

Wet Mount of Onion Epidermal Cells

Onions are bulbs that are made of concentric layers. The layer of the onion has an outer and inner epidermis. The epidermis protects the underlying tissues.

1. Place a drop of water in the center of a clean slide. Use only 1 small drop of water, remove any excess water.
2. Remove a small piece of the inner epidermis. The inner epidermis is the lining tissue on the concave side (inside curve) of the onion piece. This can be done in a number of ways. A scalpel can be used to peel the inner epidermis. One of the easiest ways to get a piece of tissue is to snap the onion piece and then pull the inner skin from the edges of the snapped pieces with forceps or your fingers. The epidermis should be transparent and very, very thin.
3. Place the piece of epidermis in the water drop on the slide.
4. Cover the wet mount with a coverslip. Remember to angle the coverslip as you drop it onto the wet mount.
5. Add a drop of iodine* to the slide, adjacent to the coverslip. Apply a piece of absorbent paper to the opposite side (side away from the stain droplet) of the coverslip to draw the iodine across the slide.
6. Return or discard the unused onion according to your instructor's directions.
7. Place the slide on the microscope stage. Use the scanning objective to find what looks like yellow lines. These plant cells are large and should be easily seen. Sharpen the image using the fine adjustment knobs. Adjust the lighting of the image.
8. Center several rows of cells in the field of view.
9. Rotate the 10X objective over the stage. Fine adjust the image.
10. Rotate the 40X objective over the stage. Fine adjust the image. Draw** (in color) at least 5 cells in your field of view in the circle below. Label at least 3 structures in your drawing.
11. Wash and reuse this slide and coverslip or dispose of these materials as directed by your instructor.

*Iodine is a common household chemical. It can be used to stain cell structures thereby increasing contrast. Iodine is also an indicator for starch. Starch, a storage polysaccharide, turns blue-black in the presence of iodine.

**It is important when drawing images viewed through the microscope to exaggerate the size of the structures. Drawing what you see exactly, the same size as you see it, is not helpful when you are trying to remember this slide in the future.

Onion epidermal cells (100X or 400X)
stained with iodine.

