

Cell Structure Lab

A. Models and Diagrams

A number of charts and models will be available during lab. Use them to review the *appearance* and *location* of the following organelles, and remind yourself of the *function* of each organelle as you find it:

Cell membrane	Nucleus	Cytoplasm
Pinocytotic Vesicle	Nucleolus	Cytosol
Endoplasmic reticulum	Ribosomes	Golgi body
Mitochondria	Centrioles	

Remember that these organelles are not colored in the living cell.

B. Living Preparations

1. **CHEEK CELLS** - Use a clean toothpick. Gently scrape the inside of your cheek and transfer this material to a clean slide. Let dry, flood irrigate with **methylene blue** for 30 seconds. Drain and Rinse gently in a beaker of water. Put on a cover slip and examine your preparation in medium and high power (draw). Identify **nucleus, cytoplasm, and cell membrane**.
2. **AMEBOID CELLS** - Take a drop of scummy water from the bottom of the ameba culture jar. (Look for the little white specks on the bottom of the jar.) Transfer it to a slide and add a cover slip. Look for the amebas in low or medium power. We are looking at these organisms because their movement is similar to that of certain white blood cells. Watch the slow flowing of the cytoplasm and the extension of **pseudopodia** in the direction of locomotion. These pseudopodia are also used to engulf particles in the water: food in the case of an ameba, bacteria and other foreign matter in the case of white cells. The engulfing process is known as **phagocytosis**.
3. **CELERY** - Cut a slice, as thin as possible, from a fresh stalk of celery. Out of this, cut a small square without any strings and place it on a slide in a drop of 5% **sucrose** solution. (Do this quickly so the celery section does not dry.) Add a cover slip. Observe in medium and high power. You may be able to see small rods and spheres moving in the cytoplasm – the are the **mitochondria**. Place a strip of filter paper at the edge of the cover slip. Add one or two drops of **Janus Green or methylene blue** dye at the opposite edge of the cover slip. The paper will draw the dye through the preparation. As you watch, the mitochondria will first appear *blue-green* as the dye hits them. Then the color will disappear as the enzymes in the mitochondria metabolize the dye and “bleach” it.

C. Prepared Slide - BLOOD - Take a “blood smear” slide from the tray (found in the brown

cabinet). Examine it under medium and high power. There are about 1000 red cells for 1 white cell. Notice that the red cells have **no nucleus** and a very *clear cytoplasm*, indicating the relative lack of organelles. Their pale pink color is due to hemoglobin, which is more abundant around the edges than in the middle. White cells will appear purplish due to the dye that has been used. Notice their irregular nucleus. Some white cells are ameboid.

D. Microslide viewer Examine sets 10 and 66.

E. Label the diagram as indicated.

