Mitosis and meiosis

The aspect of growth is in all living organisms is brought about by splitting of cells. The mitotic division of cell involves separating of chromosomes into two identical sets and hence the daughter cells are genetically identical to the parent cell. During meiotic cell division, the cell undergoes various stages characterized by the distinct cellular reorganization (Huskins, 8).

The stages undergone by a cell during mitosis start with interface which is characterized by active metabolic activity before mitosis. Prophase is the second phase of mitotic cell division. It is a distinct phase. The chromatin condenses and becomes visible under a light microscope. Anaphase and Telophase are the last phases and are characterized by separation of the paired chromosomes and cytokinesis respectively.

Through mitosis, organisms develop various parts, repair the damaged tissues and replace dead or aging cells. It aids sexual reproduction indirectly. After fertilization, it helps the organism to grow and develop from one cell into a multicellular organism; hence, the organism can reproduce through its generation (Nasmyth, 5).

The germ cell in meiosis divides to form four sex cells, which unlike in mitosis contain half the number of chromosomes of the mother germ cell. The four resulting cells have a different combination of chromosomes due to cross over. Because of meiosis, no egg or sperm can be similar, and this explains why individuals are unique in one way.

Meiosis enhances the diversity of sexual reproduction within the population because every set of chromosome made from mitosis is unique. When the cell and the egg in humans each of the 23 chromosomes combine to make a zygote with 46 chromosomes, it will translate to a genetically unique organism (Huskins, 11).

Works Cited

Huskins, C. LEONARD. "Mitosis and meiosis." *Nature* 132 (2008): 62-63.Nasmyth, Kim. "Disseminating the genome: joining, resolving, and separating sister chromatids during mitosis and meiosis." *Annual review of genetics* 35.1 (2012): 673-745.