CONCEPT: OVERVIEW OF THE CELL CYCLE

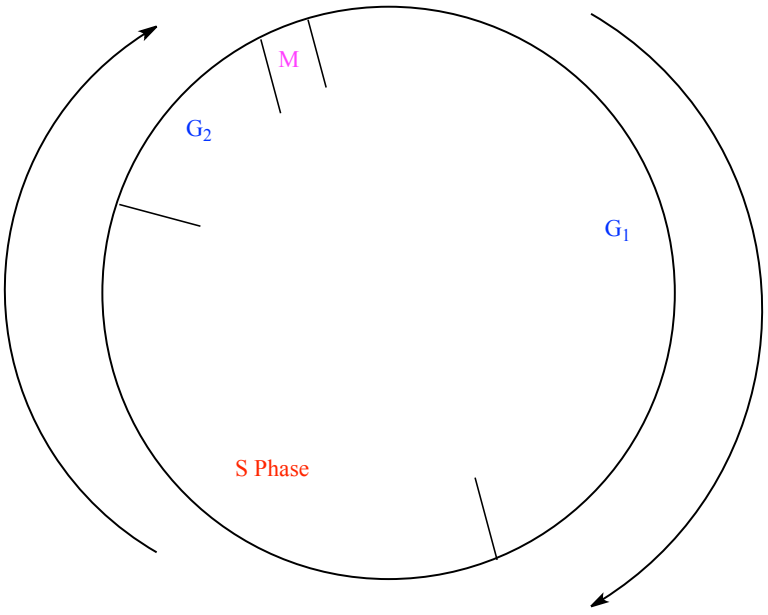
- There are three classes of cells based on whether they divide

CELL TYPE	EXAMPLE
Cells that do not divide	Nerve cells
Cells that normally do not divide, but can when induced	Liver cells
Cells that divide often	Stem cells, White blood cells

- All eukaryotic cell division is divided into four _____

1. **Interphase**: Period between cell divisions
2. **Gap Phases**: Growth phases that precede and follow DNA replication
3. **S phase**: DNA replication
4. **M phase:** Cell division – includes **cytokinesis** which is the process of physically separating the two cells

EXAMPLE: Stages of cell cycle



● Cell cycle control is extremely important to ensure cell division _____

□ **Cell cycle control system** is a network of regulatory proteins that controls cell division

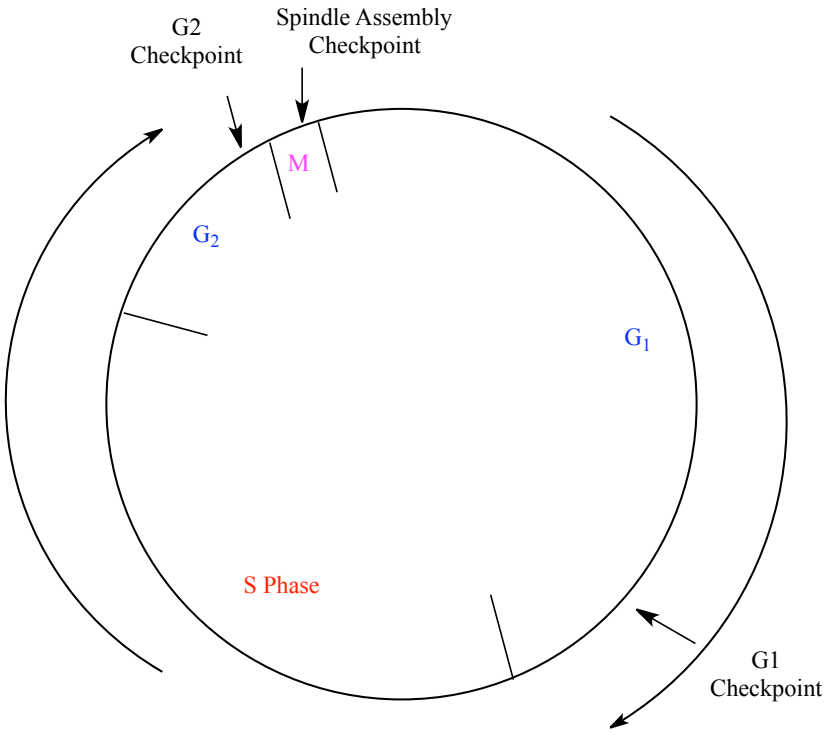
- **Checkpoints** are molecular breaks where it pauses at certain points to ensure accuracy

□ Different cell types undergo division at different rates

- **Mitotic index** measures the percentages of cells in mitosis at a given time

□ Eukaryotic cell division is extremely similar between multiple cell types

EXAMPLE: Cell cycle checkpoints



PRACTICE:

1. Which of the following is not a phase of cell division?
    a. GAP Phase
    b. M Phase
    c. S Phase
    d. L Phase

2. True or False: All cells undergo cell division at the same rate.
    a. True
    b. False