Experimental Report for FlyLab

Instructions

To begin an experiment, you must first design the phenotypes for the flies that will be mated. In addition to wild-type flies, 29 different mutations of the common fruit fly, Drosophila melanogaster, are included in FlyLab. The 29 mutations are actual known mutations in Drosophila. These mutations create phenotypic changes in bristle shape, body color, antennae shape, eye color, eye shape, wing size, wing shape, wing vein structure, and wing angle. For the purposes of the simulation, genetic inheritance in FlyLab follows Mendelian principles of complete dominance. Examples of incomplete dominance are not demonstrated with this simulation. A table of the mutant phenotypes available in FlyLab can be viewed by clicking on the Genetic Abbreviations tab which appears at the top of the FlyLab homepage. When you select a particular phenotype, you are not provided with any information about the dominance or recessiveness of each mutation. FlyLab will select a fly that is homozygous for the particular mutation that you choose, unless a mutation is lethal in the homozygous condition in which case the fly chosen will be heterozygous. Two of your challenges will be to determine the zygotity of each fly in your cross and to determine the effects of each allele by analyzing the offspring from your crosses.

In this assignment, we want you to design and carry out experiments to test dihybrid crosses. Design and carry out an experiment to see if the traits ebony body and vestigial wing assort independently (i.e. are on different chromosomes). Be sure to state your hypothesis, describe your experimental design, show a table of results for the F1 and F2 generations, and indicate whether or not your results support your hypothesis.

Use the template below to complete your report.

Your Name:

Your CIN:

Introduction

Describe below what it is you are investigating. Clearly state the hypotheses you are testing. Remember that hypotheses are statements, not questions. (This section should be four or five sentences in length.)

Type your text here.
Experimental Design

*Describe the design of your experiments. How many genetic crosses are you conducting? What phenotypes for males and females are you using in each experiment? (You may which to include a list or table to summarize your experiments. This section should be four or five sentences in length)*

Type your text here.

Results

*Describe the results for each of your experiments. Be sure to include data tables that show what happened in each experiment. (These can be copied/pasted from the FlyLab notebook or from the web page produced if you export your notes.) Label each data table (Table 1, Table 2, etc.) and add a caption to each data table that makes it clear what the table shows. Refer to each table when you describe the results. (You should have 2-4 tables and 2-3 sentences per table describing the results.)*

Type your text and insert your data tables here.

Discussion and Conclusions

*Describe what your results indicate. Do your results support your hypotheses? What can you conclude from your results? (This section should be three or four sentences in length.)*

Type your text here.