

## **Interactomics - BioGRID**

BioGRID (General Repository for Interaction Datasets) is a database of protein and genetic interactions in model (and other) organisms: <http://www.thebiogrid.org>

### **Yeast**

1. Search for interactions involving the yeast (*Saccharomyces cerevisiae*) NUP157 protein/gene.

a) What is the function of the yeast NUP157 protein?

b) How many total interactions (physical or genetic) are documented for NUP157?

How many unique interactors are there (physical or genetic)?

Do the interacting proteins share any common functions?

c) How many physical interactions are documented for NUP157?

How many unique proteins does NUP157 interact with physically?

How many of these were detected in more than one experiment?

d) How many genetic interactions are documented for NUP157?

How many unique genes does NUP157 interact with genetically?

How many of these were detected in more than one experiment?

How many unique genes show both a physical and a genetic interaction with NUP157?

e) How many genes interact with both NUP157 and NUP53 (physically or genetically)?

[Hint: it may help to download the list of interactions for both genes in TAB format and open in Excel].

### **Drosophila**

1. Search for interactions involving the *Drosophila melanogaster* Bar (CG5529) protein/gene.

a) How many unique genes interact genetically with CG5529? How many of these are enhancers of the *Bar* phenotype? How many are suppressors?

b) How many unique proteins interact physically with the Bar protein?

2. Search for the *Drosophila melanogaster* Hsp83 protein/gene.

a) What are heat shock proteins?

b) How many unique proteins interact physically with Hsp83?

c) How many unique proteins interact physically with Hsp60B?

d) How many unique proteins interact physically with both Hsp83 and Hsp60B?

## **Human**

1. Search for interactions involving the human CFTR gene.

a) What is the function of CFTR? What disease is caused by mutations in CFTR?

b) How many unique genes/proteins interact with the CFTR protein (genetically or physically)? Do the interacting proteins share any common functions?