

MITOSIS & MEIOSIS

AMRIT KAUR

THE CELL CYCLE

Cell growth

DNA synthesis - the chromosomes are now double stranded

Temporary cell resting periods or the cell stops dividing

The cytoplasm separates - two cells are formed

Further growth occurs and the DNA is checked for errors

Mitosis

MITOSIS

The cell begins to divide

The DNA replicates to form two copies of each chromosome

Nuclear membrane breaks down. The chromosomes line up across the centre of the cell

One set of chromosomes is pulled to each end of the cell and the nucleus divides.

The cytoplasm and cell membrane divide to form two identical cells.

INTERPHASE - strings of DNA are loosely coiled (chromatin). Resting phase between successive mitotic divisions of a cell, or between the first and second division of mitosis.

PROPHASE - The first stage of cell division, before metaphase, during which the chromosomes become visible as paired chromatids and the nuclear envelope disappears. The first prophase of meiosis includes the reduction division.

METAPHASE - The second stage of cell division, between prophase and anaphase, during which the chromosomes become attached to the spindle fibres.

ANAPHASE - The stage in mitosis or meiosis following metaphase in which the daughter chromosomes move away from each other to opposite ends of the cell.

TELOPHASE - the final phase of cell division, between anaphase and interphase, in which chromatids of chromosomes move to opposite ends and two nuclei are formed.

KEY TERMS

CELL CYCLE - The series of stages that a cell goes through as it is growing and dividing.

CHROMOSOME - The structure made of DNA that codes for all the characteristics of an organism.

DAUGHTER CELLS - When a cell divides, the new cells produced are called daughter cells.

DNA - Deoxyribonucleic acid. The material inside the nucleus of cells, carrying the genetic information of a living being.

EGG CELL - The female reproductive cell.

EMBRYO - An organism in the early stages of development.

FERTILISATION - The joining of a male and female gamete.

GENE - The basic unit of genetic material inherited from our parents. A gene is a section of DNA which controls part of a cell's chemistry - particularly protein production.

MERISTEM - A region in plant shoots and roots in which cells are dividing, and so are undergoing mitosis.

MITOSIS - A type of cell division which produces daughter cells identical to the parent.

MULTICELLULAR - Having more than one cell.

NUCLEUS - The nucleus controls what happens inside the cell. Chromosomes are structures found in the nucleus of most cells. The plural of nucleus is nuclei.

PLANT HORMONES - Substances that can modify or control the growth of plants.

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