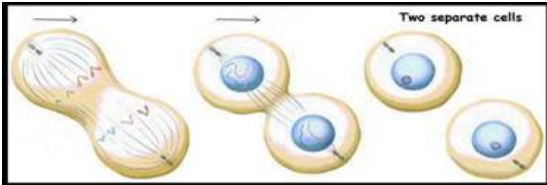


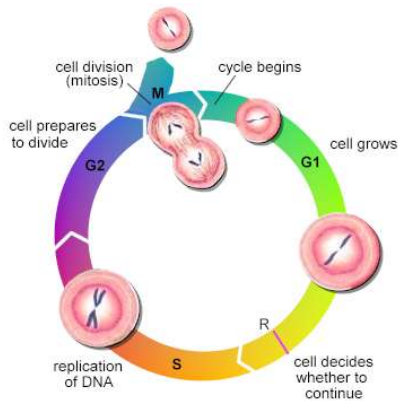
What is Mitosis?

Created: Tuesday, 26 July 2011 11:06 | Published: Tuesday, 26 July 2011 11:06 | Written by [Super User](#) | [Print](#)

Introduction to Mitosis



Mitosis: Mitosis is a nuclear division and Cytokinesis which undergo changes and produce two identical daughter cells with different phases.

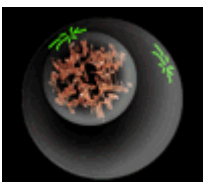


The phases are prophase, prometaphase, metaphase, anaphase, and telophase. Interphase is a separate part of mitosis, and has different stages called stages G1, S, and G2 of the cell cycle.

Equational Division

It is the most dramatic period of cell cycle involving reorganization of virtual components of the cell. Mitosis is called as an equational division and it is divided in [four stages](#): Prophase, Metaphase, anaphase and telophase.

Prophase:

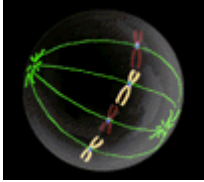


- During the mitotic stage replication of DNA take place and chromatids condense into [chromosomes](#).

- Each chromosome comprises of two chromatids that share same genetic information.
- Microtubules of the cytoskeleton, responsible for cell shape, motility and attachment to other cells during interphase, disassemble.
- Later microtubules are used to grow the mitotic spindle from the region of the centrosomes.

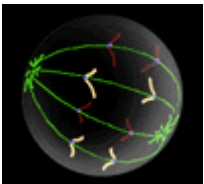
Metaphase:

The characteristic features of early metaphase and late metaphase are as follows:-



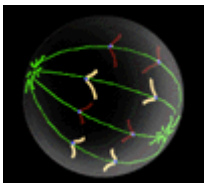
- The beginning of early metaphase stage is marked by disappearance of the nuclear membrane.
- During Early Metaphase [nuclear membrane](#) disappears
- Spindle formed from the spindle fibers which are present the two centrioles in animals.
- The spindle has two poles and a central equator.
- When the nuclear membrane disintegrates a more fluid is observed in the center of the cell, where the chromosomes move freely and travels towards the equator.
- In late metaphase the chromosomes reached the spindle and they arrange themselves radially at the periphery of the spindle in such a way that all the centromeres lie in a plane equidistant from the spindle pole.
- The array of the chromosomes on the spindle is called equatorial plate
- The centromeres lie on the equatorial plane, connected to the chromosomal spindle fibre, and the arms are directed towards the pole.

Anaphase:



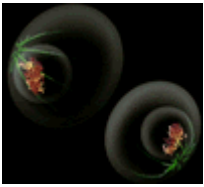
- During anaphase the centromeres begin to move apart.
- The sister chromatids get separated and each one is represented as a daughter chromosome.
- The spindle apparatus helps the daughter chromosomes to move to the poles.
- The daughter chromosomes migrate towards the centromere and the [kinetochore](#) near a pole.
- The two cell poles move further during anaphase with each pole has a chromosome compilation

Telophase:

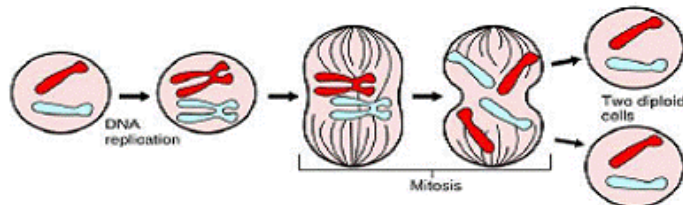


- During Telophase the fibers lengthen and nuclei begin to form.
- The envelope of these nuclei formed from the remnant piece of the parent cell, forming endomembrane system.
- [Nucleus](#) reappears.
- Chromatin fibers uncoil.
- After this stage all the genetic material is divided equally into two.

Cytokinesis:



- The division of the cytoplasm takes place by the end of the mitotic phase.
- After this stage two distinct daughter cells appear.



What is the difference between a Mitosis and Meiosis?

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Reference Links:

- http://en.wikipedia.org/wiki/Nucleic_acid
- <http://en.wikipedia.org/wiki/Mitosis>
- http://en.wikipedia.org/wiki/Binary_fission
- <http://en.wikipedia.org/wiki/Chromosomes>
- http://en.wikipedia.org/wiki/Cell_division
- <http://www.youtube.com/watch?v=VGv3fv-uZYI>

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