The Cell Cycle

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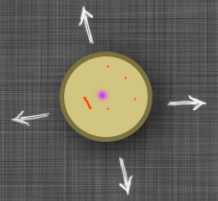
Interphase:

The cell obtains nutrienst, and duplicates its chromatids. Most eukaryotic cells spend their time in interphase (about 90% of cells are in interphase). There are three parts of interphase; G_1, S phase, and G_2

Start

G_1

Considerable cell growth occurs during this phase. New organells are formed during this phase.



S Phase

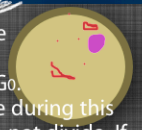
In the S (synthesis) phase, the DNA synthesis occurs. At the beginning of this phase, the Chrimatids (1 DNA double helix) duplicates that comes out as 2 sister chromatids. The centrosome are also duplicated during this phase.

G

The cell undergoes a short period of rapid growth to prepare for mitosis. The DNA is completed in replicating, and the chromatids are still in the form of loosly packet chromatid fibers.

G_0

Sometimes the cell enters a phase called G_0. The cell is alive during this phase, but can not divide. If these cells are damaged, they can not be replaced. They are used in the body such as in the eye, heart, and brain.



End

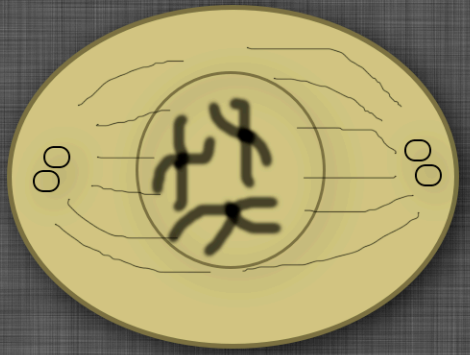
Now the cell is ready to start dividing. The nucleus and nuclear material divide first during Mitosis, also known as Karyokinesis because only the nucleus is dividing. After Mitosis, Cytokiesis occurs where the cytoplasm and cell membrane divide.

:Mitosis

The process in which the eukaryotic cell separates its duplicated chromosomes into 2 sets and splits into 2 identical cells. It's split into Prophase, Metaphase, Anaphase, and Telophase

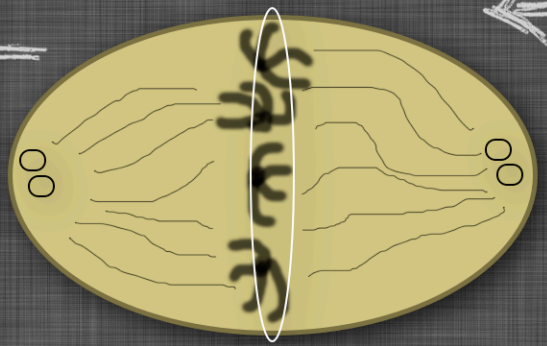
Prophase

The DNA molecules are progressively shortened and condensed by coiling to form visible chromosomes. Enzymes are breaking down the nuclear membrane so they are no longer visible. Spindle fibers form which will attach to the chromosomes.



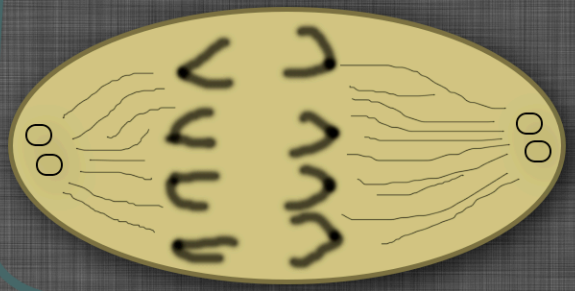
Metaphase

The spindle fibers attach themselves to the centromeres at the equator.



Anaphase

The spindle fibers shorten and the centromere splits separating the 2 sister chromatids.



Telophase

The chromosome pairs pulled to the opposite poles of the cell. The nuclear envelope & nucleus reform before the chromosomes uncoil. The spindle fibers disintegrate.