

Chapter 12: The Cell Cycle

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Functions of Cell Division:

- 1. Reproduction (single-celled organism)
- 2. Growth and Development (multi-cellular organisms)
- 3. Renewal and Repair

Mitosis- Division of the nucleus producing two daughter nuclei, each with a chromosome complement identical to that of the original nucleus. (Rips apart the two sister chromatids). Mitosis is the division of the nucleus, not of the cell).

We have 46 chromosomes and 92 chromatids

Diploid- (2n) (2x23) chromosomes - somatic cells

Haploid- (N) - Gametes (male sperm and female egg cells)

When DNA is replicated it is known as the "s phase synthesis".

Interphase

- G stands for growth
- Three processes in interphase:
 - o G1 Phase
 - o G2 Phase
 - o S Phase

Mitotic division of an animal cell:

- G2 of interphase- chromosomes are not visible
- Prophase- chromosomes become visible
- Pro-metaphase- Microtubules attach to kinetochore

- Metaphase- chromosomes line up in center of cell
- Anaphase- chromatids are separated from each other and pulled
- Telophase and Cytokinesis- Cleavage furrow / Nucleus forming

Density- dependent inhibition and anchorage dependence of cell division

Bacterial cell division is also known as binary fission

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