

Virtual Lab: The Cell Cycle and Cancer

1. Open the virtual lab: The Cell Cycle and Cancer
2. Click on the Laboratory Exercise link.
3. **Click on the microscope** in the lab simulation to examine the different stages of mitosis as they appear in different tissue samples. Three types of tissue are available for examination: lung, stomach, and ovary. Samples of normal tissue and cancerous tissue are included. Click on the tissue box to examine different tissues. Examine both normal and cancerous tissue for lung **and** ovary tissue type only. Follow the instructions to label each stage of the cell cycle.
4. Record the number of cells in each stage of the cell cycle in Table 1 for normal tissues and Table 2 for cancerous tissues. You must examine three different views of each tissue type and condition – *click reset to view alternate samples* of each tissue type until you have recorded the number of cells in each stage of the cell cycle for **3** different samples of each tissue.
5. Calculate the average Mitotic Index (% cells dividing) and average % cells at rest for normal tissues. Record these numbers in Table 3 and 4 on your worksheet.

To calculate the average % cells at rest in normal tissue:

1. (# cells in Interphase in Sample 1 + # cells in Interphase in sample 2) = total # cells at rest.
2. (total # cells at rest/total #cells in both samples) X 100 = average % cells at rest

To calculate the Mitotic Index - average % cells dividing - in normal tissue:

1. (#cells in mitosis in Sample 1 + #cells in mitosis in Sample 2)/2 = avg. #cells dividing
2. (avg. # cells dividing/total # cells) X 100 = average % cells dividing

Table 1: Number of cells in each stage of the cell cycle observed in normal tissues.

Tissue Type	# Cells in Interphase	# Cells in Prophase	# Cells in Metaphase	# Cells in Anaphase	# Cells in Telophase
Lung Tissue Sample 1	19	1	0	0	0
Lung Tissue Sample 2	19	1	0	0	0
Ovary Tissue Sample 1	18	0	1	1	0
Ovary Tissue Sample 2	19	1	0	0	0