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Cell Cycle Observation

Introduction:

The cell cycle is a series of stages that a cell goes through in order to grow and divide. Observing the cell cycle helps us understand how cells reproduce and how new cells are formed.

Cell cycle observation is an important topic in cell biology because it explains normal growth and tissue repair.

What is the Cell Cycle?

The cell cycle is the sequence of events from the formation of a cell until it divides into two daughter cells.

It consists of two main phases:

- Interphase
- Mitotic phase (Mitosis)

1- Interphase

Interphase is the longest phase of the cell cycle.

During this stage, the cell prepares itself for division.

Interphase is divided into three stages:

- G1 phase: Cell growth
- S phase: DNA replication
- G2 phase: Preparation for mitosis

***** Most cells observed under the microscope are in interphase.

5. Mitotic Phase (Mitosis)

Mitosis is the process by which a cell divides its nucleus into two identical nuclei.

Mitosis consists of four stages:

1- **Prophase**

- Chromosomes become visible
- Nuclear membrane begins to disappear

2- **Metaphase**

- Chromosomes align at the center of the cell

3- **Anaphase**

- Chromosomes separate and move to opposite poles

4- **Telophase**

- Nuclear membrane reforms
- Two nuclei appear

Cytokinesis:

Cytokinesis is the division of the cytoplasm.

It occurs after mitosis and results in two separate daughter cells.

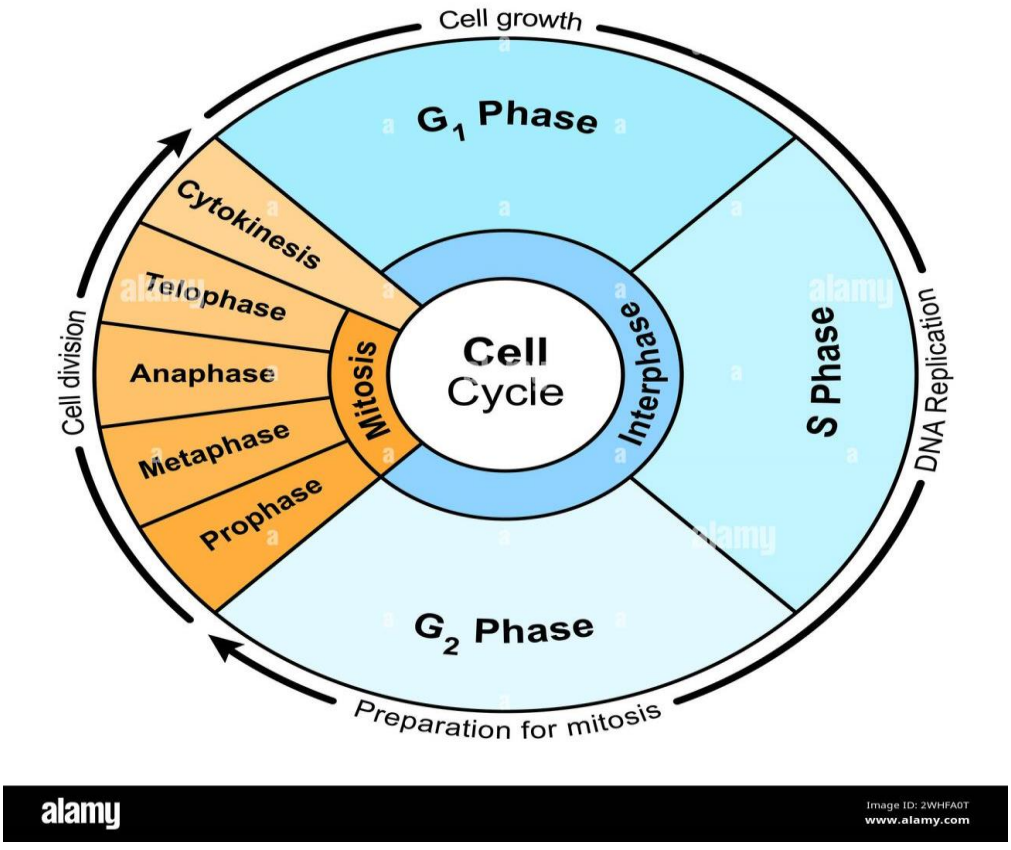

Figure: Phases of The Cell Cycle.

Importance of the Cell Cycle:

- Growth of organisms
- Repair of damaged tissues
- Replacement of old or dead cells

Cell Cycle Observation in the Laboratory:

In the laboratory, the cell cycle is commonly observed using:

- Onion root tip cells
- Prepared slides stained to show chromosomes

Conclusion:

Cell cycle observation helps students understand how cells grow and divide.

Recognizing different stages under the microscope is a key skill in cell biology laboratories.