Basic Medical Science

Dr Danish Nadeem

Fsc Technician 1

Meiosis

- **Meiosis**
- Specialized type of cell division
- Occurs in sexually reproducing organisms
-
- **Result**
- Produces gametes (sperm and egg cells)
- Gametes have half the number of chromosomes of the parent cell
-
- **Divisions**
- Two sequential divisions
- Meiosis I and Meiosis II

Interphase Before Meiosis

- Cell grows and replicates DNA.
- Process similar to interphase in mitosis.
- Each chromosome duplicates.
- Duplication forms two identical sister chromatids.
- Sister chromatids remain joined at the centromere.

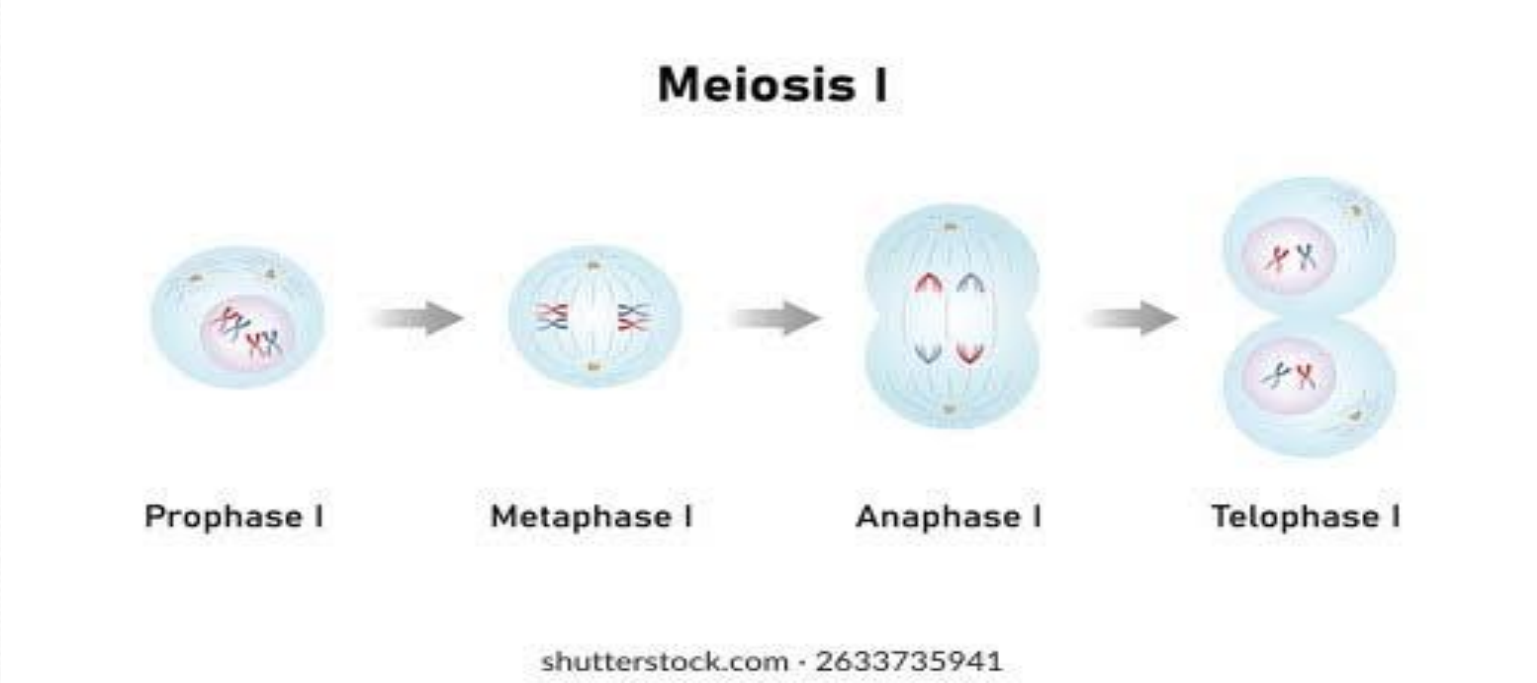
Meiosis 1

- **Meiosis I**
- Four stages: Prophase I, Metaphase I, Anaphase I, Telophase I.
-
- **Prophase I**
- Chromosomes condense; homologous chromosomes pair to form tetrads.
- Crossing over occurs → genetic variation.
- Nuclear envelope breaks down.
- Spindle fibers form.
-
- **Metaphase I**
- Tetrads align at metaphase plate.
- Independent assortment → genetic variation.

Meiosis 1

- **AnaphaseI**
- Homologous chromosomes separate and move to opposite poles.
-
- **Telophase I**
- Chromosomes reach poles.
- Nuclear envelope reforms.
- Two haploid daughter cells form.

Meiosis 1


Meiosis I
Prophase I
Metaphase I
Anaphase I
Telophase I
shutterstock.com · 2633735941

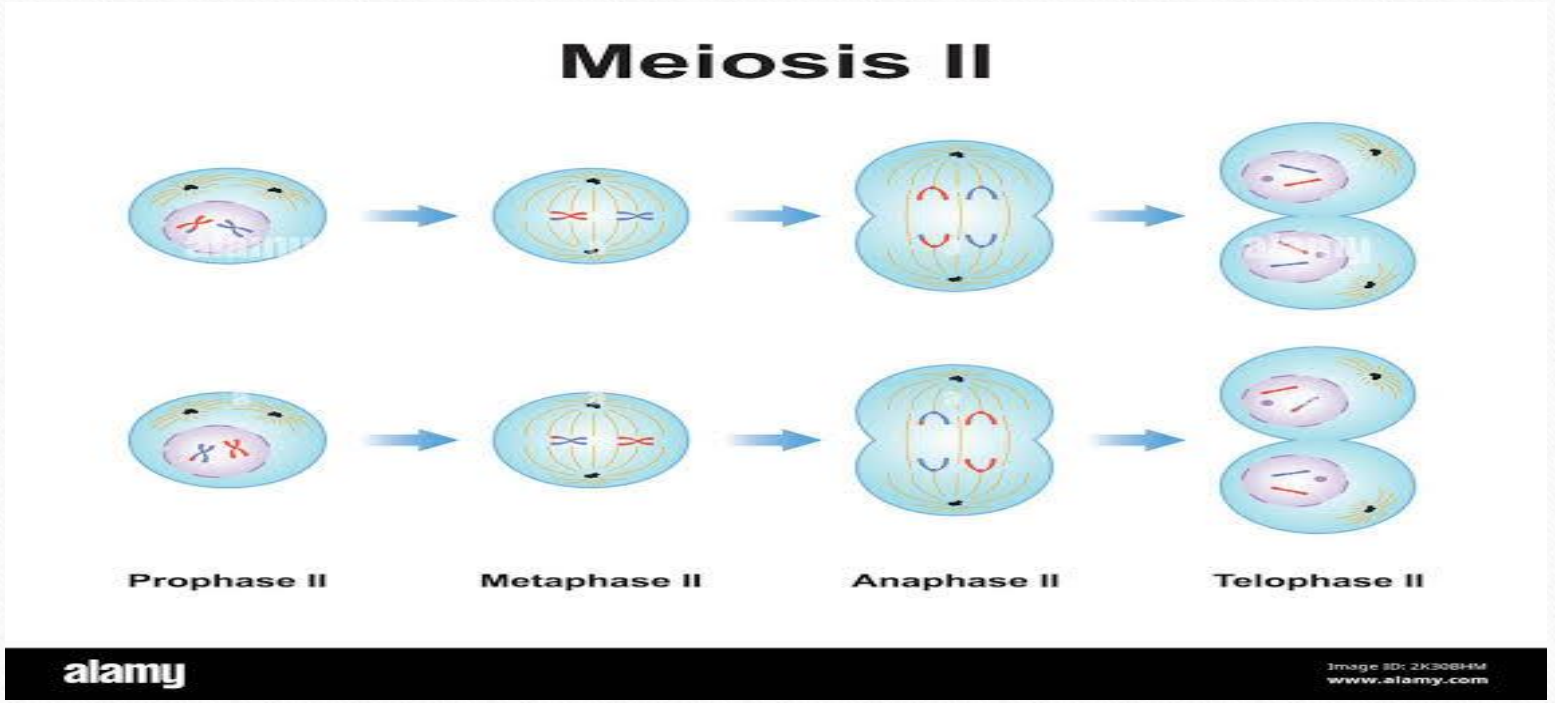
Meiosis II

- **Meiosis II**
- Resembles mitosis: Prophase II, Metaphase II, Anaphase II, Telophase II.
- No DNA replication before meiosis II.
-
- **Prophase II**
- Nuclear envelope breaks down, spindle forms.
-
- **Metaphase II**
- Chromosomes align at metaphase plate.
-
- **Anaphase II**
- Sister chromatids separate to opposite poles.

Meiosis II

- **Telophase II**
- Chromosomes arrive at poles.
- Nuclear envelope reforms.
-
- **Cytokinesis**
- Produces four haploid daughter cells with unique genetic combinations.

Meiosis II


Meiosis II
Prophase II
Metaphase II
Anaphase II
Telophase II
alamy
Image ID: 2K308HM
www.alamy.com

Any Question


thank you


DOCTORSIMES