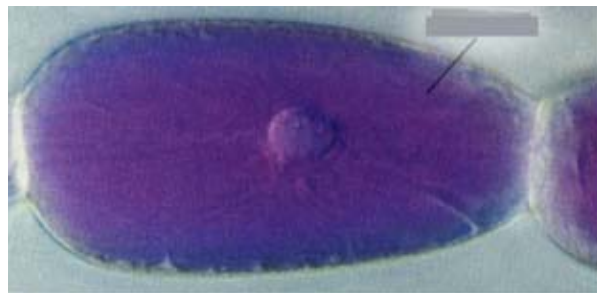


## Cyclosis in *Tradescantia* Stamen Hairs

Stamen hairs of the *Tradescantia* flower are ideal for observing cyclosis. The stamen is the male reproductive structure of a flower, consisting of an anther, usually bright yellow, which contains pollen, and a thread-like stalk, the filament. The purple filaments of the *Tradescantia* stamens are covered with many hairs. The hairs are chains of single cells that are purple in color and contain a large water-filled central plant vacuole. The cytoplasm and its contents are concentrated near the perimeter of the cells. A short video clip of cyclosis in *Tradescantia* stamen hairs is also available. Ask your instructor.

1. Using fine forceps, remove 1 or 2 hairs from a stamen filament of a *Tradescantia* flower.
2. Make a wet mount of your stamen hair. Using very low light locate the hair with low power magnification and then focus with high power. The hair should resemble a chain of lavender pearls. The anthocyanin pigments that are responsible for the purple color are water-soluble. They are stored in the central plant vacuole. The entire cell looks purple because the vacuole occupies as much as 90% of the cell's volume.
3. Look for cyclosis. You should see thread-like "rivers" moving along what appears to be the surface of each cell.
4. If you have been fortunate enough to observe cyclosis, carefully switch to the oil immersion lens, using the procedure outlined below\*. Some of the granular specks now visible with the oil immersion magnification are mitochondria, the organelles in which aerobic cell respiration occurs. The mitochondria are carried along with the cytoplasmic stream. If you rotate the fine adjustment knob you will also be able to see the many striations in the cell wall of the *Tradescantia* stamen hair cells.
5. When you have completed your observations clean the objective lenses, slide, coverslip and microscope stage with lens paper to be sure that all traces of immersion oil have been removed. You may need to use a drop of xylene (an organic solvent) on the lens paper.



*Tradescantia* Stamen Hair

### \*Using the Oil Immersion Lens

1. Be sure that you have your specimen in good focus and centered in the field of view with the 45X objective before proceeding to use the oil immersion lens.
2. Rotate the nosepiece to a position halfway between the 45x objective and the oil immersion objective.
3. Place a drop of immersion oil on the coverslip. Once you have added oil to the coverslip it is almost impossible to return to lower magnifications. If something goes wrong, you will have to clean the oil from the slide and start over. (This might mean making a new slide.)

**Slowly** rotate the oil immersion objective into position. It should be resting in the oil film. Carefully focus with the fine adjustment knob. You can move the slide around under the oil immersion objective, but you should **never** use the coarse adjustment knob to focus.