

Course work on meiosis and mitosis

[Science](#), [Genetics](#)



Meiosis and mitosis

Gene transfer occurs during cell division from mother cells to daughter cells. The DNA carries the genetic information transfer which it from one cell to another during cell division. Genes are located on the DNA strand that is contained in a chromosome. Mitosis and meiosis are the two types of cell division that occur during reproduction in various organisms. Mitosis involves the nucleus dividing into two identical daughter cells. Mitosis goes in hand with cytokinesis, which result in two separate daughter cells at the end of division. The process of mitosis takes place in four phases namely the prophase, metaphase, anaphase, and telophase. Meiosis is also another type of cell division occurring in organisms that reproduce sexually. In the process of meiosis, diploid cell divides producing four cells known as haploid. In this case, the resulting gametes have half the number of chromosomes totaling to 23 as compared to those of diploids, which are 23 pairs. Two stages namely meiosis I, and meiosis II are involved during the process of cell division.

The process of meiosis is essential to all living things on earth. During cell division in meiosis, the diploid cell divide to produce haploid gametes maintaining the number of chromosomes transferred from the parent cell to daughter cell. During the first stage of meiosis, crossing over occurs and this lead to genetic variation beneficial to the daughter cells. Meiosis is also particularly beneficial process as it allows repair of genes, which occur during crossover of chromosomes. This process is of significance to all living things especially human beings because it allows exchange of genes from generation to generation.

Mitosis is also another fundamental process to the living thing. The division of cells helps replace cells that have been damaged and those that are old. Mitosis is highly essential for growth though the process of cell division resulting to multicellular organisms. The process of mitosis maintains the number of chromosomes during division, and this is necessary for genetic stability. Mitosis is also crucial for regeneration and replacement of cells hence significant to all living things.

It is indispensable to note that organisms need to undergo mitosis in their lifetime during development, asexual reproduction, growth, and when there is a need to repair and replace worn out cells. Additionally, the organisms need meiosis during reproduction and this is essential for gene variation. It is therefore worthwhile to conclude that if meiosis did not occur in sexually reproducing organisms, gene variation could then not occur hindering the survival of the organisms in the changing environment.

References

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