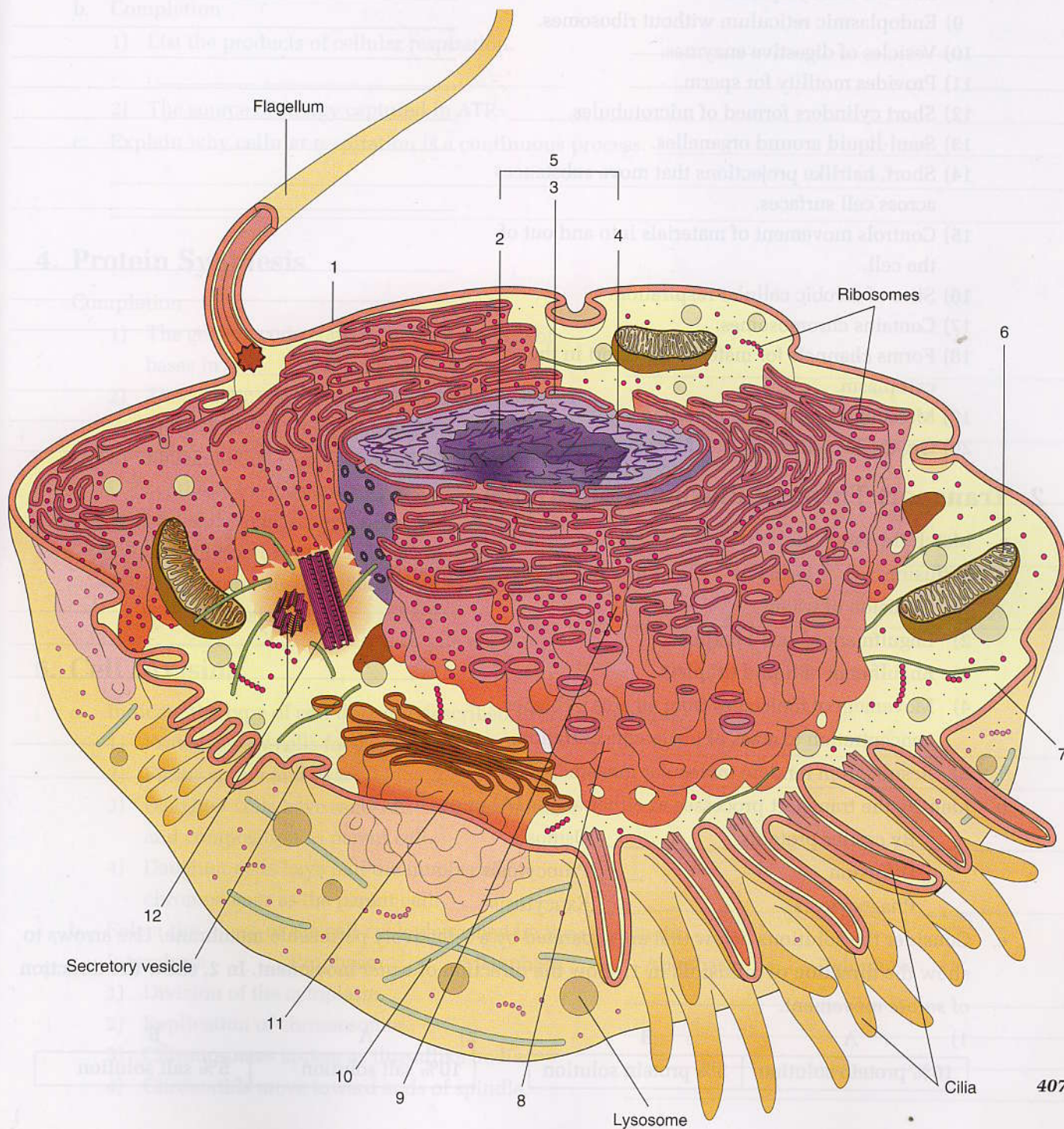


## 1. Cell Structure

a. Label the diagram of the cell by placing the numbers of the structures by the labels listed.

- |                   |                      |                     |
|-------------------|----------------------|---------------------|
| ___ Centrioles    | ___ Microtubule      | ___ Nucleus         |
| ___ Chromatin     | ___ Mitochondrion    | ___ Plasma membrane |
| ___ Cytoplasm     | ___ Nuclear envelope | ___ RER             |
| ___ Golgi complex | ___ Nucleolus        | ___ SER             |







- 3) In 1, which solution is hypotonic? \_\_\_\_\_
- 4) In 2, which solution is hypertonic? \_\_\_\_\_
- 5) Describe what happens when a human cell is placed in a hypotonic solution. \_\_\_\_\_

### 3. Cellular Respiration

- a. Write the summary equation for the cellular respiration of glucose. Words may be used instead of chemical formulas. \_\_\_\_\_
- b. Completion
  - 1) List the products of cellular respiration. \_\_\_\_\_
  - 2) The source of energy captured in ATP. \_\_\_\_\_
- c. Explain why cellular respiration is a continuous process. \_\_\_\_\_

### 4. Protein Synthesis

#### Completion

- 1) The genetic code consists of the sequence of bases in \_\_\_\_\_ molecules. \_\_\_\_\_
- 2) The genetic code is transcribed to the sequence of bases in \_\_\_\_\_ molecules. \_\_\_\_\_
- 3) Molecule that carries instructions for protein synthesis to ribosomes. \_\_\_\_\_
- 4) Molecule that carries amino acids to ribosome for addition to amino acid chain. \_\_\_\_\_
- 5) Small molecules that join to form a protein during translation. \_\_\_\_\_

### 5. Cell Division

- a. Indicate the type of cell division described by the statements.

- 1) Provides new cells for growth and repair. \_\_\_\_\_
- 2) Forms sperm and ova. \_\_\_\_\_
- 3) Daughter cells have same chromosome number and composition as parent cell. \_\_\_\_\_
- 4) Daughter cells have half the number of chromosomes as the parent cell. \_\_\_\_\_

- b. Select the phase of the cell cycle described by the statements.

Interphase      Prophase      Metaphase      Anaphase      Telophase

- 1) Division of the cytoplasm. \_\_\_\_\_
- 2) Replication of chromosomes. \_\_\_\_\_
- 3) Chromosomes appear as threadlike bodies. \_\_\_\_\_
- 4) Chromatids move toward ends of spindle. \_\_\_\_\_

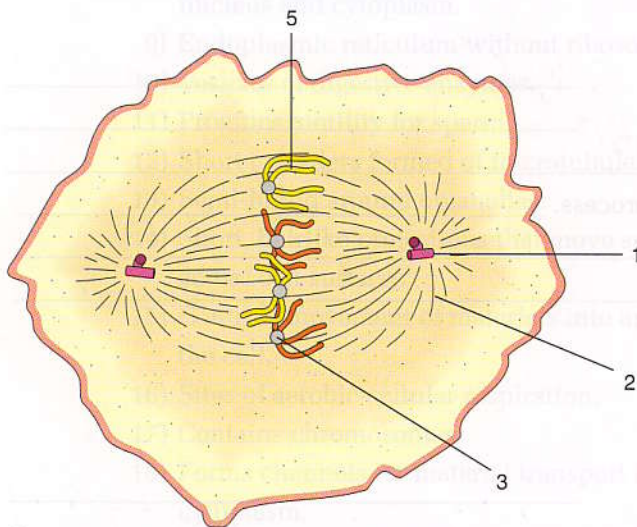


- 5) New nuclei start to form. \_\_\_\_\_
  - 6) Occupies most of cell cycle. \_\_\_\_\_
  - 7) Chromosomes line up at equator of spindle. \_\_\_\_\_
  - 8) Cell performs its normal functions. \_\_\_\_\_
- c. Human body cells have 46 chromosomes. How many chromosomes are in daughter cells formed by mitotic cell division? \_\_\_\_\_
- d. Write the names of the mitotic phases in the spaces provided and place the numbers of the cell parts in the spaces by the correct label.

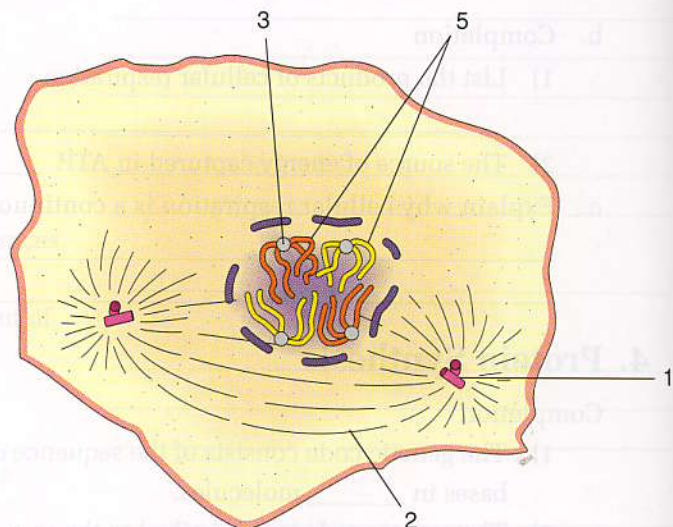
\_\_\_\_ Centrioles  
\_\_\_\_ Centromere

\_\_\_\_ Chromosome  
\_\_\_\_ Chromatid

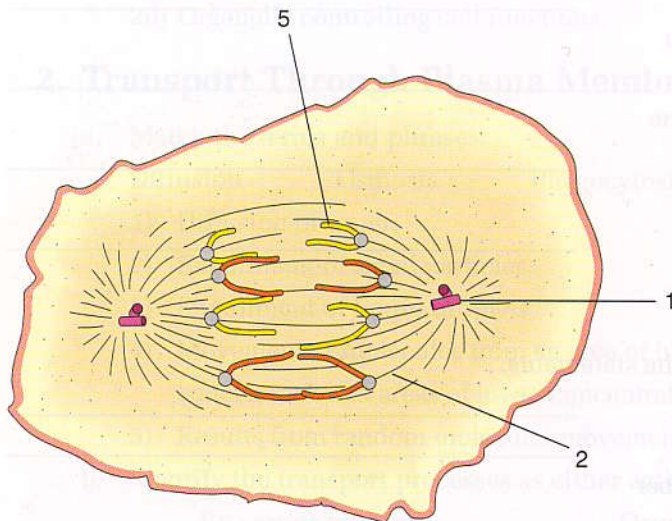
\_\_\_\_ Spindle fiber



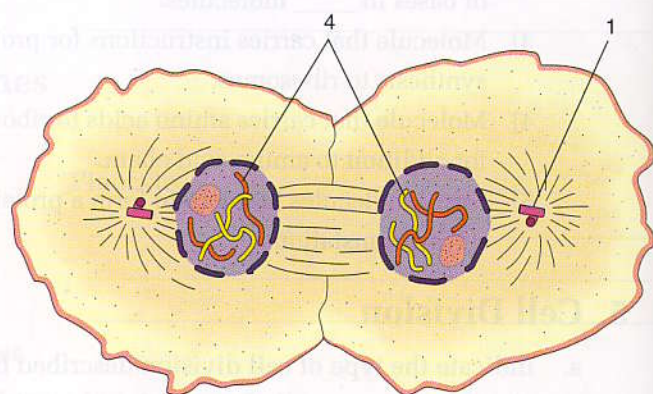
6) \_\_\_\_\_



7) \_\_\_\_\_



8) \_\_\_\_\_



9) \_\_\_\_\_

## 6. Clinical Applications



- a. When you drink a glass of water, how does the water enter the blood? \_\_\_\_\_  
Why does this occur? \_\_\_\_\_
- b. Explain why a chemical therapy drug that disrupts formation of spindle fibers kills cancerous cells.  
\_\_\_\_\_  
\_\_\_\_\_

6)

9)