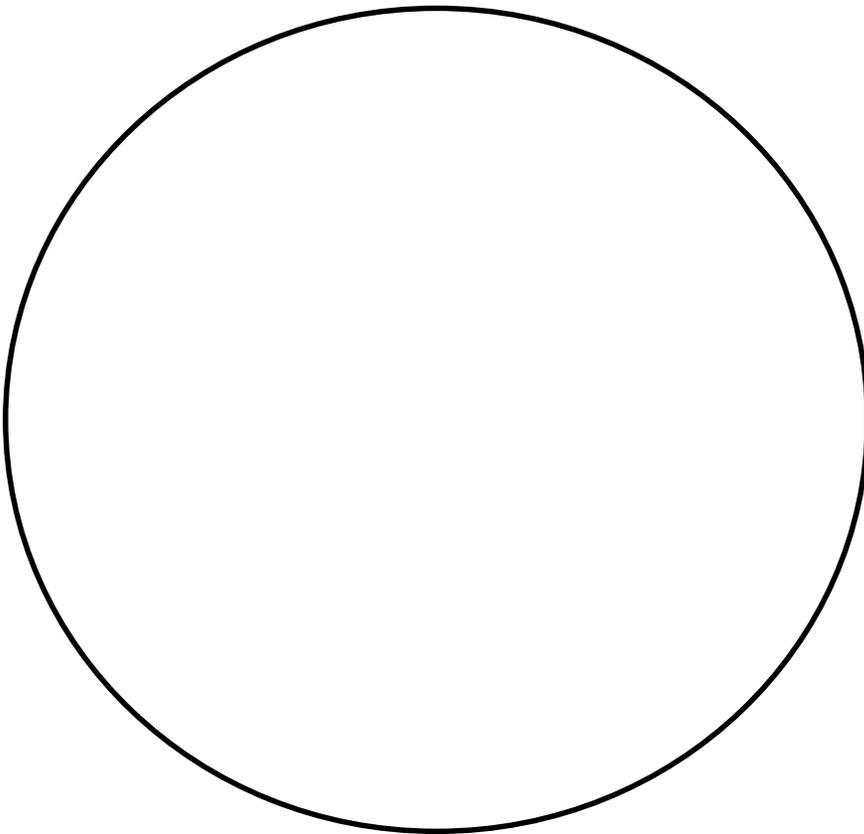


Checklist for setting up a microscope and beginning with a new slide.

1. Plug in microscope & turn on light source.
2. Pick up microscope by carrying arm, position it so it is accessible to your seat, with open side of the stage facing you.
3. Rotate the objectives so that the lowest power objective (smallest in size) clicks into place.
4. Look at slide with your naked eye and find the location of the specimen.
5. Clip slide into place with stage clips. The cover slip on the slide must be face up. Find the stage controls and make sure that, when they are turned, the slide moves smoothly left & right or up & down, depending on knob.
6. Use stage controls to move slide so that light source is shining directly on to the specimen to be magnified.
7. Find the coarse and fine focus knobs. Watching the stage and objective, use the coarse focus knob to bring the low power objective as close to the slide as it will go.
8. Put your eye to the eyepiece (or eyepieces, if the microscope is binocular) and rotate the coarse focus knob in the lowering direction until some aspect of the specimen comes into focus.
9. Move your hand to the fine focus knob and get the specimen into perfect focus for your eyes. Do NOT touch the coarse focus knob again.
10. Use the stage control knobs to move your specimen to close to the exact center of your field of view.
11. Move to the next highest power objective (do not skip individual objectives) and use only the fine focus to get your image into perfect focus for your eyes.
12. If you need further magnification, move to the next highest power objective and use only the fine focus to get your image into perfect focus for your eyes.
13. Do not use the 100x objective (if you have one) in this course. It must be used with immersion oil and we won't have students doing that.

Lab exercises 5.2

1. Obtain a slide of epithelial tissue from the instructor.
2. Follow the checklist in Lab exercise 5.1 to set up your slide for viewing.
3. View the slide on the second-highest objective. Find the epithelial layer.
4. In the circle below, draw a representative sample of the epithelial cells, taking care to correctly and clearly draw their true shape in the slide and an accurate number of layers if it is a stratified epithelium. Also draw some of the tissue (probably connective tissue) below the epithelial layer. Draw your structures proportionately to their size in your microscope's field of view.
5. Fill in the blanks next to your drawing.



Total magnification: _____

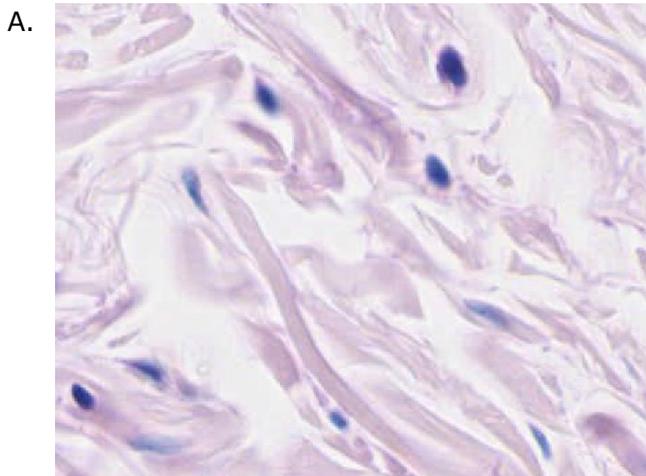
Type of epithelium: _____

Source of tissue: _____

Function of tissue: _____

Lab exercises 5.3

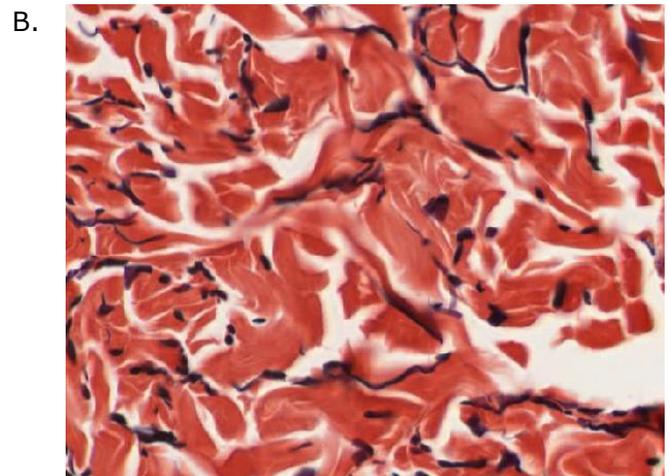
1. Table 5.1 lists six categories of connective tissue proper. Use the information in that table to identify which category each of the following samples belong to.
2. Under each picture, list the evidence that points to the category you choose.
3. The key identifying features to look for in each picture are: the type(s) of protein fibers present, the type of cells present, and whether there are significant amounts of ground substance present.
4. Collagen protein fibers are thick. Elastic protein fibers are thin. Reticular protein fibers are thin but form a web-like arrangement.
5. If there is abundant space between protein fibers, the tissue is likely one of the loose connective tissues. If there is little space between protein fibers, the tissue is likely one of the dense connective tissues.
6. Adipose is mainly large adipocyte cells containing a large droplet of lipids and nucleus and cytoplasm crammed into one corner of the cell. There are more adipocytes than extracellular material in adipose.
7. The protein fibers in regular dense connective tissue proper will largely parallel each other, but they are often undulate in a wave-like arrangement while being parallel.



Source: Stomach wall

Category: _____

Evidence: _____

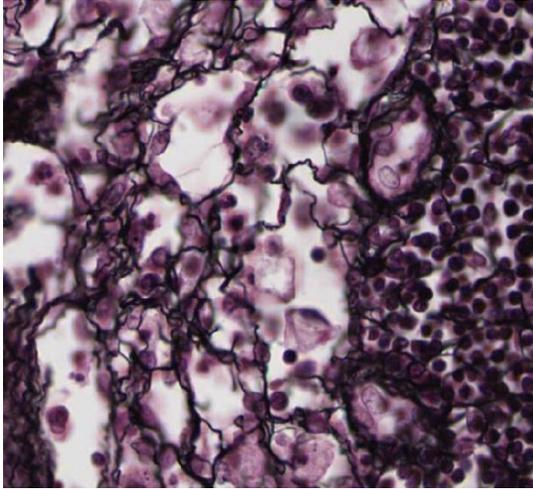


Source: Joint capsule

Category: _____

Evidence: _____

C.

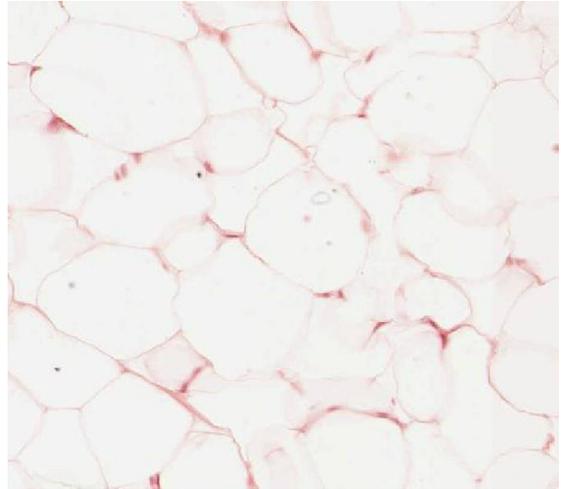


Source: Lymph node

Category: _____

Evidence: _____

D.

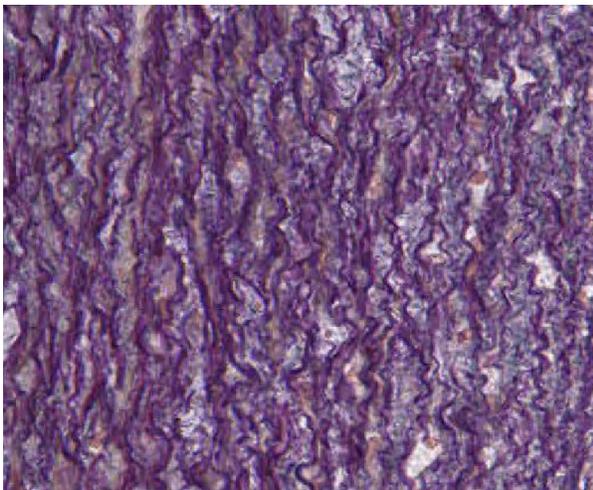


Source: Fat

Category: _____

Evidence: _____

E.

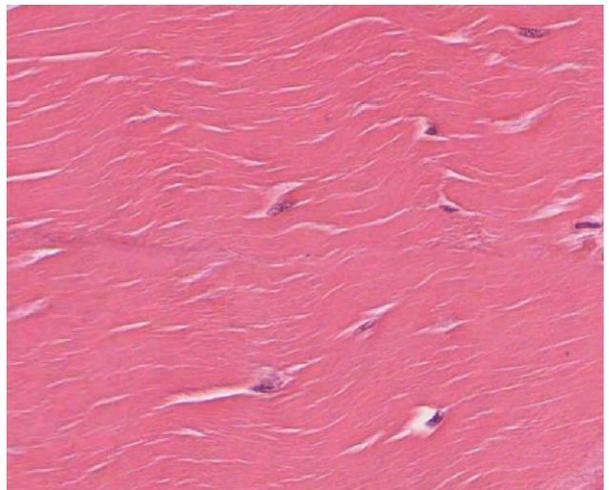


Source: Aorta wall

Category: _____

Evidence: _____

F.



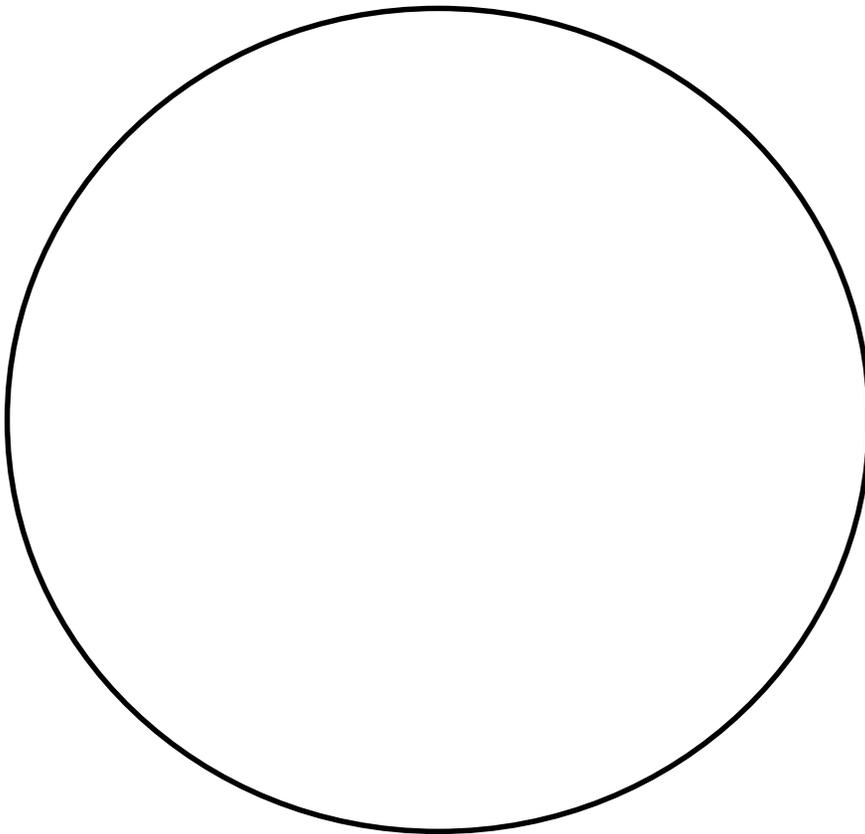
Source: Tendon

Category: _____

Evidence: _____

Lab exercises 5.4

1. Obtain a slide of connective tissue proper from the instructor.
2. Follow the checklist in Lab exercise 5.1 to set up your slide for viewing.
3. View the slide on the second-highest objective.
4. Fill out the blanks next to your drawing.
5. In the circle below, draw a representative sample of key features you identified, taking care to correctly and clearly draw their true shapes and directions. Draw your structures proportionately to their size in your microscope's field of view.



Total magnification: _____

Type of connective tissue: _____

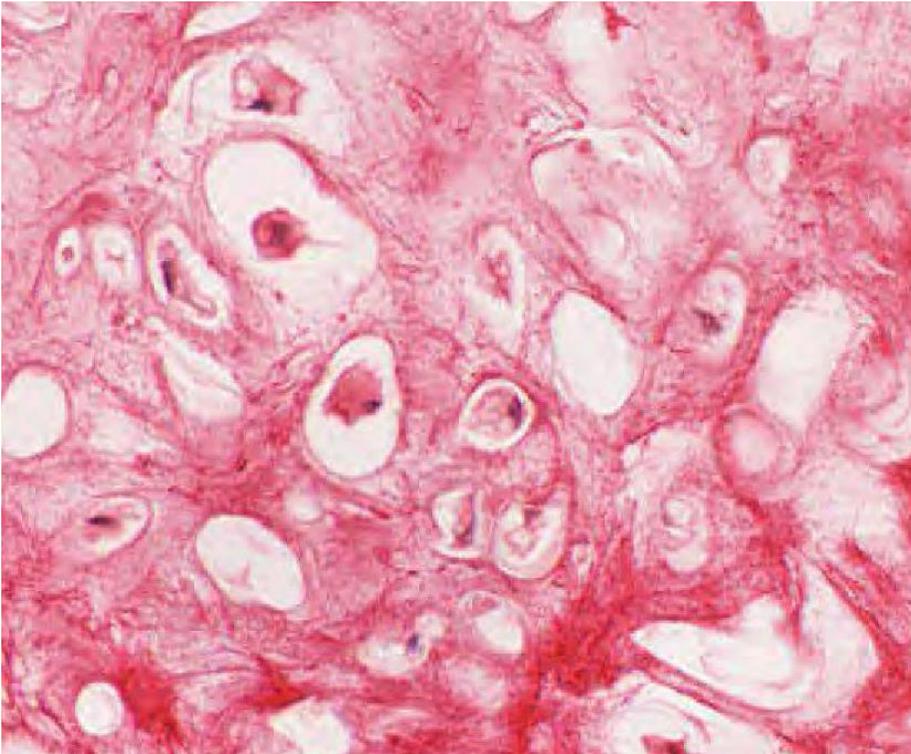
Source: _____

Function of tissue: _____

Key features to find and draw:

Lab exercises 5.5

1. In the photomicrograph below of cartilage tissue, find and label the indicated structures.



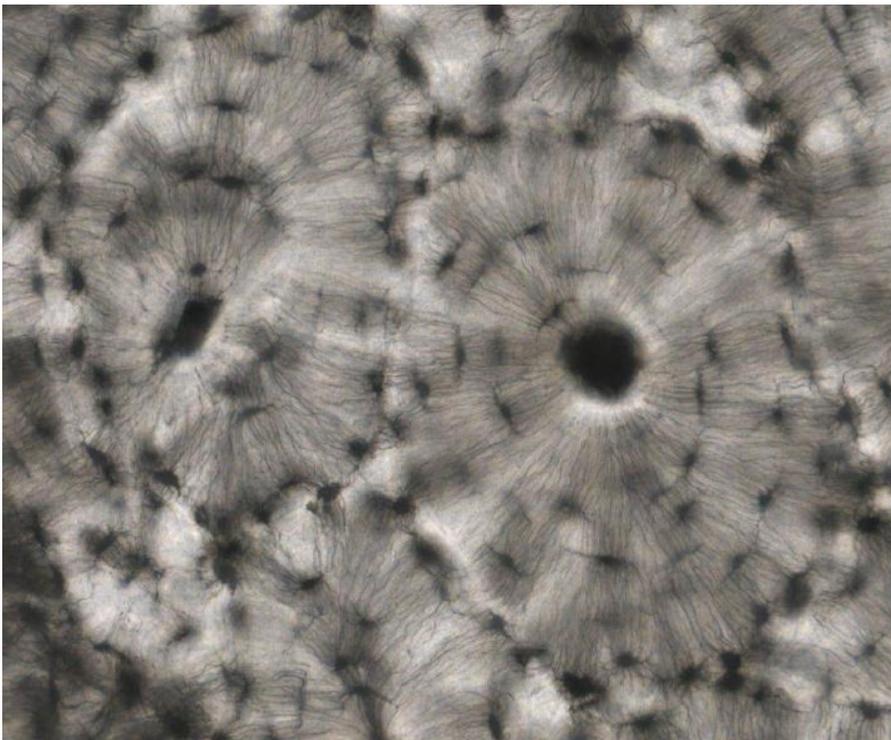
Lacuna

Chondrocyte

Elastic protein fibers

Extracellular matrix

2. In the photomicrograph below of compact bone tissue, find and label the indicated structures.



Osteon

Lamella

Lacuana

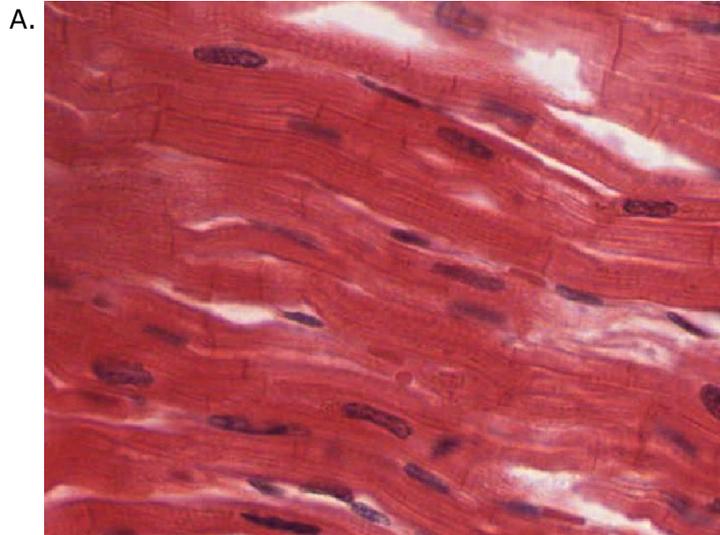
Osteocyte

Canaliculi

Central canal

Lab exercises 5.6

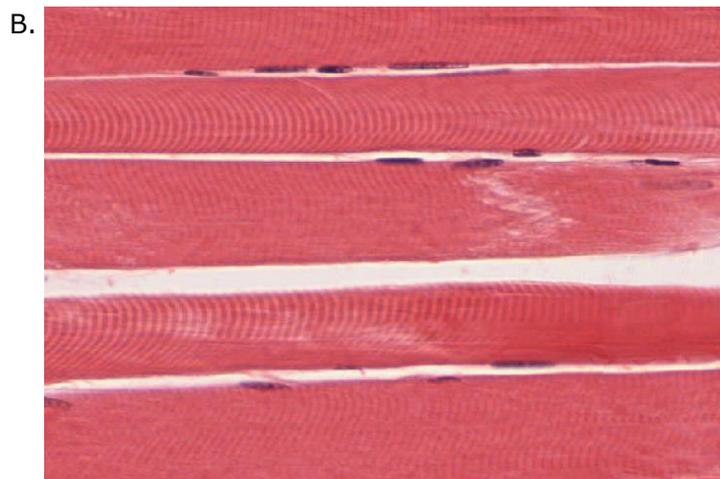
1. In each of the three photomicrographs below, identify which type of muscle is present. List the defining visual characteristics of that type of muscle, and draw arrows to features on the photograph that illustrate each characteristic.



Muscle type: _____

Visual characteristics:

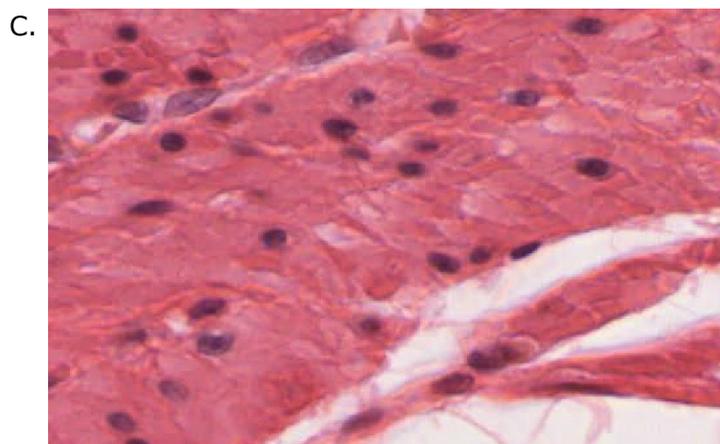
- 1.
- 2.
- 3.
- 4.



Muscle type: _____

Visual characteristics:

- 1.
- 2.
- 3.
- 4.



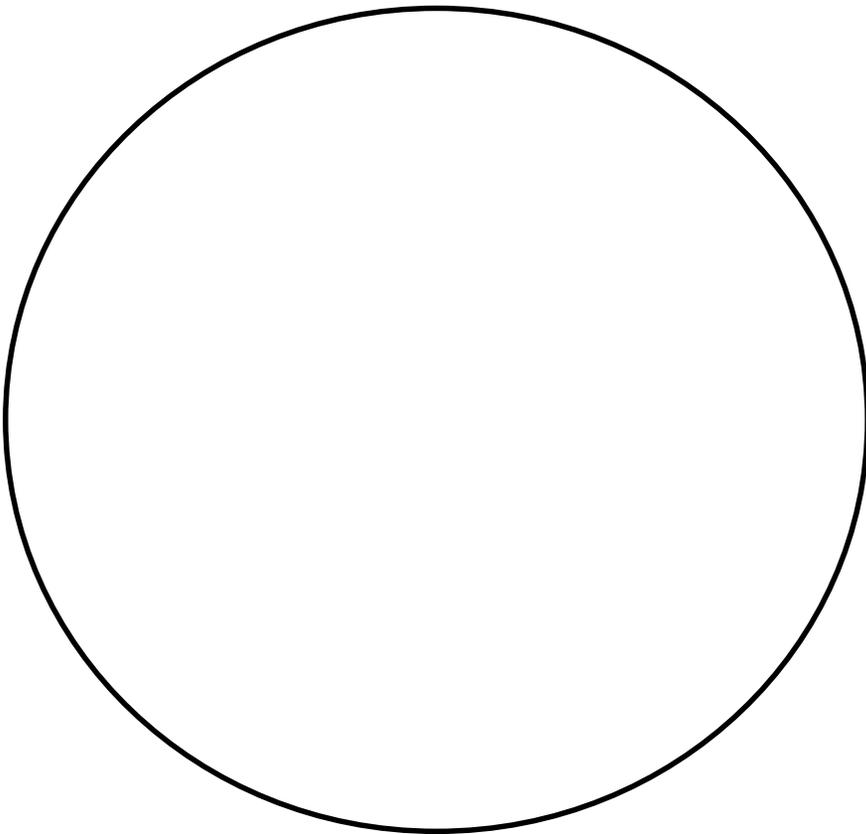
Muscle type: _____

Visual characteristics:

- 1.
- 2.
- 3.

Lab exercises 5.7

1. Obtain a slide of nervous tissue from the instructor.
2. Follow the checklist in Lab exercise 5.1 to set up your slide for viewing.
3. View the slide on the second-highest objective. Search carefully until you find a clear, representative neuron in your field of view.
4. In the circle below, draw the neuron you found. Only draw the single neuron. Do not draw any of the other material. Draw your structures proportionately to their size in your microscope's field of view.
5. Label any neural parts you can clearly recognize.



Total magnification: _____