February 21, 2016

Lab 2 due Thursday

Muscle spindle

Crayfish Muscle Receptor organ

Lab 2 lab report:

Short scientific paper (brief communications)

Brief Abstract: Summarize, purpose, results conclusion in short paragraph

Very short Introduction: 2-3 paragraphs
(focus on experiment; cite ideas or facts not your own)

Brief Methods from lab handout (can refer to lab handout for details)

Results: Present your data with good text descriptions of figures
(Make a story out of it)

Discussion: Answer lab reports question in a narrative, rather than just a list of answers

Zotero - citation management system

Introduction to Sensory Physiology:
Sensory- Motor System

Specialized Sensory Systems
General Properties of Sensory Systems?

1. Importance of peripheral structures
2. Adequate Stimulus
3. Range Fractionation
4. Stimulus-Response Relationship
5. Adaptation
6. Efferent Control
7. Higher level processing for perception (what you “see” is not what you get - Illusions!)

MROS in parallel with superficial extensors
Crustacean muscle receptor organs
Device to control muscle length with variable loads
See Rydqvist et al 2007
Sensory physiology - crustacean stretch receptor (MRO)

Works like our muscle spindles

Muscle remaining in tail segment (half segment shown)

Nerve 2 position

Extensor muscles, especially near RM1 and RM2

Anatomy of MROs

Figure 10.3: Stimulus setup. With the tail forward in the stimulus and in a downward stroke, attach the thread at a predetermined rate. When the thread is pulled, the tail should curl upwards without losing the suction electrode.
MRO innervation- excitatory mns and inhibition of sensory cell

MRO1- diffuse dendritic arbor

MRO2- clumped dendritic arbor

Compare tau adaptation at different stretches

\[ y = 2 + 9e^{-0.26x} \]
\[ y = 8 + 41e^{-0.24x} \]
\[ y = 14 + 64e^{-0.27x} \]
\[ y = 19 + 78e^{-0.27x} \]
\[ y = 23 + 85e^{-0.28x} \]
Effects of demyelination

Frassen and Straver, 2013

Mylar works connected by gap junctions
Ionic pumps maintain extracellular concentrations
Function restored by blocking K channels

Cms in series add reciprocally