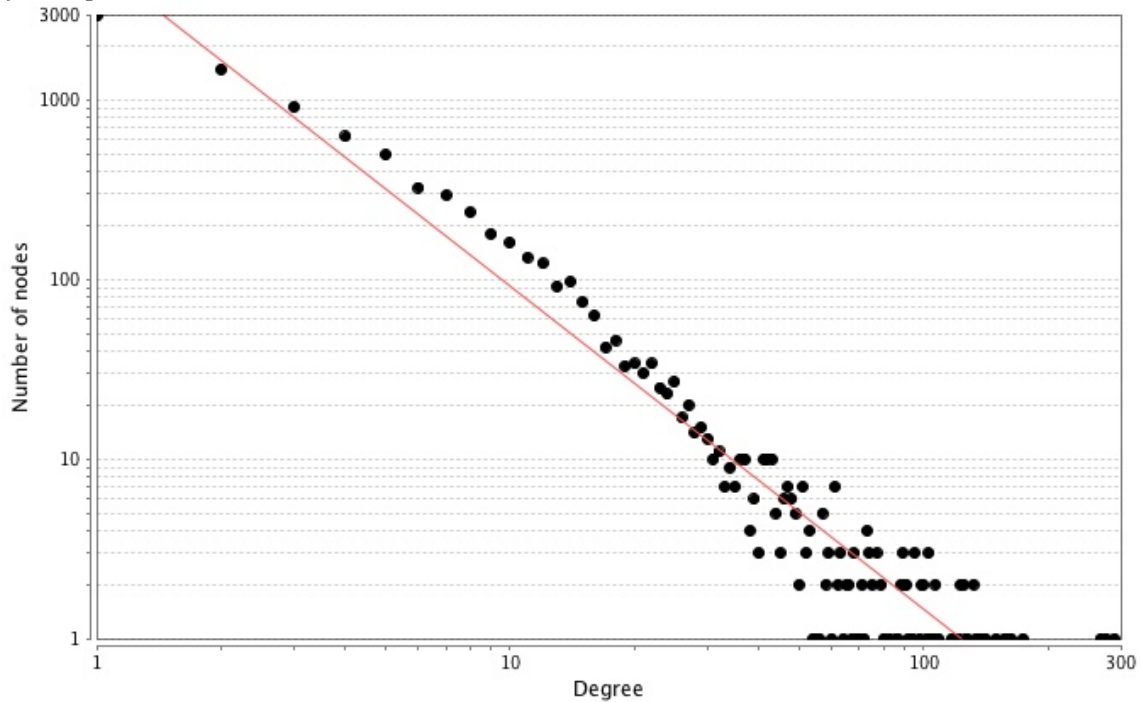


Networks Lab Answer Key

2) The parent PPI is scale free:



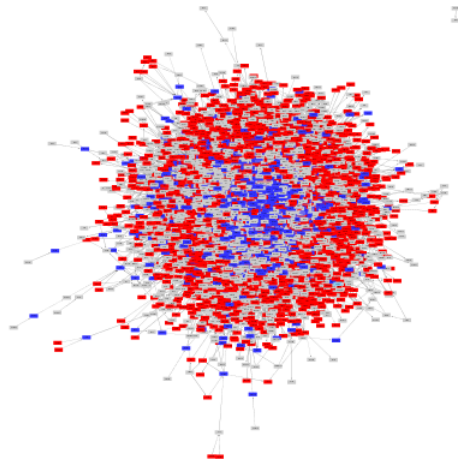
Some of its network properties are:

Clustering coefficient = 0.0855
connected components=164
Diameter= 13
Radius=1
Centralization=0.0316
Shortest paths=75212668 (93%)
Characteristic path length=4.382
Average # neighbors=6.188
nodes=8960
Density=0.001
Heterogeneity=2.0935
Isolated nodes=75
self-loops=0
Multi-edge node pairs=0

You may also have looked at the plots of network properties.

7) For the controllability PPI, the first-order network of MS GWAS hits ($p < 0.05$) has 742 nodes and 677 edges. The first-order network of HT GWAS hits ($p < 0.04$) has 243 nodes and 34 edges. The MS first-order network is more connected than expected (exceeds the 99th percentile), where as the HT network is not.

8) The colored network looks like this:



9) There is no significant enrichment of MS or HT associated genes in any controllability category. This is in line with Figure 2B in the paper.