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Mr. Buck pd. 3

**Mitotic Index Lab**

***Onion Root Tip Activity (Microscope)***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Interphase | Prophase | Metaphase | Anaphase | Telaphase | Total |
| # of cells | 28 | 14 | 8 | 3 | 0 | 42 |
| % of cells | 66.6 | 33.3 | 19 | 7.1 | 0 | 100 |

***Onion Root Tip Activity (Online)***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Interphase | Prophase | Metaphase | Anaphase | Telaphase | Total |
| # of cells | 20 | 10 | 3 | 2 | 1 | 36 |
| % of cells | 55.5 | 27.7 | 8.3 | 5.5 | 2.7 | 100 |

* + Mitotic index = Number of mitotic cells

 Number of total cells

**Questions**

***1. Why were the highest percentage of cells in interphase?***

Because the cell spends the highest percent of their life spam (90%) in the interphase while only 8% of the life of the cell is the spend during the process of mitosis. This is because cells have to grow (mitochondria increase) and receive energy in order to undergo the process of mitosis.

***2. What phase was the second most common? Hypothesize a reason why this was the case?***

The second most common phase is prophase. This is because the alignment and distribution of the DNA can be done once the cell is properly position. Prophase is in charge of through time consuming chemical changes, such as breaking down nuclear membranes and nuclei, forming spindle fibers and coiling chromatin into chromosomes. Once this is done, anaphase and telophase have properly set up to achieve their sequence.

***3. Why was the growing tip of the root used in this experiment?***

Because it is the part of the tissue where the highest rate of cell division exist due to the ongoing process occurring for the root to keep on growing.

***4. Identify 3 limitations in the procedure of the experiment that may have negatively impacted on your data collection.***

1. The highest power (x400) was not properly working. We then had to use medium power for the rest of the experiment which caused us, as the collectors of data, to be less precise when collecting data and identifying cells
2. When we cut out the onion root tip and looked under the microscope, we weren’t sure if we were looking at the bottom of the root (exposed to cell division to maintain the roots growth) or the top of the root (which was attached to the onion)
3. We didn't count all the cells under the microscope thus affecting the calculations (# of cells and % of cells) to be imprecise.