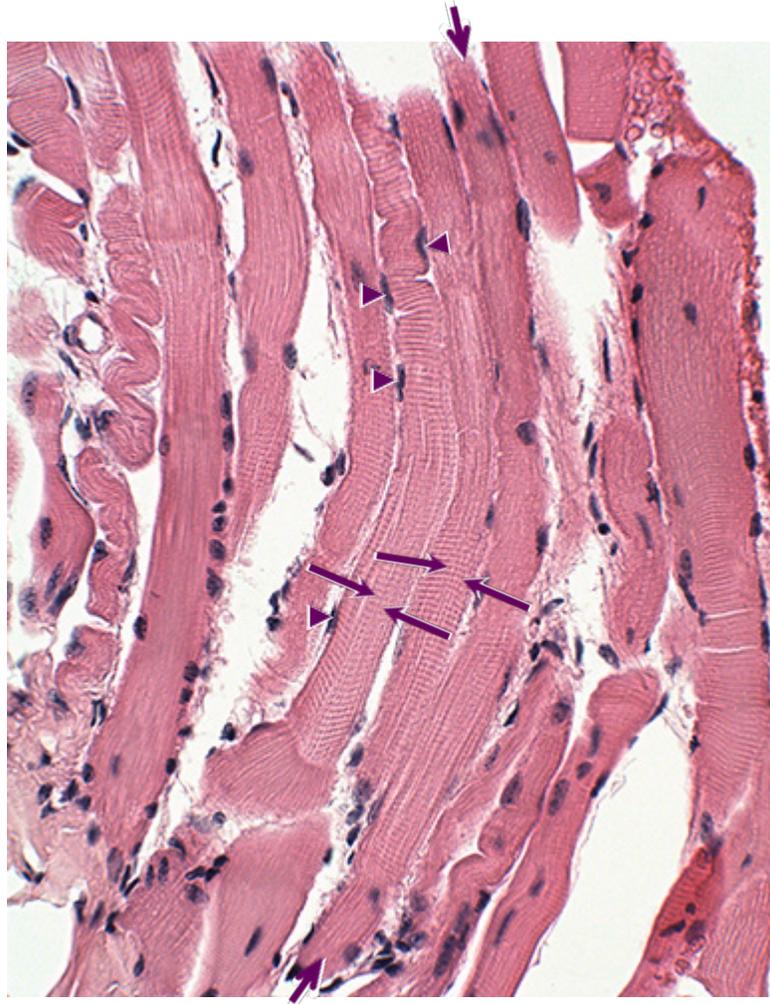


## PST-musc-1: Skeletal Muscle Visual Microscopy Kit



This skeletal muscle tissue is a longitudinal section, stained using hematoxylin and eosin. The hematoxylin typically stains nuclei purple because it stains nucleic acids and proteins, while the eosin typically stains cytoplasm pink. Skeletal muscle is characterized by having lengthy cells (that can be measured in centimeters rather than micrometers), multiple nuclei (because embryonic cells fuse to make such large cells), and striations. Because of their large size, skeletal muscle cells are also called muscle fibers.

- ➔ Indicates striations; adjacent striations are indicated in two muscle fibers
- ▶ Indicates multiple nuclei in one muscle fiber
- ➔ The exceptionally long length of one muscle fiber in this section is from arrow to arrow.

The striations in skeletal muscle cells are due to organized cytoskeleton within them that has a repeating pattern of actin and myosin filaments. The dark lines, pointed out in the image above, are due to the myosin filaments, while the light lines are due to the actin filaments. The wiggly appearance of some muscle fibers is an artifact from their placement on the slide.

## For all Cell Zone®, Inc. posters

### General Instructions:

- Move from room to room or maintain in one location
- Hang on any permanent or removable hook by the grommet
- Use a dry erase marker on the frame; erase the same day to ensure clarity
- Store multiple posters by stacking so that the grommet cannot scratch the front of a neighboring poster

### Advantages with using posters:

- Hanging real cell micrographs makes your classroom or lab space look like a place where real science is done
- The posters can be hung as art or for learning
- The posters can be paired with microscopy or used separately
- You will always have a good example of what you want your students to see

### Lessons for this specific poster

1. Have your students identify the type of tissue this is (epithelial, connective, muscle, nervous). Then have them identify the specific type of muscle tissue visible (skeletal, cardiac, smooth). Then ask them to explain where this type of muscle tissue is found.
2. Hand your students a dry erase marker and have them label
  - the outline of one muscle fiber.
  - nuclei in the muscle fiber they outlined.
  - regions where striations are clearly visible
3. When pairing the use of the poster with microscopy, you can do each of the following:
  - Set up numbered microscopes with pointers on specific muscle tissues and cells and have them match the number to the entire poster or to specific items in the poster. Microscopes could show low power or high power views. Have students put the microscope numbers onto the poster with a dry erase marker, with numbered arrows to specific items in the poster.
  - Use a dry erase marker on the frame to indicate a part of the cell or the field. Have your students, each working on their own microscopes or in pairs, put their pointer on a similar structure in their microscope fields. You can check their choices, or have them check on each other.
4. Ask your students about the size of these muscle fibers, the number of nuclei, and the presence of striations:
  - Are they a similar size to other cells? If they cannot tell (no calibration is on the image), have them evaluate the size of a nucleus relative to the size of one cell.
  - Is each cell uninucleate or multinucleate? They should be able to identify the limits of a cell and count the nuclei. Not all cells show as multinucleate because not all nuclei are in this section of tissue (some are in adjacent sections on other slides).
  - Are these cells striated? How can they tell?

