Cell division

Lab. 4
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The nucleus

It was the first organelle to be discovered, The main structures making up the nucleus are the nuclear membrane, a double membrane that encloses the entire organelle and isolates its contents from the cellular cytoplasm.

Nuclear envelope and pores

The nuclear envelope, otherwise known as **nuclear membrane**, consists of two cellular membranes

The **outer nuclear membrane** is continuous with the membrane of the **rough endoplasmic reticulum** (**RER**), and is similarly studded with **ribosomes**.

The cell nucleus contains the majority of the cell's genetic material in the form of multiple linear DNA molecules organized into structures called **chromosomes**.

Nucleus

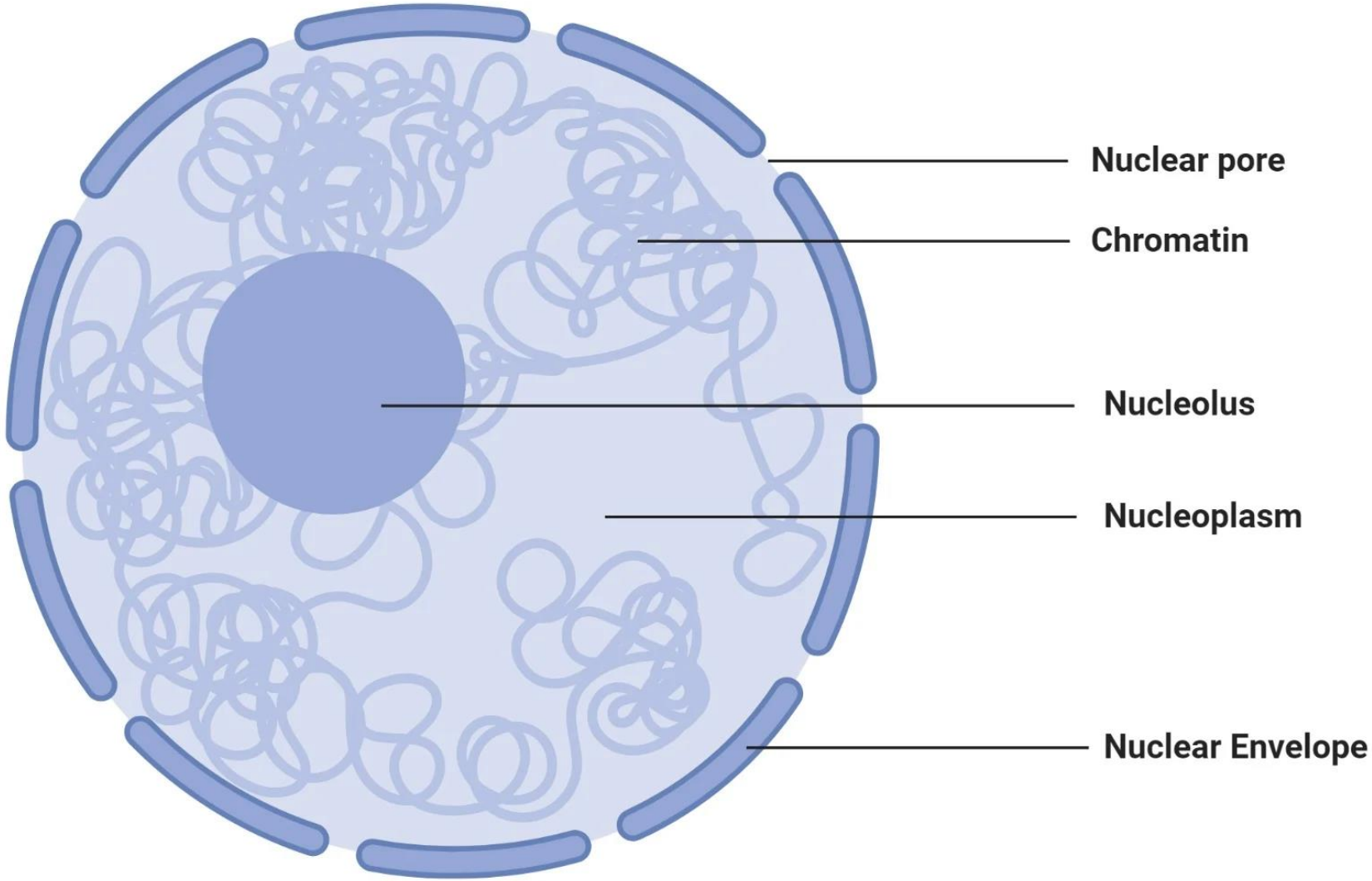
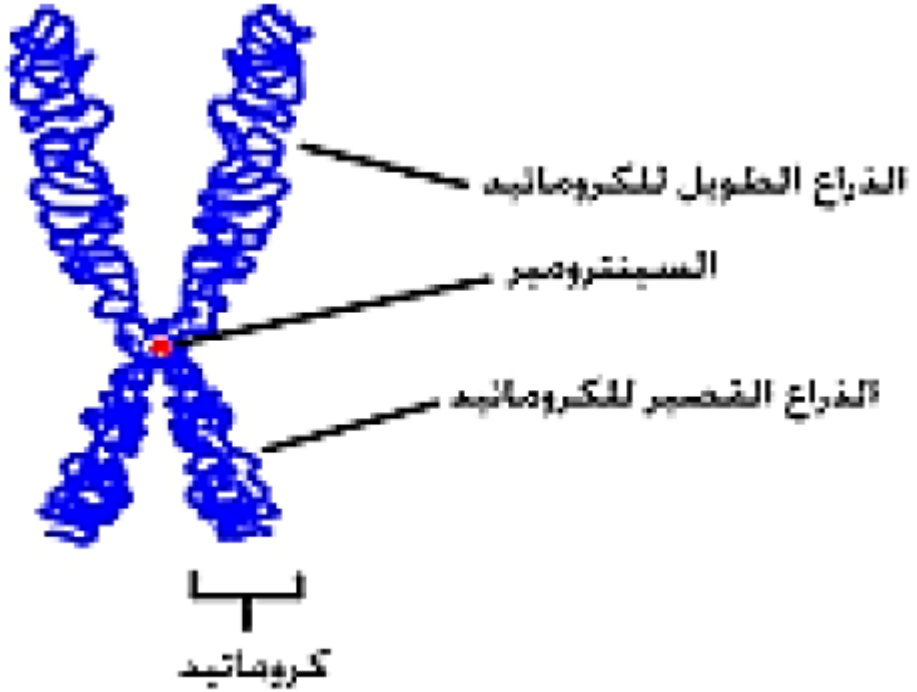


Figure: Nucleus, Image Copyright © Sagar Aryal, www.microbenotes.com

Chromosome

It is a structured bundle of structure and structure that is mostly composed of deoxyribonucleic acid (in living organisms, located in the cell nucleus.

- **The chromatid**
- **Central segment (centromere)**
- **The short arm of the chromatid**
- **And, the long arm of the chromatid**



Replication

Is the process by which a double-stranded DNA molecule is copied to produce two identical DNA molecules.

Mitosis and miosis

Mitosis and **meiosis** are an integral part of cell division. **Mitosis** occurs in somatic cells, while **meiosis** occurs in gametes.

The resultant number of cells in **Mitosis** is twice the number of original cells. The number of chromosomes in the daughter cells is the same as that of the parent cell.

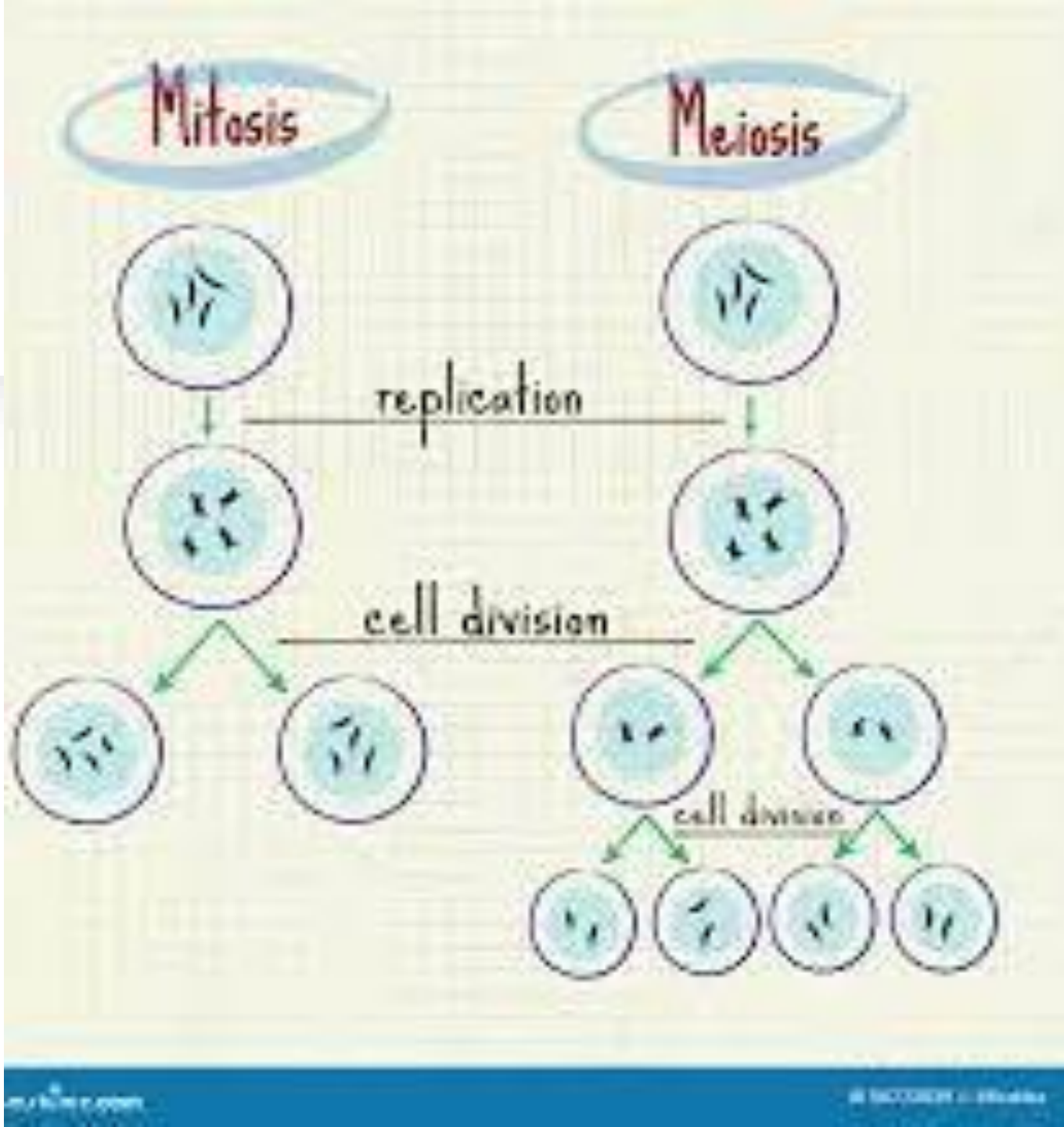
The resultant number of cells is **Meiosis** is four times the number of original cells. This results in cells with half the number of chromosomes present in the parent cell.

Phases of miosis

Name of Phase	Description
1. Prophase I	Homologous chromosomes pair up and form tetrad
2. Anaphase I	Spindle fibers move homologous chromosomes to opposite sides
3. Telophase II	Nuclear membrane reforms, cytoplasm divides, 4 daughter cells formed
4. Metaphase II	Chromosomes line up along equator, not in homologous pairs
5. Prophase I	Crossing-over occurs
6. Anaphase II	Chromatids separate
7. Metaphase I	Homologs line up alone equator
8. Telophase I	Cytoplasm divides, 2 daughter cells are formed

Miosis

Mitosis



Thank you

