9.01 Study Questions

Lecture 34: Pain and the CNS

1) Describe an experiment which demonstrates the reduction of pain by electrical stimulation of the brain.

2) What has been found to be a pathway involved in the inhibition of pain found in the above experiment?

3) Short axon interneurons are involved in this pathway. These interneurons contain what neurotransmitter?

4) Describe the major features of the Brown-Sequard syndrome.

5) What is the problem with the idea that pain depends on the spinothalamic tract?

6) Describe two sensory impairments of people and animals with transected dorsal columns in the spinal cord.

7) What is “causalgia”? How can it be explained in terms of the gate control theory? Can you think of a way that phantom limb pain may have a similar explanation?

8) Sharp slapping of the skin can reduce pain sensations coming from that region. Use the gate control theory to explain this effect.

9) Acupuncture effects can be explained by activation of what kind of receptors in the brain?

10) Give an explanation for why naloxone can block some effects of acupuncture?