LAB: The Human Cheek Cell /15

**Introduction**:

Many things that are viewed using a microscope, particularly cells, can appear quite transparent under the microscope. The internal parts of the cells, the organelles, are so transparent that they are often difficult to see. Biologists have developed a number of stains that help them see the cells and their organelles by adding color to their transparent parts. While many biological stains are for advanced study only, there are some that are easy to obtain and use. Some readily available stains are: food coloring, iodine, malachite green and **methylene blue.** Interestingly, certain stains color certain parts of a cell. Scientists choose specific stains when they want to look at a particular part of a cell. You will be experimenting with the one of the stains listed above to see which parts of your cheek cells each one colors.

**Purpose:** In this lab, you will prepare and observe cells from an animal (your own cheek!!).

**Materials:** You will need the following materials: glass slide, coverslip, toothpick, Methylene Blue stain and your own cheek.

**Procedure**:

1. Put a drop of methylene blue on a slide. Caution: methylene blue will stain clothes and skin.
2. Gently scrape the inside of your cheek with the flat side of a toothpick. Scrape lightly.
3. Stir the end of the toothpick in the stain and throw the toothpick away.
4. Place a coverslip onto the slide
5. Use the SCANNING objective to focus. You probably will not see the cells at this power.
6. Switch to low power. Cells should be visible, but they will be small and look like nearly clear purplish blobs. If you are looking at something very dark purple, it is probably not a cell
7. Once you think you have located a cell, switch to high power and refocus. (Remember, do NOT use the coarse adjustment knob at this point)

8. Sketch the cell at high power ON THE BACK OF THIS PAPER. Label the nucleus, cytoplasm, and cell membrane of a single cell. Use the whole page and draw your cell to scale.

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**DISCUSSION QUESTIONS (6 marks)**

1. Why is methylene blue necessary?

2. The light microscope used in the lab is not powerful enough to view other organelles in the cheek cell. What parts of the cell were visible?

3. List 2 organelles that were NOT visible but should have been in the cheek cell.

4. Is the cheek cell a eukaryote or prokaryote? How do you know?

5. Keeping in mind that the mouth is the first site of chemical digestion in a human. Your saliva starts the process of breaking down the food you eat. Keeping this in mind, what organelle do you think would be numerous inside the cells of your mouth?

**DRAWING (5 marks)**

6. a) Calculate the ACTUAL SIZE in µm. (Field of view at high power is 0.5 mm) **(2 marks)**

b) Calculate the MAGNIFICATION using your actual size you calculated in part a). **(2 marks)**