**AP Biology**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mitosis Lab - A Chi Square Analysis**

**Introduction**

The environment has substantial effects on the process of cell division. You will be given two cards depicting images from onion root tips. Card A pictures sections from root tips previously treated with lection, a chemical that induces mitosis. Card B pictures untreated samples. In this lab, you will collect data and perform a chi-square goodness of fit test to determine the effect that lectin has on the cell cycle rate of onion root tips.

* Null hypothesis:

* Alternative hypothesis:

1. Look at the back of your A card and write down the code found in the lower right-hand corner \_\_\_\_\_\_\_\_
2. Look at the back of your B card and write down the code found in the lower right-hand corner \_\_\_\_\_\_\_\_
3. Count the number of cells in interphase and mitosis and fill out the data table below.

**Table 1. Number of Cells in Interphase or Mitosis**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Interphase** | **Mitosis** | **Total** |
| **Treated (A)** |  |  |  |
| **Control (B)** |  |  |  |
| **Total** |  |  |  |

1. Use the information from Table 1 to fill out Table 2.

**Table 2. Percentages of cells in Interphase or Mitosis**

|  |  |  |
| --- | --- | --- |
|  | **Interphase** | **Mitosis** |
| **Treated (A)** |  |  |
| **Control (B)** |  |  |

1. Calculate your chi-square value.

**Table 3. Calculation of Chi-Square**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Observed (o)** | **Expected (e)** | **(o-e)** | **(o-e)2/e** |
| **Treated (A) Interphase** |  |  |  |  |
| **Treated (A) Mitosis** |  |  |  |  |
|  |  |  | **Total Chi-Square =** | |

1. How many degrees of freedom do you have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is your critical value?
3. What is your P value? (If your chi-square value falls between two points on Chi-Square Table, give a range of P values.)
4. Do you reject your null hypothesis? (A yes or no answer is sufficient.)

