



Homework Assignment for 9.14

Name \_\_\_\_\_

## HOMEWORK ASSIGNMENT, 9.14:

### Clues Across:

1. Tyrosine receptor kinases, such as the Trk receptors for neurotrophins, have an extracellular ligand-binding domain and an intracellular \_\_\_\_\_ domain.
2. Property of the fly neuromuscular junction that makes it a good model for the study of learning and memory.
5. \_\_\_\_\_ tract axons carry information about pain and temperature.
8. The preganglionic parasympathetic neurons are found in the brainstem and in the \_\_\_\_\_ spinal cord.
9. \_\_\_\_\_ molecules affect the direction of axon growth.
10. \_\_\_\_\_ factors move from the median eminence of the hypothalamus to the anterior pituitary.
12. Not truly a peripheral nerve.
14. Type of innervation seen prior to synapse elimination in the developing muscle, when it receives innervation from >1 motor neuron.
16. An extra limb grafted onto an embryo is called a \_\_\_\_\_ limb.
18. \_\_\_\_\_ is the process of killing or reducing the growth of sympathetic cells with use of anti-NGF antibodies.
19. NGF, BDNF, NT-3 and NT-4/5 are members of the \_\_\_\_\_ family.
20. The only cranial nerve to emerge on the dorsal side of the brainstem
22. The electron microscope allows you to see cellular \_\_\_\_\_ at high resolution and high magnification.
24. Grafting on an extra limb can be used to study the \_\_\_\_\_ of neuromuscular synapse formation.
27. NGF-secreting tumors cause \_\_\_\_\_ of nearby peripheral ganglia.
29. Speidel was able to look at growing axons in the \_\_\_\_\_ animal.
31. The seventh nerve
33. \_\_\_\_\_ guide the decussation of the spinothalamic tract.
34. \_\_\_\_\_ ghosts mark the position of the former occupant of the neuromuscular junctions (2 words, no space).
36. Binding with alpha-bungarotoxin can be used to visualize \_\_\_\_\_ receptors at the neuromuscular junction.
37. \_\_\_\_\_ are critical for growth cone motility.

### Clues Down:

3. \_\_\_\_\_ III, or collapsin: both are repulsive to most dorsal root afferents.
4. Hibbard used Mauthner cells to show that axons are influenced by their \_\_\_\_\_
6. Mice in whom the gene for NT-3 is deleted lack \_\_\_\_\_ innervation in the periphery.
7. Ross \_\_\_\_\_ invented the technique of tissue culture – he published some of the first images of cultured growth cones.

9. The tracer HRP moves within a cell via anterograde and retrograde \_\_\_\_\_.
11. Another name for the specialization at the neuromuscular junction.
13. \_\_\_\_\_ described the laminae of the spinal cord.
15. The "wandering" nerve.
16. During terminal sprouting, axons follow newly formed sprouts of \_\_\_\_\_ cell processes.
17. \_\_\_\_\_ molecules are critical for cell survival.
19. \_\_\_\_\_ is a neurotransmitter for the parasympathetic neurons that innervate the blood vessels of the penis (2 words, no space).
21. \_\_\_\_\_ cells are important during pathfinding by peripheral axons in the developing insect limb.
23. FasII (Fasciclin) is a cell \_\_\_\_\_ molecule that is up regulated during terminal formation; its down regulation leads to sprouting
25. The preganglionic sympathetic neurons are found in the thoracic and \_\_\_\_\_ spinal cord.
26. Axon elongation occurs as a result of membrane incorporation at the growth cone. The membrane is transported from the cell body in \_\_\_\_\_.
28. Mice lacking the gene for NGF show a severe lack of \_\_\_\_\_ perception, and a corresponding loss of C fibers.
30. \_\_\_\_\_, a transcription factor, causes an increase in transmitter release.
32. An arrow poison made from South American plants – it blocks neuromuscular transmission.
35. Abbreviation for the transmitter used by most postganglionic parasympathetic neurons.