

The Cell Cycle and Cancer Virtual Lab

<http://bit.ly/1RgqmJ>



1. Pick a cell type you are going to investigate. Record your choice. **Lung, Stomach, or Ovary**
2. Click on the **NORMAL** slide for the cell type you chose.
3. Label the phases of each cell “seen” in the field of view.
4. Click **CHECK**
5. Create Table 1 in your notes. Record the number of cells in each phase in Table 1.

6. Repeat steps 2-5 for **CANCEROUS** tissue of the cell type you chose.

Table 1:

Tissue Type	# Cells in Interphase	# Cells in Prophase	# Cells in Metaphase	# Cells in Anaphase	# Cells in Telophase	Total # of cells in MITOSIS	TOTAL # OF CELLS
NORMAL tissue	Numbers will vary based on type of cells selected.					roughly 10%	Usually 20
CANCEROUS tissue						roughly 20%	Usually 20

7. Create Table 2 in your notes. Use the data in Table 1 to calculate the % of cells at rest (in interphase) and the Mitotic Index (% cells in mitosis dividing) for each tissue.

Table 2:

Tissue Type	% cells at rest <i># cells in Interphase ÷ total # of cell</i>	Mitotic Index % cells dividing <i># cells in Mitosis ÷ total # of cells</i>
NORMAL	Higher than cancerous cells	Lower than cancerous cells
CANCEROUS	Lower than normal cells	Higher than normal cells

Questions:

1. Based on your data and observations, what are some of the differences between normal cells and cancer cells? **Cancerous cells have more cells in the stages of mitosis. The cancerous cells observed had #% of cells in mitosis whereas normal cells have #% cells in mitosis. (use your own data to fill in the #s)**

2. What does your data indicate about the rate of cell division in cancerous tissue compared to the rate of cell division in normal tissue? What data did you use to answer this question?
 The rate of cell division is faster in cancerous cells because there are fewer cells in interphase at any time. Interphase takes the longest time, so if less cells are here it means the cell cycle is happening quickly. The specific % of cells as rest data should be used to support these statements.

3. This lab explores three common cancers. An additional form of cancer – Skin Cancer – used to be seen only in older individuals but is now seen in younger individuals, many in their early 20s. Skin cancer results from accumulated mutations to the DNA of skin cells, caused primarily by sun exposure. What factors do you think may be contributing to the increase in skin cancer among young adults?
 Young adults are still growing so there is more cell division happening, more chances for errors. Perhaps less likely to wear sunscreen, more likely to spend time outside than adults....many possible answers.