

Meiosis

Also known as reduction division occurs in specialized sex cell, at the start of meiosis this cell have $2n$ chromosome, in meiosis each cell divided twice, however the chromosome replicate only once, this replication occur before the first meiotic division, in the second meiotic division no replication of chromosome occur as a result of 2 meiotic division each original sex cell produce 4 daughter cell, each containing $(1n)$ chromosome.

Meiosis 1:-

1- Prophase 1:

- Each chromosome consist of sister chromatids.
- Compose of 5 stages (Leptotene, Zygotene, Pachytene, Diplotene, and Diakinesis).
- Nucleolus and nuclear envelope disappear, spindle fiber appear.
- Homologous chromosome come together forming (Bivalent).
- Crossing-over occurs.

2- Metaphase 1:

- Homologues chromosomes (bivalent) aligned at equatorial plane.
- Microtubule of the spindle fiber becomes attached to the chromosome in centromere.

3- Anaphase 1:

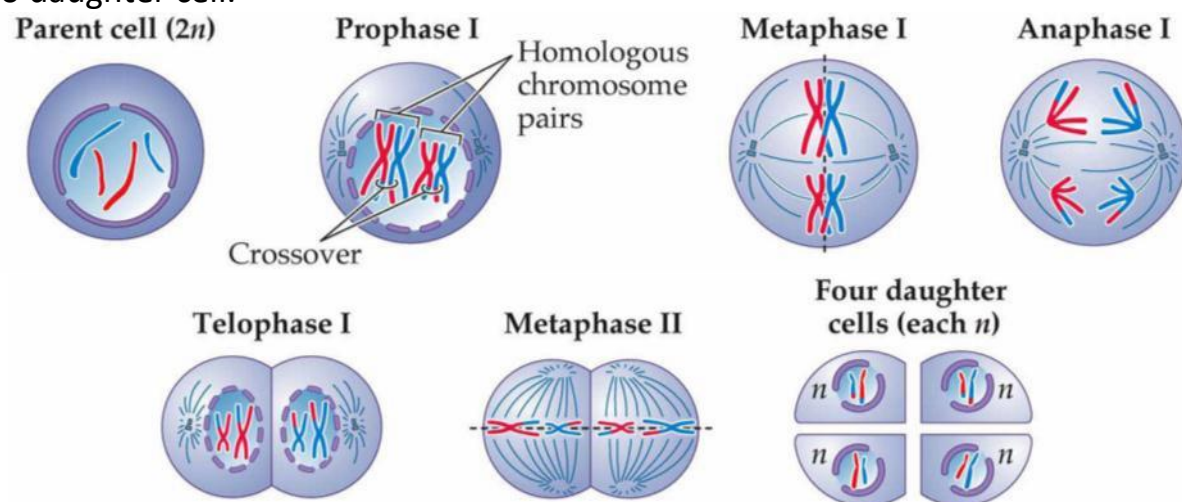
- The homologous chromosome (bivalent) separate from each other and move to opposite pole of the cells. (Diploid becomes haploid).
- Cytokinesis begins.

4- Telophase 1:

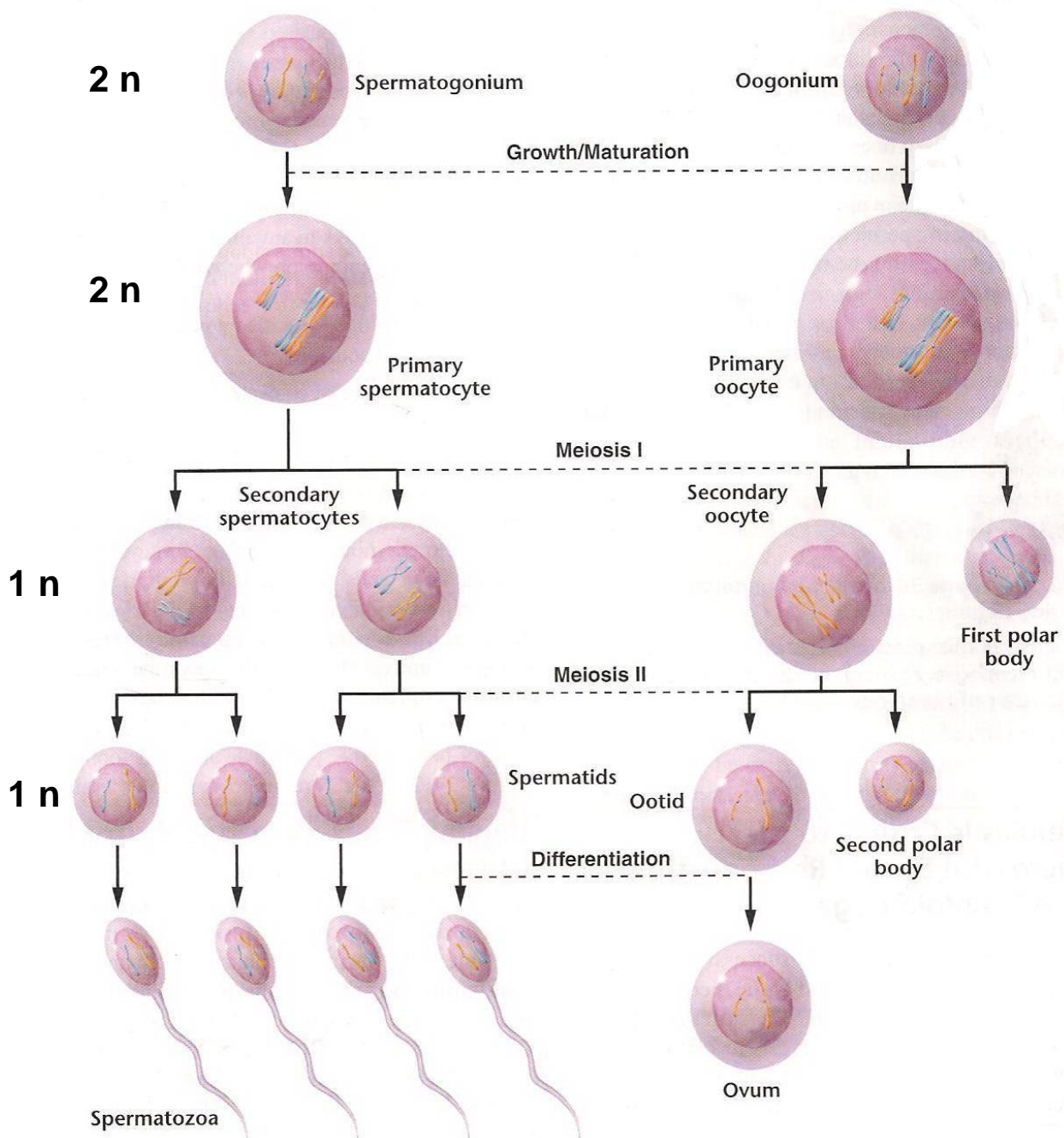
- Spindles disappear.
- Nucleolus and nuclear membrane reform.
- Cytokinesis result in 2 daughter cells each cell contain half number of chromosome.

Meiosis 2:

It is similar to mitosis .which each cell that contains 23 chromosomes divided to two daughter cell.



Spermatogenesis & Oogenesis in human



Spermatogenesis: is the process by which sperm cells (spermatozoa) are produced from spermatogonia.

Spermiogenesis: is the maturation of spermatozoa from spermatid during spermatogenesis.

Oogenesis: is the process by which ova cells are produced from oogonia.