

Lab 8 – Central Nervous System : Spinal Cord, Brain and Cranial Nerves

1. **Examine neuron cells and teased nerve fibers** on demonstration. You should be able to see cell body, dendrites, axon, and nuclei of cells. Make sure that you can recognize and properly label important neuron features such as those shown in Figure 17.2, a, b and c (page 179).
2. **Dissection, Spinal Cord, page 226-230.** There is a dissected section of spinal cord available on demo for your study.

Examine spinal cord cross section, in your slide box. Locate the features we have discussed in class, using 10x objective. anterior, posterior and lateral gray horns, gray commissure, anterior median fissure (this is the deep fissure), posterior median sulcus, central canal, white columns (anterior, posterior, lateral), dorsal and ventral root fibers. Use your drawings in your lab manual and your textbook to help you locate these features. Review Figure 21.2, 21.3, 21.4

Use your textbook or Rust as a reference. Be sure that you learn how to label figures such as Figures 21.3 and 21.4 in your lab manual. Change your objective to high power (40X) to observe the white columns. What are the small white circles that you see? (consult Fig. 21.3)

In addition, review external anatomy (Fig. 21.1) using the torso model.

3. **Observe electron micrographs and slides on demos.**
4. **Brain** - You will observe both the human and sheep brains. **BE CAREFUL** with the human brains!!! **Work primarily with brain model!**

Be familiar with 202-205 in lab manual lab! Be prepared to label drawings such as those in the lab manual. Use these drawings and photographs to help you locate the following structures:

Human brain – Good figures in your lab text: 19.2-19.6, 19.8, 19.9

Whole brain (preserved or model): Gyrus, sulcus, cerebellum, longitudinal fissure, pons, mammillary body, medulla, meningeal coverings, optic chiasma, blood vessels, olfactory bulb, olfactory tract

Brain regions: Using whole or sectioned brain

Cerebellum - locate hemispheres, white matter, gray matter, folia, cerebellar peduncles, arbor vitae. You should be able to locate these areas. Also view your [slide](#) - can you see white and gray matter here?

Cerebrum – locate lobes - page 202 lab, Fig. 19.2.

Locate additionally on the sectioned brain or model these structures (Fig. 19.4):

corpora quadrigemina (superior and inferior colliculi), mesencephalic aqueduct, optic chiasma, mammillary body, pons, middle cerebral peduncle, medulla oblongata, optic nerve, pineal body, thalamus, corpus callosum, hypothalamus, lateral ventricle

Sheep brain: Complete “Dissection”, p. 214. Work in groups of two or three. Make sure you examine the whole brain with the dura mater to locate the pituitary gland. You may look at an already sectioned brain or carefully make a midsagittal section. Locate these structures using Figure 19.11, 19.12, 19.13:

cerebral hemispheres, cerebellum, medulla, spinal cord, gyrus, sulcus, corpora quadrigemina (superior and inferior colliculi), olfactory bulbs, olfactory tracts, pons, mammillary body, thalamus, infundibulum, optic chiasma, pineal gland, intermediate mass of thalamus, lateral ventricle, corpus callosum, cerebral peduncle, olfactory bulb, mesencephalic aqueduct (what flows here?).

The diagrams in your lab manual for the brain are excellent and should be very helpful. You need to get a good start in learning these structures this week!!

5. **Cranial Nerves** - you will evaluate these special nerves which originate from the brain stem or the brain. You will evaluate the nerve function of your partner.

a. Note the table describing cranial nerve function (Table 19.1 – p.211-212) in lab. You must know all cranial nerves by name and number, and general functions and testing methods for lab exam.

b. Test your partner’s cranial nerve function as outlined on attached handout except for the glossopharyngeal and hypoglossal (but you must still know what tests are conducted for these nerves).