

Chapter 12: The Cell Cycle

Overview:

1. What are the three key roles of cell division? State each role, and give an example.

Key Role	Example
-In preparation for cell division, DNA is replicated and the chromosomes condense	Cell division preparation
-Each duplicated chromosome has two sister chromatids, which separate during cell division	Separate during cell division
-The centromere is the narrow "waist" of the duplicated chromosome, where the two chromatids are most closely attached	Travel along kinetochore microtubules

2. What is meant by the *cell cycle*?

-The continuity of life is based on the reproduction of cells, or cell division

Concept 12.1 Cell division results in genetically identical daughter cells

3. What is the meaning of *genome*?

-All the DNA in a cell constitutes the cell's genome

Compare your genome to that of a prokaryotic cell.

-A genome can consist of a single DNA molecule (common in prokaryotic cells) or a number of DNA molecules (common in eukaryotic cells)

4. How many chromosomes are in a human *somatic cell*?

-Somatic cells (nonreproductive cells) have two sets of chromosomes

5. Name two types of somatic cells in your body. Brain and liver

6. What is a *gamete*?

-Gametes (reproductive cells: sperm and eggs) have half as many chromosomes as somatic cells

7. Name the two types of gametes.

-Sperm and eggs

8. How many chromosomes in a human gamete? 23

9. Define *chromatin*.

-Eukaryotic chromosomes consist of chromatin, a complex of DNA and protein that condenses during cell division

10. Think carefully, now. How many DNA molecules are in each of your somatic cells?

-In preparation for cell division, DNA is replicated and the chromosomes condense

-Each duplicated chromosome has two sister chromatids, which separate during cell division, but a single DNA MOLECULE

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