Homework 10 Genetics name (print) _____
Due April 21 beginning of class, staple!

1. The *Bcl-2* gene product in it's normal form can be activated to prevent cells from undergoing apoptosis (programmed cell death) in some cases. It is a carefully regulated, being "turned on" only under specific circumstances. A null mutation in *Bcl-2* leads to excessive cell loss. Some Bcl-2 mutation can cause a "gain of function" where the protein is active all the time. What do you think that would do?

2. Look up each of the following genes (on the internet is fine) describe what kind of gene they are, what organism they are from and explain what they do. What is the phenotype in loss of function alleles?

Egl-5

UBX

PAX6

SPO14

ULT1

3. In Reference E, the section on mice as a model system, the process of how a mouse model for cystic fibrosis was constructed. The process required homologous recombination. Mice do not do homologous recombination easily at all. Therefore a relatively simple genetic trick was used to select for cells that inserted the construct by homologous recombination, as opposed to random insertion of the constructed DNA into the genome. What was the trick, and how does it work?

Homework 10 Genetics name (print) _____
Due April 21 beginning of class, staple!

4. Describe two **distinct** properties or techniques available for each of the following organisms that make that organism a valuable tool for genetic research.

S. cerevisiae

C. elegans:

Drosophila melanogaster

A. Thaliana

5. Go to Ohiolink. Select Library Databases by Subject or Field. Select Biology. Select Biological Abstracts/BIOSIS Previews.

In Search box type "oncogene" or "tumor suppressor" or "checkpoint"

Pick an interesting sounding title, click on it, print out the abstract.

List and define three terms or phrases mentioned in the abstract that you learned about in this class class.

You will get 1 bonus points if your abstract is NOT the same as anyone else's in the class. You will get 2 more bonus points if you look at the paper itself and write down the first sentence of the introduction (immediately following the abstract), the first sentence of the Results, and the last sentence of the Discussion. Write those out on the Abstract printout page.