

Chapter 10

Meiosis and Sexual Reproduction

Formation of Gametes

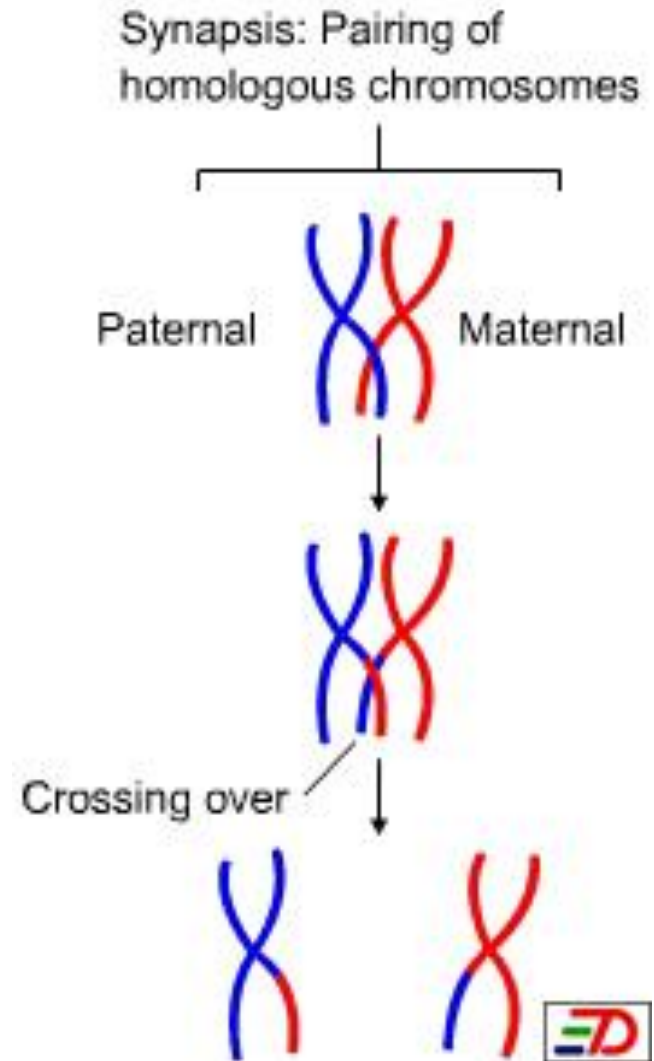
- To make sex cells (egg and sperm), many living things undergo a process called meiosis.
- Meiosis is a form of cell division that halves the number of chromosomes.
- Meiosis involves two divisions:
 - Meiosis I
 - Meiosis II

Reasons for Genetic Variation

- Except for twins, no two people are exactly alike. This is because there are so many millions of sperm or eggs within a given individual that have a chance to be fertilized.
- About 2^{23} or 8 million different sperm or egg exist inside of one living individual.
- Because fertilization of an egg by a sperm is random, the number of possible outcomes is 64 trillion (8×8)

Crossing Over

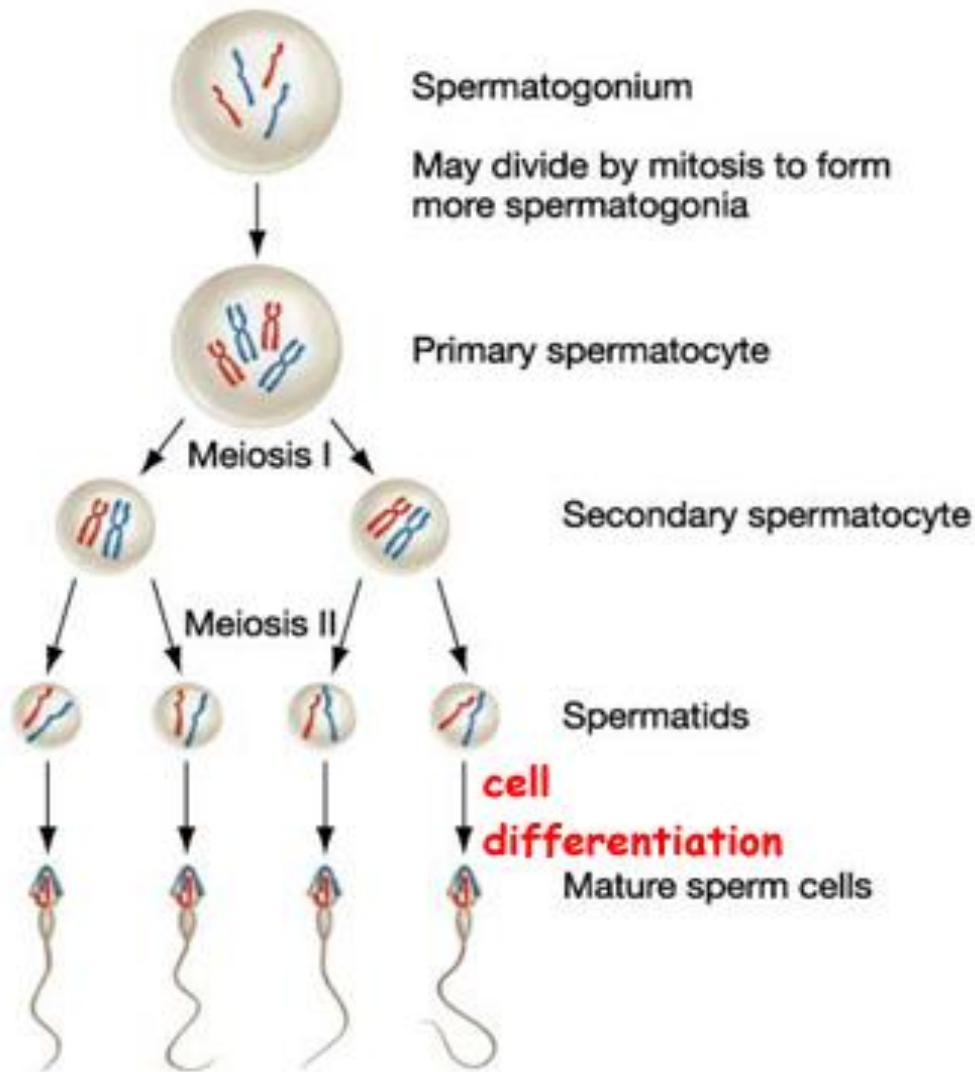
- Chromosomes have the ability to cross over during the early stages of meiosis I.
- Crossing over – when sections of a chromatid on one homologous chromosome are broken or exchanged with a section of the other chromatid on the corresponding chromosome.



Gamete Formation

- Males produce sperm through a process called spermatogenesis.
- Females produce eggs through a process called oogenesis.
- After undergoing meiosis I and II, 4 sperm are produced but only 1 egg survives.

Spermatogenesis



Oogenesis

