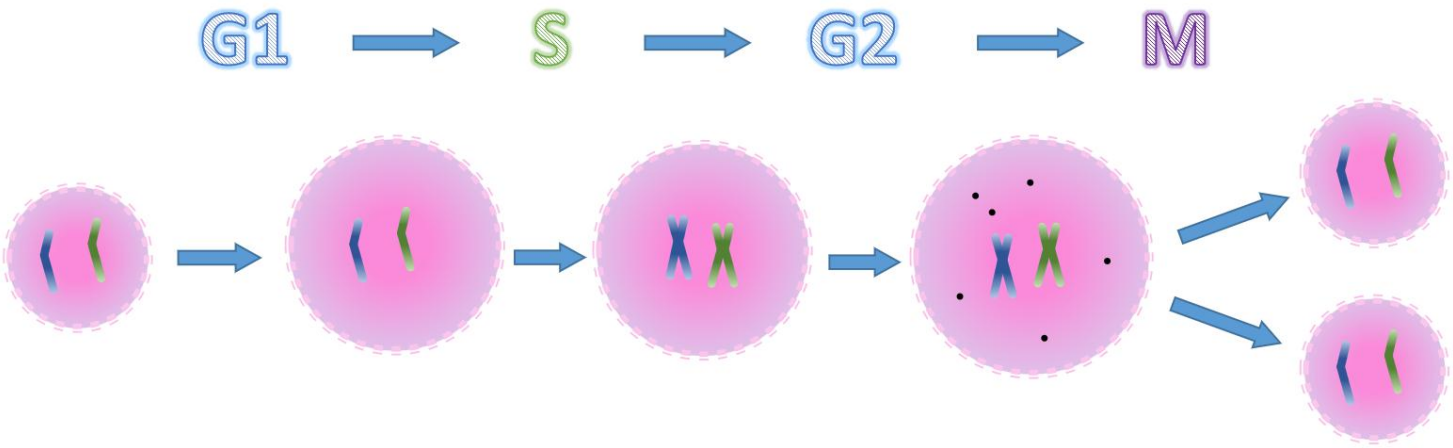
Mitosis

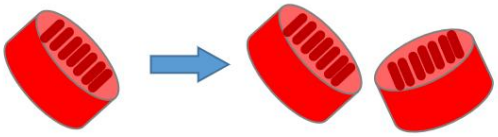
G = Gap
S = Synthesis
M = Mitosis

Mitosis is the process cell replicate themselves.

The process of Mitosis will go through 4 phases:



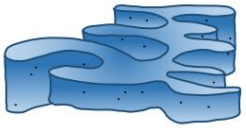
Mitosis

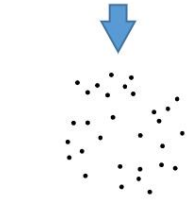


eg. mitochondria duplicate

G1 Phase:

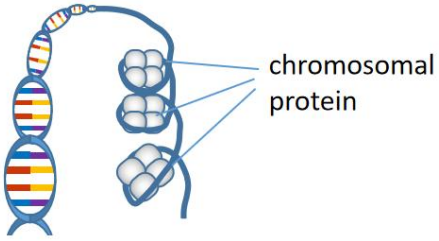
- Many organelles grow and duplicate
- Some organelles dissolve (reform after Mitosis)





eg. ribosome dissolves

- Materials and enzymes need for S Phase is produced

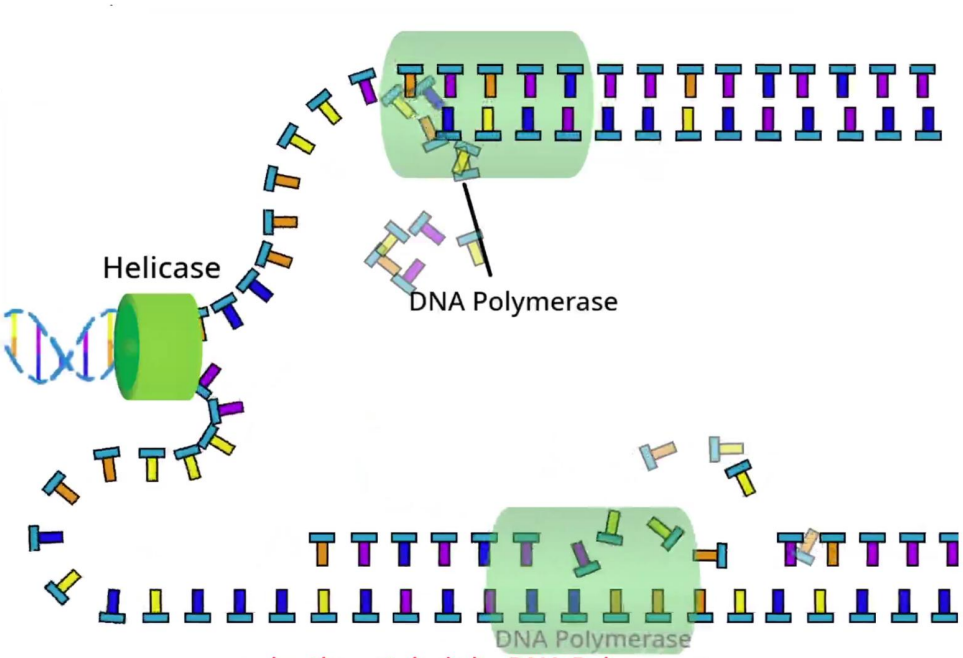


eg. chromosomal protein is produced

Mitosis

- S phase:
  - DNA replicates inside nucleus

For detailed intro, please go to see my previous homework - "Gene Replication and Expression"

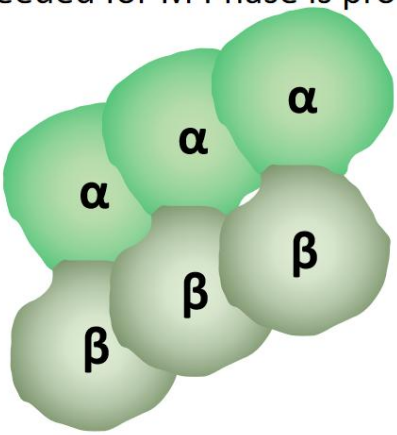


under the catalysis by DNA Polymerase.

Mitosis

- G2 Phase:
  - The essential component and catalyst needed for M Phase is produced

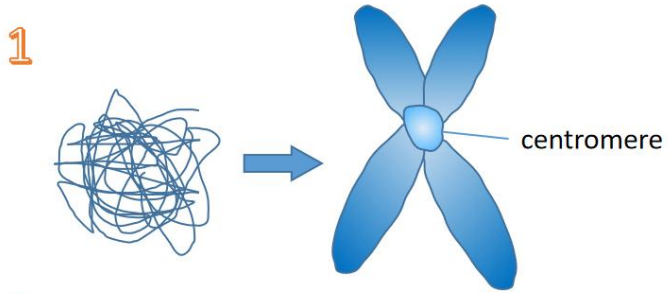
Enzymes are produced

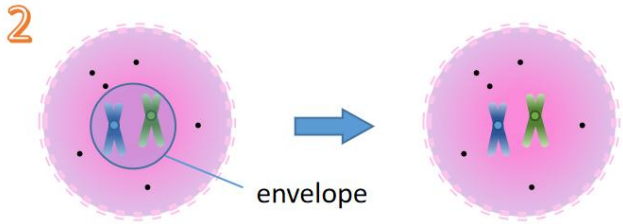


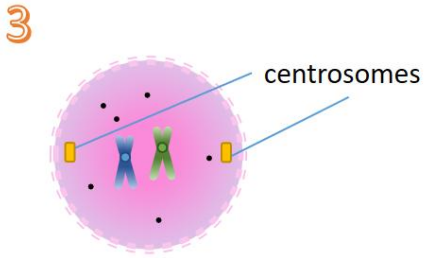
Tubulin (Proteins that make up microtubules) is produced

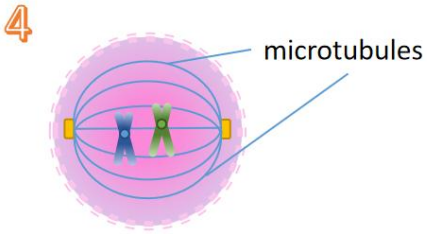
Mitosis

- M Phase:
  - Prophase:
  1. DNA condense into chromosomes
  2. Envelope dissappears
  3. Two centrosomes flow to two poles
  4. Microtubules formed

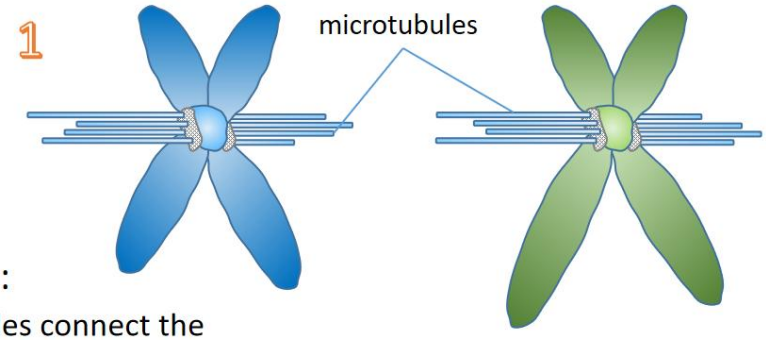


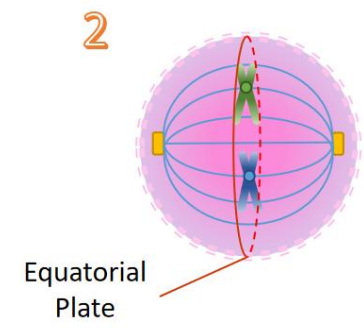




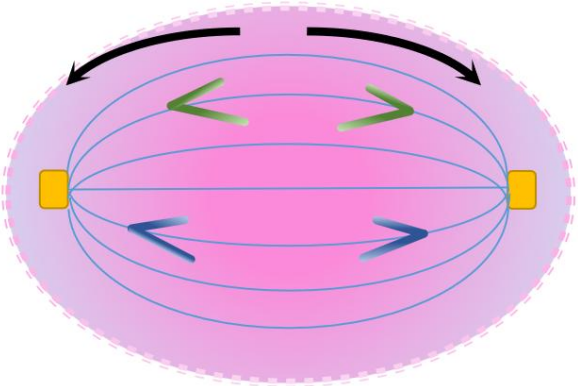


Mitosis





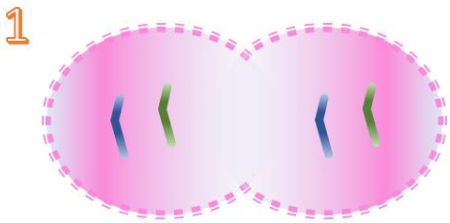
- M Phase:
  - Metaphase:
  1. Microtubules connect the centromeres in the chromosome and the two centrosomes
  2. Chromosomes gather around the Equatorial Plate

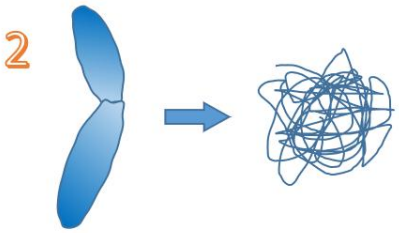


  - Anaphase:

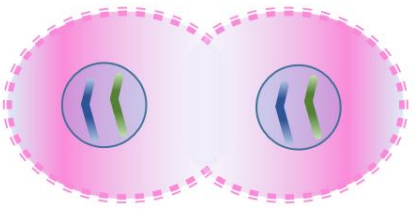
Sister chromosomes seperate, and they move toward the two centrosomes (two poles)

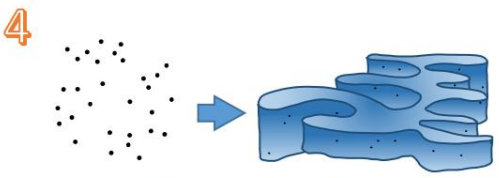
Mitosis



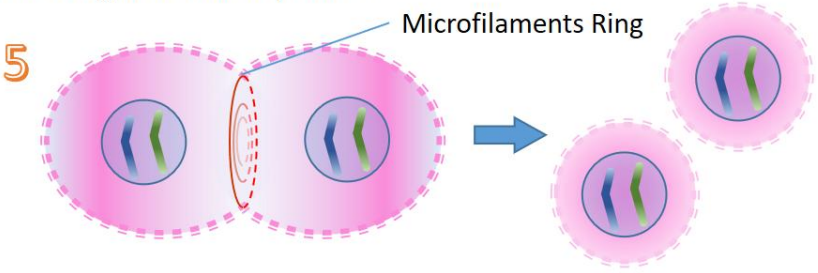


- M Phase:
  - Telophase:
    1. Microtubules and Centrosomes disappear
    2. Chromosomes expand
    3. Envelope forms
    4. Many organelles are made
    5. Microfilaments Ring shrink, and two daughter cells seperate.





eg. ribosome is made



Cell Differentiation

- The cells produced by the process of Mitosis build up our body. All cells are genetically identical, that means they contain the same DNA codon. But, due to changes in gene expression, the cells will become many specific types of cell that have different structure and function. This is Cell Differentiation.