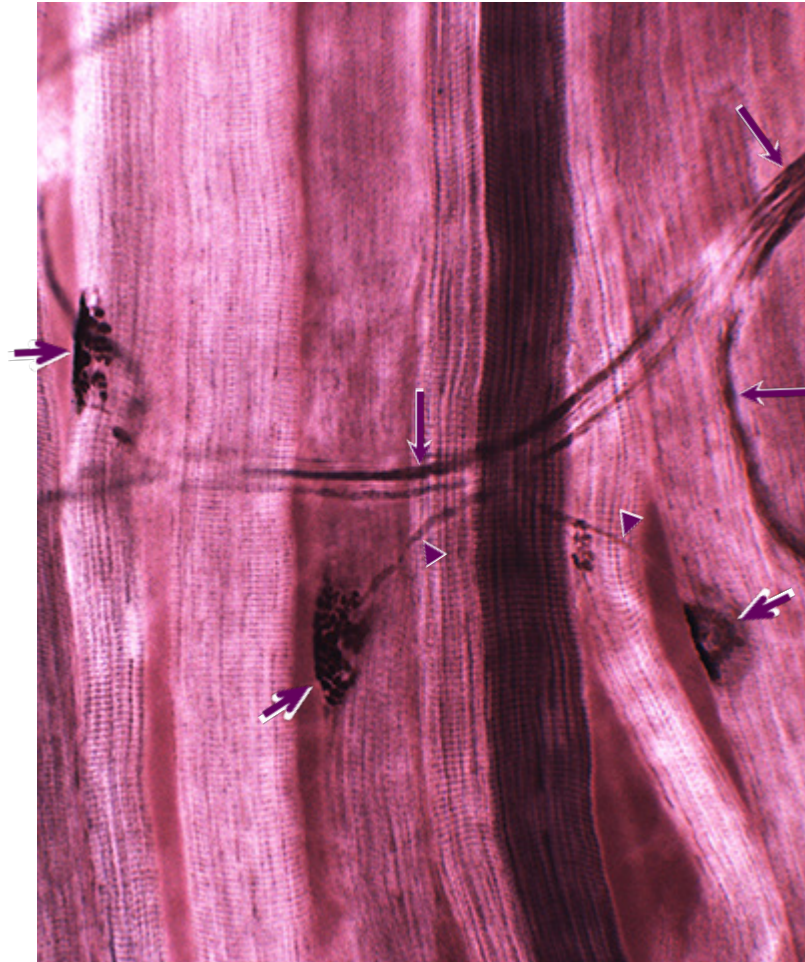


PST-musc-4: Skeletal Muscle Endplates Visual Microscopy Kit



This photomicrograph of skeletal muscle endplates was taken at 400x. The nerves and nerve endings are stained black, as are striations of the skeletal muscle fibers (or cells) and one muscle fiber. All of the muscle fibers in this photomicrograph are running vertically.

- ➔ Endplates of motor neuron axons, where the neuromuscular junctions occur.
- ▶ Individual motor neuron axons running toward endplates. The axons are stained black, and the pale unstained area around it is likely its myelin sheath.
- ➔ Nerves containing multiple axons.

Each endplate appears as a splotchy patch because each motor neuron axon that supplies it branches into many bulbous endings. Note that each muscle fiber only receives one endplate. Nerves are wrapped with fascia, but each motor axon within a nerve is also wrapped by a Schwann cell myelin sheath for improved electrical conduction.

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) as well as the type of neurons visible (sensory, motor, or interneuron).
2. Hand your students a dry erase marker and have them label
 - the outline of one muscle fiber and the striations visible in a muscle fiber.
 - the motor nerve that is carrying the motor axons to their targets (at right).
 - individual motor axons visible and have them circle the endplates.
3. When pairing the use of the poster with microscopy, you can do each of the following:
 - Set up numbered microscopes with pointers on muscle fibers or nerves or endplates and have them match the number to specific items in the poster. Microscopes could show low power or high power views, cross or longitudinal sections. 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 item within the photomicrograph. Have your students, each working on their own microscopes or in pairs, put their pointer on a similar structure in their microscope fields. They can use alternative slides, like a longitudinal skeletal muscle or nerve slide. You can check their choices, or have them check on each other.
4. Ask your students about the endplates on a skeletal muscle:
 - How many endplates are on each skeletal muscle fiber? Why aren't there multiple endplates on individual fibers?
 - Are motor neuron axons to muscle fibers myelinated? Why?
 - Are the endplates of the axons continuous with the muscle fiber or are they separate? What is the space between the endplates and the sarcolemma called (the synaptic cleft)? How do these cells communicate if they are separate (neurotransmitter)?

