

1. Cell cycle Regulation - 1 control.

cell cycle :-

• Cell cycle was described by Howard and Pelé in

1953

• Cell cycle is defined as the stages through

a cell passes from one cell division to the next

During this phase the cell grows and prepares for the division.

⇒ Whole of the cell cycle is alternated with

- Doubling of genome (DNA) in Synthetic phase (S phase)
- Halving of genome during mitosis (M phase)

Cell cycle completes in two phases :-

A) Interphase - Also called as preparatory phase, divided into 3 sub-phases.



② • G₁ (Gap-1) phase

• S (Synthesis) phase

• G₂ (Gap-2) phase

Leading to the Doubling of genome (DNA)

B) M - Phase - Phase of division, divided into
2 sub-phases.

• Karyokinesis (Nuclear Division) - Divided into

4 sub-phases

a) Prophase

b) Metaphase

c) Anaphase

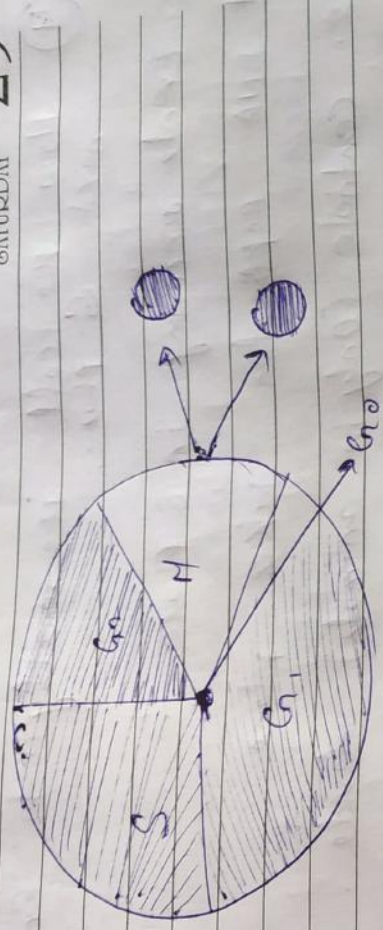
d) Telophase

• Cytokinesis (Division of cytoplasm)

Leading to ~~two~~ Halving of ~~two~~ genome
passing into daughter cells



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Different phases of cell cycle (Cell growth & Cell Division)

Events occurring in G₁ phase :-

- Synthesis of enzymes required for DNA replication.
- Synthesis of RNA needed for transcription and Translation
- Synthesis of ATP.
- Synthesis of raw materials (Pentose sugar, Phosphate acid and nitrogenases) for DNA duplication in S phase.
- So many things are synthesized in this phase therefore, the size of the cycle increases.

Either you run the day, or the day runs you. - Jim Rohn

Important Calls

Important Works

2017

5. End of chromosomes from Equator to pole (30 ATP/Chromosome). 80 ATP synthesis in energy.

• RNA synthesis takes place.

Now the cell is ready to enter the next M phase.

Events occurring in M phase :-

KARYOKINESIS INCLUDES :-

• PROPHASE :- Chromatids coiling - disintegration of Nuclear membrane and nucleolus and Spindle formation takes place.

• METAPHASE :- Chromosomal orientation at the Equatorial plane.

• ANAPHASE :- Movements of chromatids toward the opposite poles.

The mind is everything. What you think you become. - Buddha

Important Calls

2017

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Wk 13 • 88th Day
WEDNESDAY

⑥. TELOPHASE ÷

nuclei.

CYTOKINESIS Includes

formation of cell plate leading to equal division of cytoplasm, Nuclei, cell organelles and cell membrane into two daughter cells.

• After cell division, each of the daughter cell begins the interphase of a new cycle.

• Some cells (eg - cells of heart, kidney, liver, neurons etc.) after remaining in G₁ phase for sometimes come out of the cell cycle and enter G₀ phase known as quiescent phase.

You can never cross the ocean until you have the courage to lose sight of the shore. - Christopher Columbus

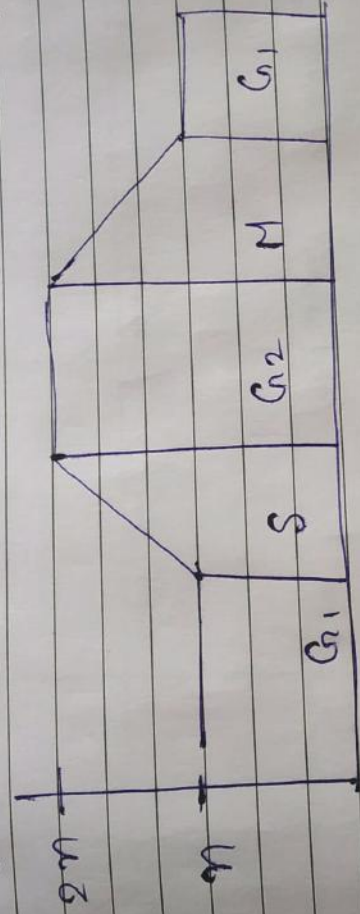
Important Works

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- In Quiescent phase the cell division stops but other activities of the cell continues.
- Some times the cell re-enters the cell cycle from Quiescent phase when required.

eg - During formation of Periderm.



Cell cycle of a cell showing the changes in DNA contents during various phases.

The way to gain a good reputation, is to endeavor to be what you desire to appear. -Socrates