

## CHAPTER XX: Feedback and Cell-to-Cell Communication

1. Place the following terms in ascending order:  
organism, organ, cell, organ system, tissue, organelle

2. What is the goal of homeostasis and how is it maintained?

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3. Define negative feedback. Give an example.

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4. Define positive feedback. Give an example – **in living systems**.

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5. What mechanisms do endotherms use to maintain a relative constant internal temperature?

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6. Describe how the hypothalamus works as the vertebrate thermostat.

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7. List a few similarities and differences comparing:

a. endocrine system – \_\_\_\_\_

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b. nervous system – \_\_\_\_\_

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8. How do the steroid-based and protein-based hormones differ?

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9. Hormone and receptor interactions are based on \_\_\_\_\_

10. Where are the receptors for steroid-based hormones?

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11. List and describe the three stages of a signal transduction pathway.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

12. What does the "second messenger" do in the cell?

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13. What is a benefit of a 2° system?

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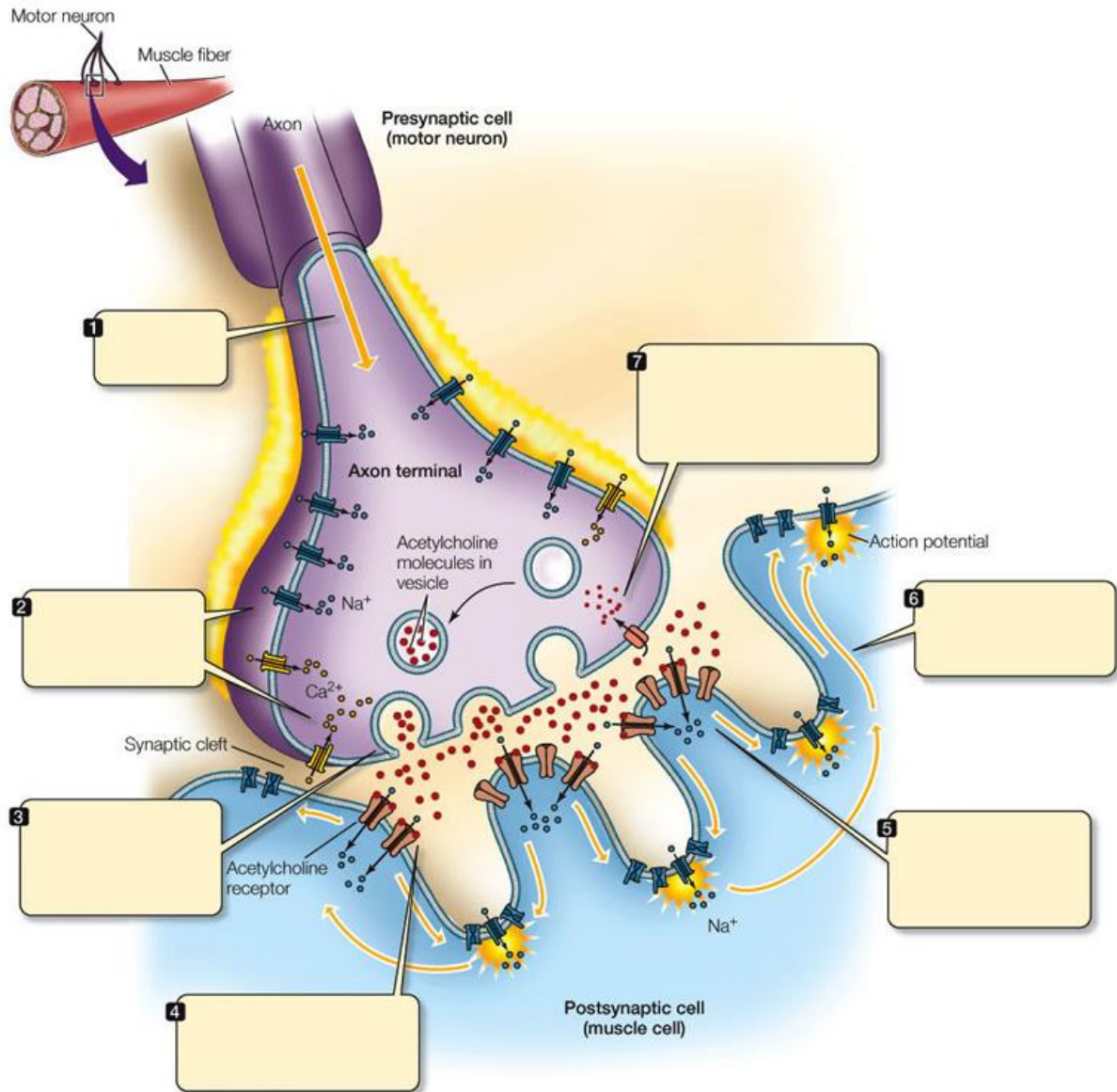
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14. What happens at the synapse?

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15. Using your notes and **Figure 45.13** from the textbook (and on-line textbook), describe what is happening in each numbered step of chemical synaptic transmission.



16. How does the pancreas regulate blood sugar with:

a. insulin – \_\_\_\_\_

\_\_\_\_\_

b. glucagon – \_\_\_\_\_

\_\_\_\_\_