

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?