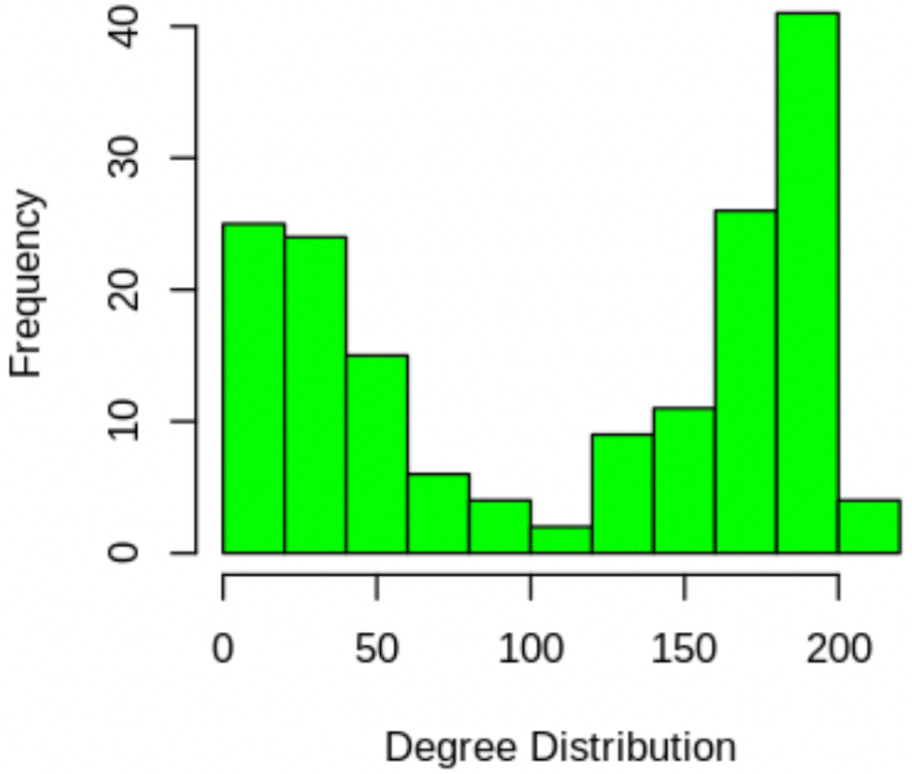
pearson Corr. TUMOR



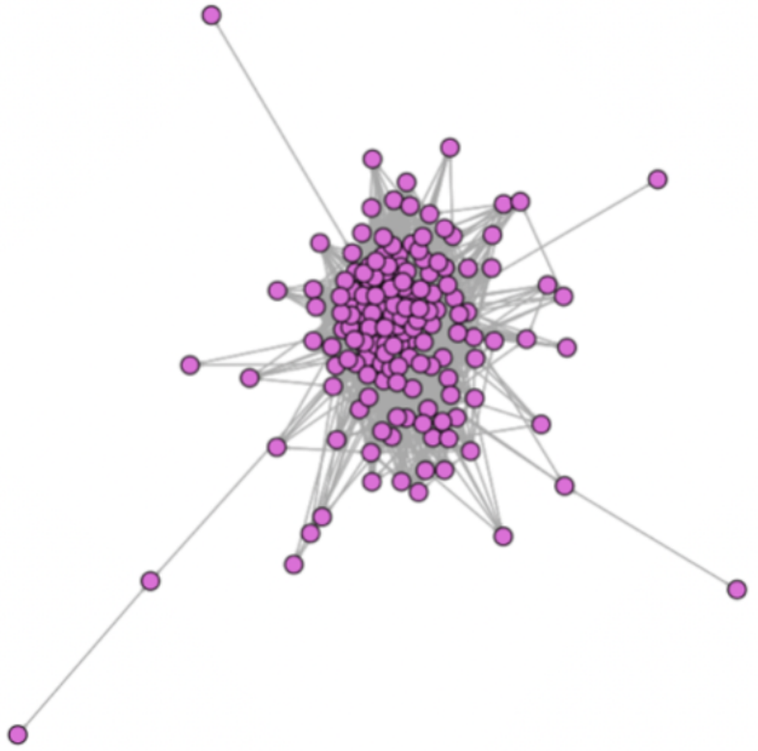
Co-expression network NORMAL



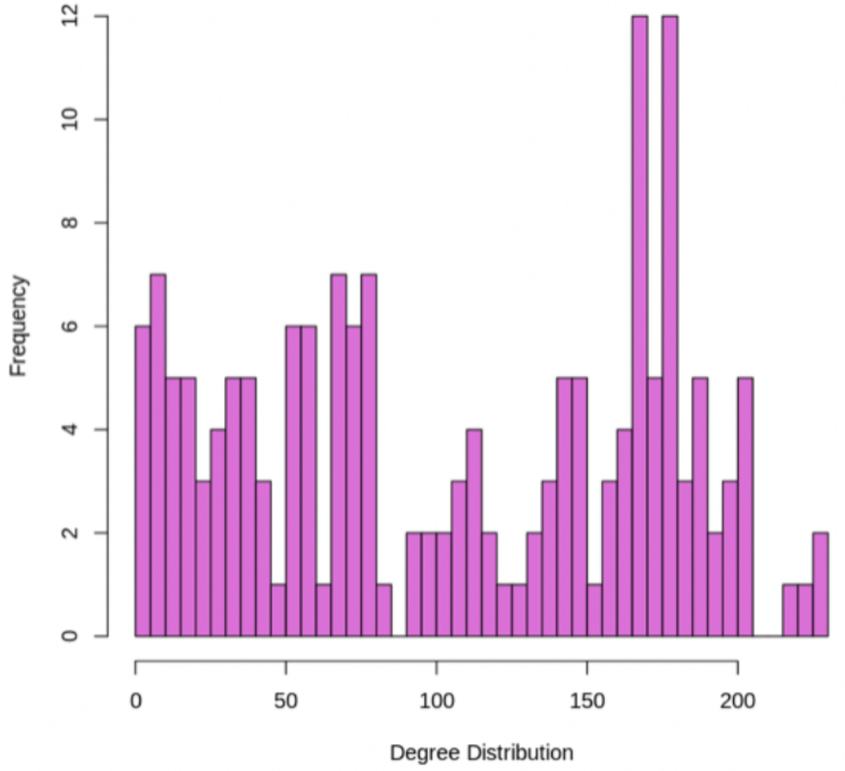
pearson Corr. NORMAL



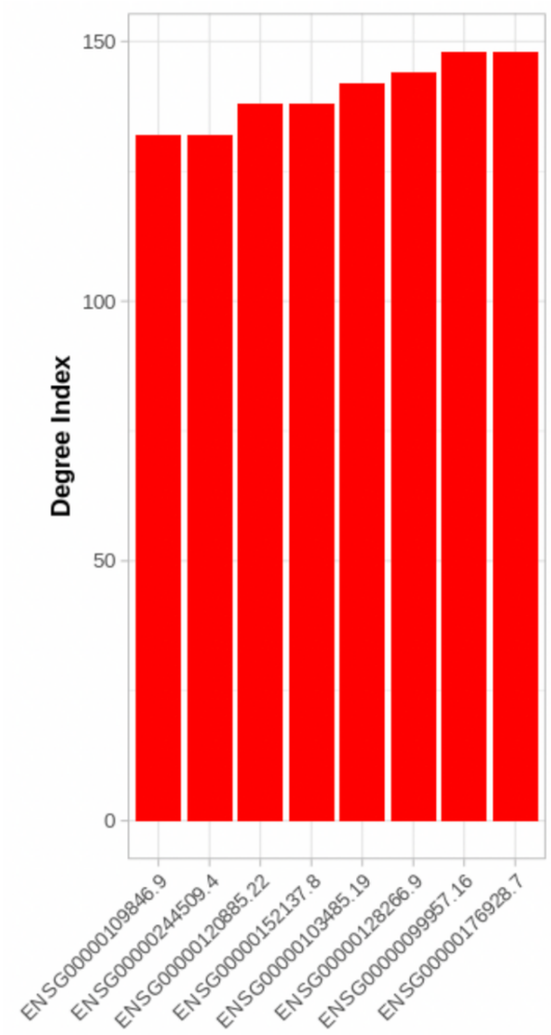
Differential Co-expression network in TUMOR vs NORMAL



Degree distribution in the Differential Co-expression



HUB GENES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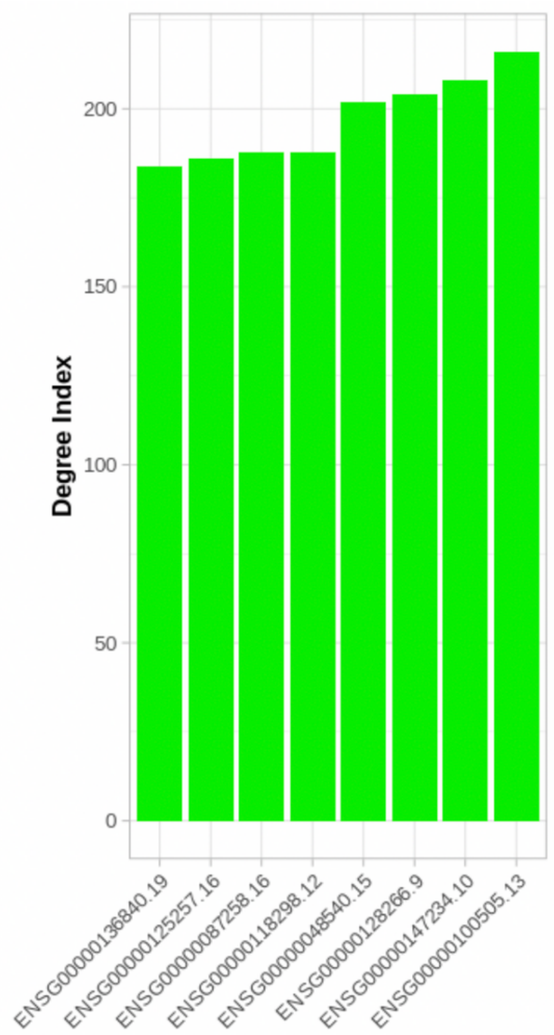
ENSG00000152137.8
ENSG00000103485.19
ENSG00000128266.9
ENSG00000099957.16
ENSG00000176928.7


Degree Index
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150
100
50
0
ENSG00000136840.19
ENSG00000125257.16
ENSG00000087258.16
ENSG00000118298.12
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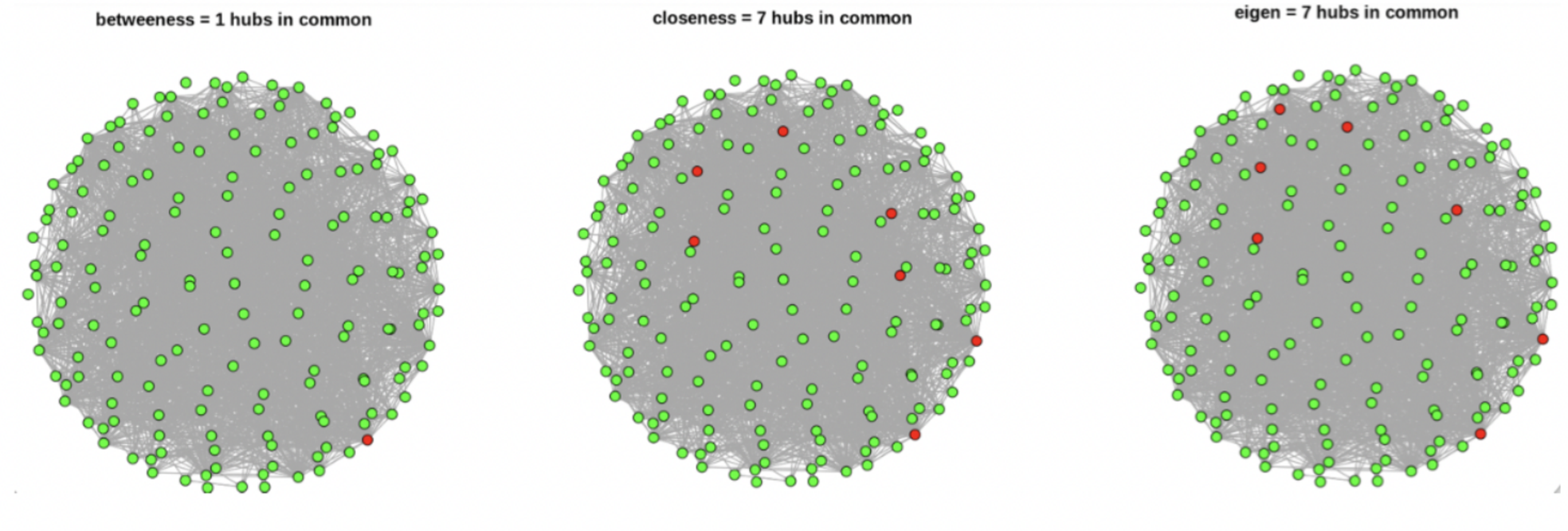
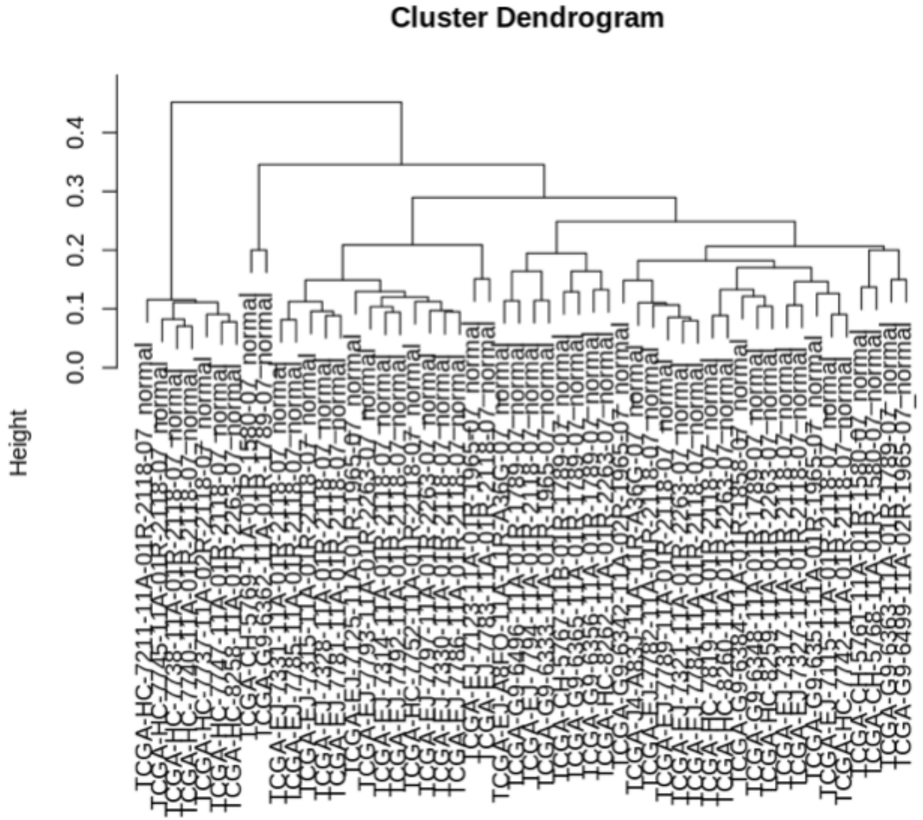
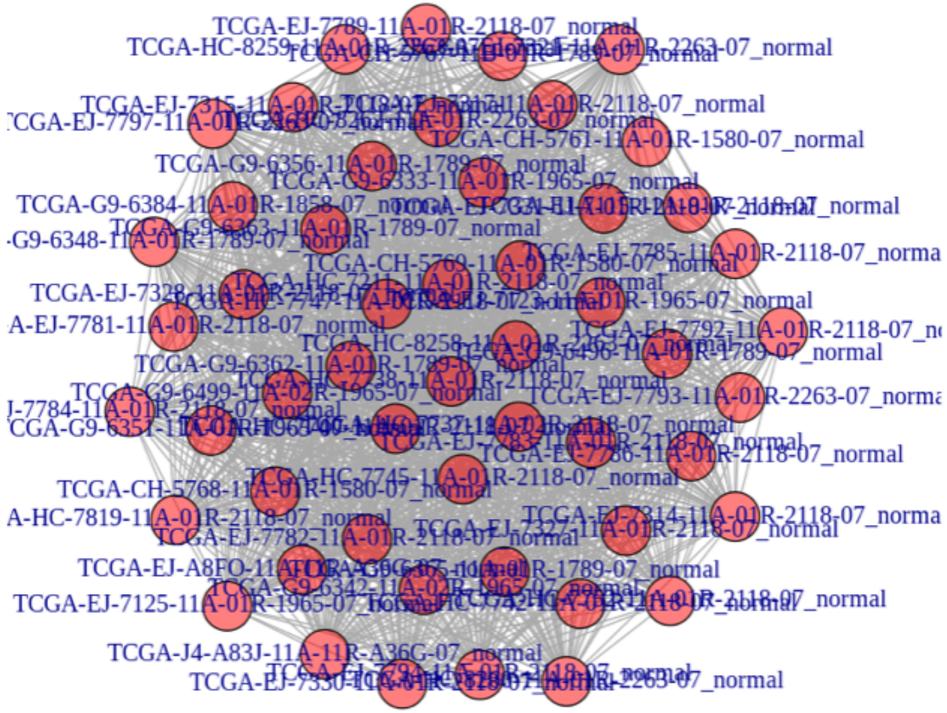
ENSG00000128266.9
ENSG00000147234.10
ENSG00000100505.13

HUB GENES WITH DEGREE-BASED MEASURES



PATIENT SIMILARITY NETWORK





CONCLUSION

We identified **two hubs of genes** that have also been **found in the specialized literature**. Those are **ENSG00000120885.22** and **ENSG00000152137.8**. We used also **different similarity measures and correlations**. In every case we've obtained **similar results** and those hub genes were present.

THANK YOU!