

9/17/02

Student questions:

Q: What is antidromic conduction? I couldn't find it in the reading...

A: In lecture, I contrasted orthodromic (the normal direction) and antidromic (opposite to the normal direction) conduction of action potentials. Do you recall now? If you stimulate an axon electrically or mechanically somewhere in the middle of its length, you can trigger action potentials that travel in both directions away from the point of stimulation. One would go in the orthodromic direction, and the other in the antidromic direction.

Q: The study questions request many anatomical details. Should I be memorizing all that? I'm starting to sweat!

A: Some of the questions based on the readings do include some details. The textbook chapter on "functional neuroanatomy" should be read as an overview of the nervous system and its major systems. I will be covering in class much more anatomy than has been mentioned thus far, and we will depend more on the lectures than on the textbook in this area. In going through the textbook chapter, focus on understanding the major points of the figures.

Q: You said in class that presynaptic inhibition is caused by a contact of an axon with another axon's ending, and there is a small depolarization of the ending caused by an impulse in the first axon. Then an action potential triggered at the same time in the second axon is smaller. What happens if the first axon causes a hyperpolarization instead of a depolarization? Can that happen?

A. Yes, such axo-axonal connections are found. The result is called "presynaptic facilitation". The hyperpolarization of the second axon makes a spike potential arriving there larger, so more neurotransmitter is released.