

Lab Genetics 362 Live *Drosophila*: Identifying the mutations

Name: _____

Drosophila melanogaster, the fruit fly, is a model organism in genetics. It is far easier to learn about the genetic basis of traits in flies, than something like moose. In a cross between two moose, you will only get 1-2 offspring, and it will take several years before the offspring are ready to breed, and they are expensive to feed. *Drosophila*, on the other hand, can produce hundreds of offspring per cross, offspring are ready to mate in about 2 weeks, and they can live on just about anything.

You will be making genetic crosses on the computer with simulated *Drosophila*. All of the mutations in the simulation represent real *Drosophila* mutations, although they are generally found only in the lab because they would reduce the fitness of the flies in the wild. We have some of these mutants in the Genetics lab.

Your TA will provide you with some wild-type flies and several mutant lines, either in tubes or knocked out on ice. Your goal is to identify each mutant phenotype. In the *Drosophila* literature, + is used to represent a wild-type allele or a wild-type phenotype, and a letter is used to represent a mutant allele. Thus the genotype *aa* represents an individual homozygous for the *apterous* mutant allele, *+a* is a heterozygote, and *++* is wild-type for that particular gene.

Study the wild-type flies. Then compare the wild-type flies to each mutant, and describe or draw the difference. Each vial is marked with its mutant symbol (*w*, *e*, etc.)

1) Symbol _____

How do these flies differ from wild-type?

2) Symbol _____

How do these flies differ from wild-type?

3) Symbol _____

How do these flies differ from wild-type?

4) Symbol _____

How do these flies differ from wild-type?

5) Symbol _____

How do these flies differ from wild-type?