

Chapter 7 Cell Structure and Function

Chapter Vocabulary Review

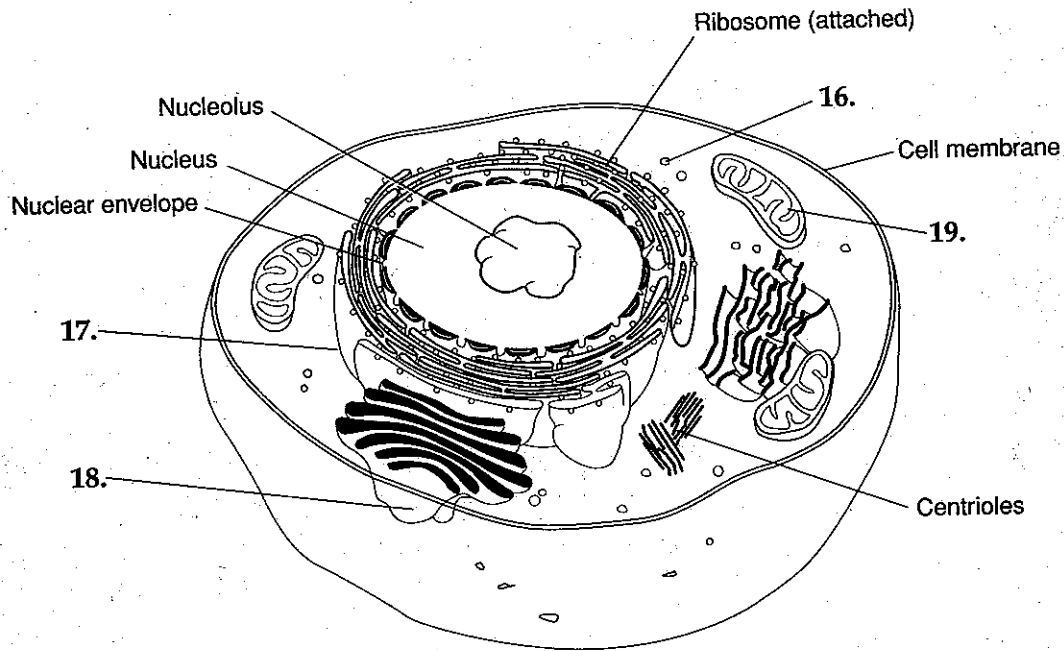
Matching *On the lines provided, match the term with its definition.*

- | | |
|------------------------|---|
| _____ 1. cell | a. organism whose cells contain a nucleus |
| _____ 2. cell membrane | b. granular material visible within the nucleus |
| _____ 3. cell wall | c. the basic unit of life |
| _____ 4. nucleus | d. specialized structures within a cell that perform important cell functions |
| _____ 5. cytoplasm | e. organism whose cells do not contain a nucleus |
| _____ 6. prokaryote | f. strong layer around the cell membrane that protects the cell |
| _____ 7. eukaryote | g. process by which extensions of cytoplasm engulf large particles |
| _____ 8. organelle | h. large structure that contains the cell's genetic information |
| _____ 9. chromatin | i. thin, double-layered sheet around the cell |
| _____ 10. phagocytosis | j. portion of the cell outside the nucleus |

Multiple Choice *On the lines provided, write the letter that best completes the sentence or answers the question.*

- _____ 11. The small dense region in the nucleus where the assembly of ribosomes begins is called the
- | | |
|-----------------|----------------------|
| a. nucleolus. | b. nuclear envelope. |
| c. chloroplast. | d. vacuole. |
- _____ 12. The hollow tubes of protein that help maintain the shape of the cell are called
- | | |
|--------------------|-------------------|
| a. microfilaments. | b. mitochondrion. |
| c. microtubules. | d. ribosomes. |
- _____ 13. Which organelles can use energy from sunlight to create energy-rich food molecules?
- | | |
|--------------|--------------------|
| a. lysosomes | b. Golgi apparatus |
| c. vacuoles | d. chloroplasts |
- _____ 14. What is the process by which material is taken into the cell by infoldings of the cell membrane?
- | | |
|--------------|----------------|
| a. diffusion | b. endocytosis |
| c. osmosis | d. exocytosis |
- _____ 15. The fourth, and highest, level of organization in a multicellular organism is
- | | |
|-------------------------|--------------|
| a. cell specialization. | b. a tissue. |
| c. an organ system. | d. an organ. |

Labeling Diagrams On the lines provided, label the structures found in an animal cell that correspond with the numbers in the diagram.



- 16. _____
- 17. _____
- 18. _____
- 19. _____

Completion On the lines provided, complete the following sentences.

- 20. The distinct, threadlike structures that contain the genetic information of the cell are called _____.
- 21. Particles tend to move from an area of high concentration to an area of low concentration in a process known as _____.
- 22. When some substances can pass across them but others cannot, biological membranes are said to have _____.
- 23. The process in which water diffuses through a selectively permeable membrane is called _____.
- 24. The process by which a protein channel allows molecules to cross the cell membrane is called _____.
- 25. The process that requires an input of energy to help material move from an area of lower concentration to an area of greater concentration is called _____.

Chapter 7 Cell Structure and Function **Enrichment**

Cell Specialization

As an organism develops, it changes shape and organization. Cells begin to differentiate and form specialized regions of the body. This process of differentiation is called *morphogenesis*. Morphogenesis involves many different processes. For example, some cells split, fold, or bend. Others migrate or combine to form masses, cords, and sheets. Some areas grow faster than other areas.

A second kind of differentiation during growth involves changes in cell structure and development. This process, called *histogenesis*, is the development of different tissues:

A fertilized egg, or zygote, contains all the instructions needed for growth and development. These instructions, stored in the chromosomes, are decoded during histogenesis. At first, all the cells that develop by division of the zygote have the same shape and chemical makeup. Once histogenesis begins, the cells change chemically. Each cell becomes a special type with a unique function.

At the end of the histogenic process, the organism has created the tissues and organs it will need to live. Each organ or type of tissue is formed from a group of cells that have a similar structure and function. The four main types of tissue are the epithelial tissue, connective tissue (including cartilage and bone), muscular tissue, and nerve tissue.

Epithelial tissue is formed by sheets of cells that act as a lining or covering inside or outside the body. For example, your skin is composed of epithelial cells.

Connective tissue is formed by cells that are joined together with fluid, semifluid, or solid substances. Your heart and lungs are surrounded by connective tissue. Cartilage is made up of cells in a matrix and is strengthened by connective tissue fibers. Many of your bones are capped in cartilage. Bone is the material that supports your skeletal structure. Bone contains solid material, and there are many types of bones.

Muscular tissue is composed of specialized cells that contract in response to stimuli. Individual muscle fibers can be as long as several centimeters.

Nerve tissue is made of nerve cells that consist of cell bodies and fibers. Nerve tissue coordinates the body by transmitting messages from all its parts to and from the brain.

Evaluation *On the lines provided, answer the following questions.*

1. Compare and contrast morphogenesis and histogenesis.

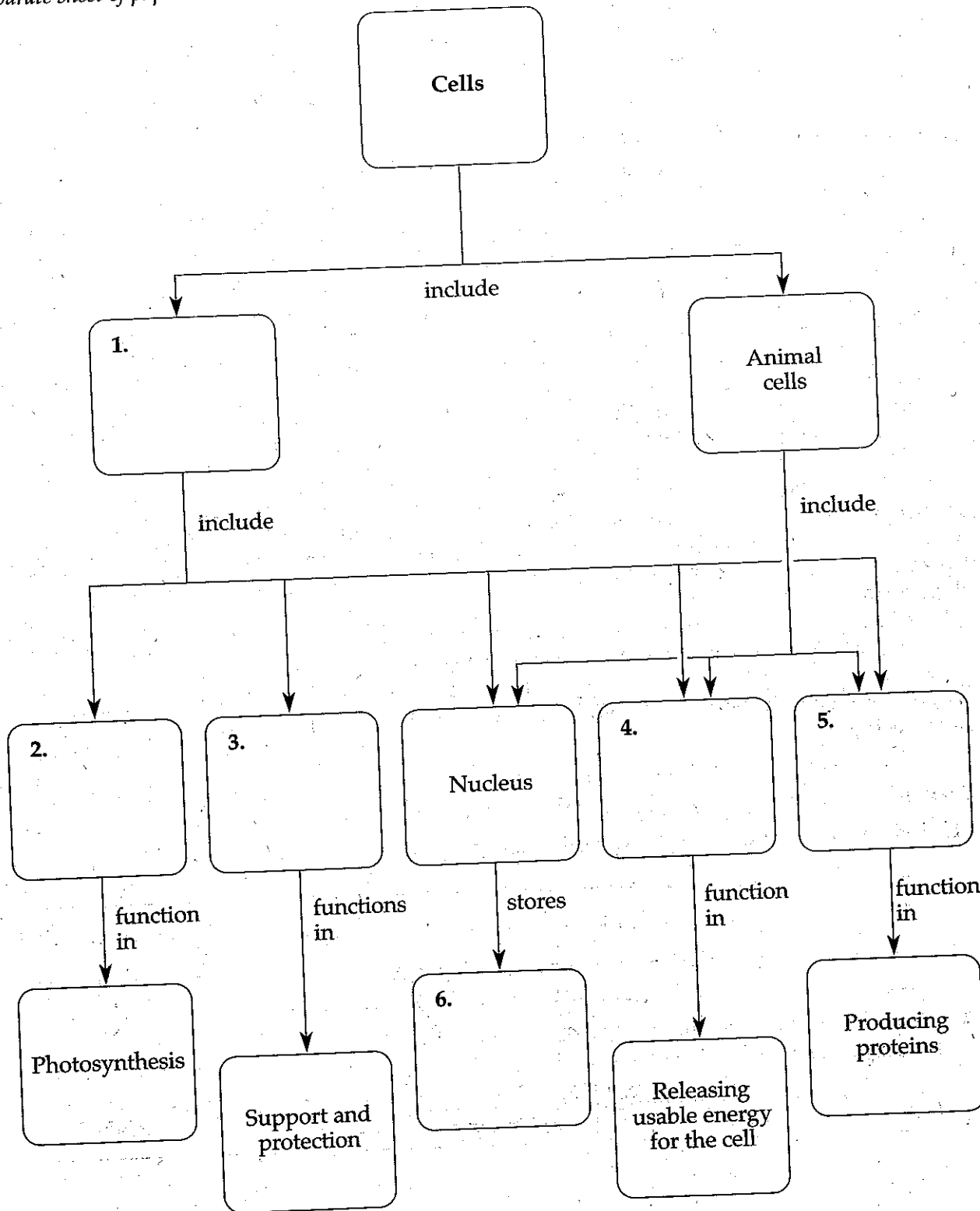
2. Where in the zygote's cells are the instructions required for histogenesis stored?

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Chapter 7 Cell Structure and Function **Graphic Organizer**

Concept Map

Using information from the chapter, complete the concept map below. If there is not enough room in the concept map to write your answers, write them on a separate sheet of paper.



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