

Chapter 4

Use with Section 1

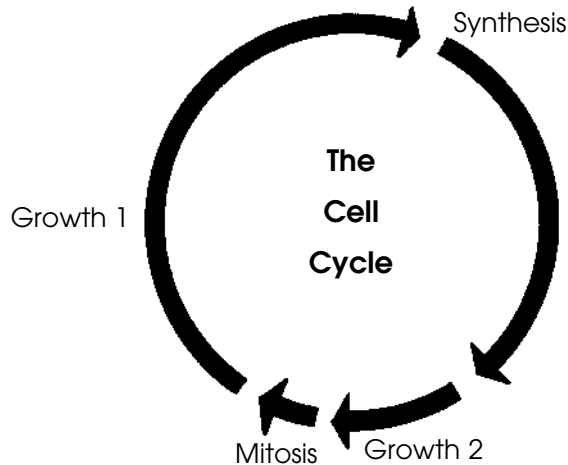
ENRICHMENT

● Cell Growth and Division

The Eukaryotic Cell Cycle

As you learned in this chapter, the process of mitosis is one part of a continuous cycle of events in the life of a cell. The cell spends most of the time between divisions in interphase. Is the cell simply quiet during this phase?

Interphase is usually divided into two growth phases and a synthesis phase. Mitosis and interphase make up the cell cycle.



Interphase

Interphase is the time between cell divisions when the cell is not going through mitosis. From the diagram, you can see that for cells that regularly divide, interphase is a period of growth and synthesis. During the synthesis phase the cell makes DNA, RNA, and proteins. DNA doubles and proteins that are needed to make spindles are made.

Mitosis

As the chromosomes begin to coil tightly, the cell leaves the second growth phase of interphase and enters the first stage of mitosis, called prophase. The cell then continues through the remaining three stages of mitosis. Following mitosis, each new cell enters the cell cycle at the first growth phase, and the cycle repeats.

Answer the following questions about the cell cycle.

1. What are some cells that stay in interphase? _____
2. Certain chemicals can be used experimentally to stop protein synthesis or DNA synthesis. If you used one of these on a cell during interphase, what would you expect to happen to the cell? _____

3. According to the diagram, which stage of the cell is the shortest? _____