

Neuroscience BIO-311 Ramdya

Exercise Questions for:

**Somatosensory system**

### **Question 1 - Mechanoreceptors**

**Explain the primary sensory transduction process in a touch receptor. What is a mechanosensitive ion channel and for which ions it is permeable to?**

### **Question 2 – proprioception:**

- a) Explain what proprioception is.**
- b) Briefly describe the sensors that mediate proprioception.**
- c) What everyday life disabilities do you expect in patients with deficits in proprioception?**

**Question 3 – Neural pathway of touch:**

**Think about the electrical signal that a tactile stimulus applied at the fingertip generates. Describe as precisely as you can the path that this electrical signal will take to reach the cortex.**

**Question 4 – Homunculus:**

- a) **What does the homunculus illustrate?**
- b) **If you had to derive the homunculus experimentally, how would you proceed?**
- c) **Choose one animal model (e.g., the mouse) and think about how its somatotopic map or "animal-culus" might differ from a human's homunculus**