

Neuroscience BIO-311 Ramdya

Exercise Questions for:

Nociceptive system

- 1) Nociceptive system: Explain the primary sensory transduction process in a free nerve ending of a nociceptive sensory neuron. Which ion channel (name?) is involved in this process and what is its ion permeability? Name three types of stimuli which can, in principle, activate a nociceptor.

- 2) Explain the analgetic action of **morphine**, and where in the central nervous system it acts. During operations (e.g. a cesarean), morphine is often applied intrathecally (injected into the spinal cord of the corresponding level). Explain what is a possible advantage of this "local" application of morphine as compared to, for example, oral application.

- 3) What is the general mechanism behind peripheral sensitization? How is it different from central sensitization?

- 4) Why does "rubbing" diminish the subjective feeling of pain?

- 5) "Chronic pain is long standing pain that persists beyond the usual recovery period or occurs along with a chronic health condition, such as arthritis." What do you think are the physiological and cellular basis of chronic pain? [speculative]