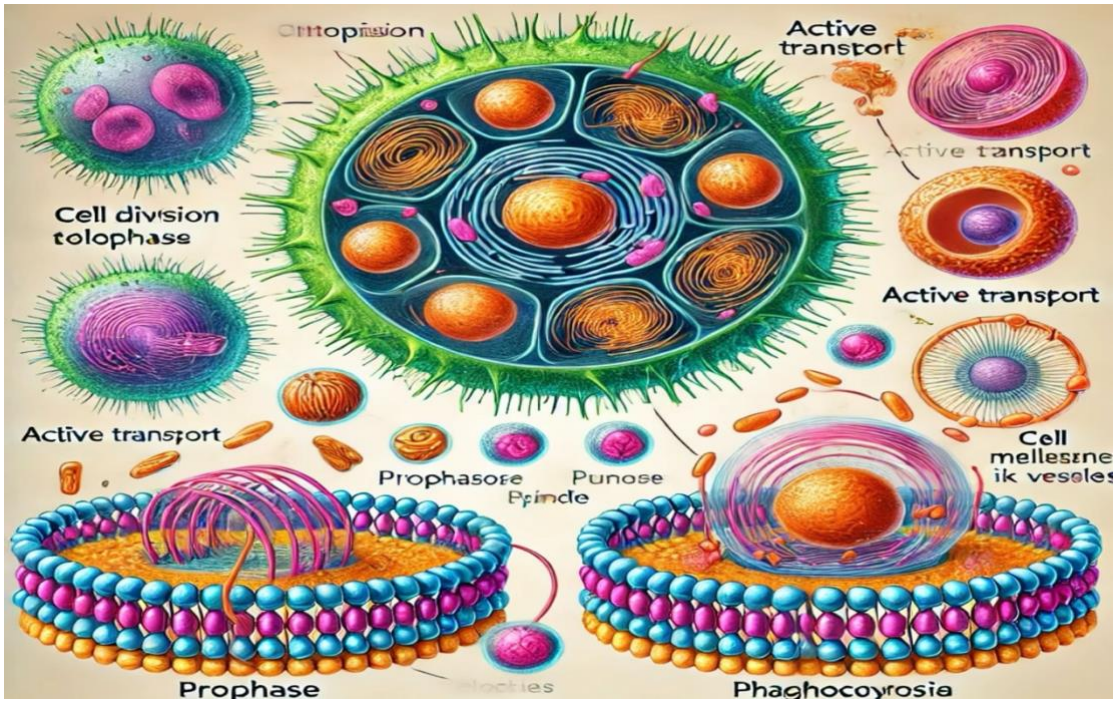
Lab 4

Cells are the basic unit of life, and their behavior reflects their responses to the surrounding environment. This topic aims to explain the basic processes performed by the cell and how it interacts with internal and external stimuli.

• Definition of cell behavior:

• Cell behavior

refers to its response to environmental variables such as chemical signals, mechanical signals, or changes in temperature. Cell behavior is the result of a complex interaction between cellular components and environmental factors. Understanding these processes helps us treat diseases and understand the mechanisms of life at the molecular level.



• The importance of understanding cell behavior helps explain vital processes such as growth, division, cell death, and migration.

Types of cell behavior:

1. Cell Growth and Division:

• Cell Cycle: Mitosis and Meiosis.

(Mitosis): Cell division into two identical cells.

Meiosis: Aims to produce gametes containing half the number of chromosomes.

2. Cell Migration: The importance of migration: In wound healing, immune response, and tissue growth.

• Migration mechanisms: Pseudopodia movements.

3. Programmed cell death (Apoptosis):The importance of cell death: Getting rid of damaged or unwanted cells.

• Cell death signals: Internal signals (Intrinsic Signals) and external signals (Extrinsic Signals).

4. Cell communication mechanisms:

.Chemical signals (Chemical Signals).

.Cell adhesion (Cell Adhesion).

3. Mechanisms controlling cell behavior: Cell signaling:

• Direct and indirect signals.

• The functional role of the microenvironment:

• The role of environmental signals such as oxygen, nutrients, and pH.

4. Cell behavior disorders:

• Cancer:

• Loss of control over division and growth.

• Immune diseases:

• Abnormal attack on healthy cells.

• Degenerative diseases: Such as the loss of the ability of nerve cells to respond،