

Gametogenesis

- Gametogenesis is the process of formation of gametes.
- Diploid precursor cell undergoes meiotic division to become haploid gametes.
- Gametes are sex cell or reproductive cells, containing haploid set of chromosomes.
- Gametogenesis provides a mechanism by which genetic information is passed to offspring.

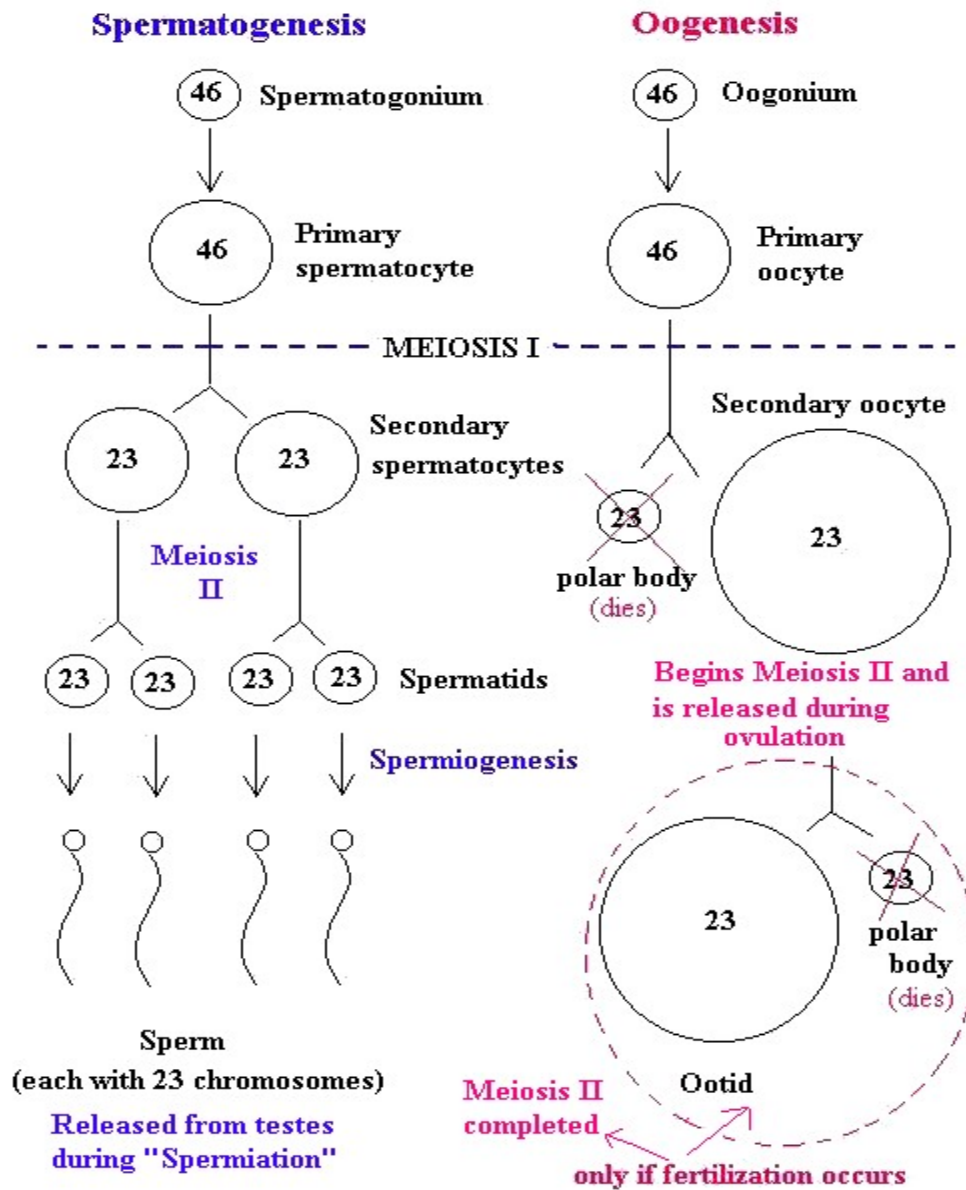
Gametes are of two types-

- Male gamete--spermatozoa or sperm.
- Female gamete--egg cell or ovum.
- The process of Gametogenesis takes place in special organs ---the Gonads
- Male gonad is called testis.
- Female gonad is called ovary.
- The production of gamete is a highly complex and co-ordinated sequence of meiotic division.
- As there are two types of gametes, the spermatozoa and ova, Gametogenesis is categorized into two types.
- The production of male gamete or spermatozoa is called spermatogenesis.
- The production of female gamete or ovum is called oogenesis.
- Both spermatozoa and ova originate from primordial germ cells.
- Primordial germ cells are extra gonadal in origin.
- Primordial germ cells originate from extra embryonic mesoderm during early embryonic development.
- Finally these germ cells migrate to the yolk sac endoderm, and in the end, to the gonads of the developing embryo where they undergo further development.
- Formation of gametes starts at puberty.

The basic pattern of Gametogenesis

The process takes place in the gonads and it undergoes following steps:-

- Repeated mitotic division and cell growth of precursor germ cells
- Two meiotic division to produce haploid daughter cell
- Differentiation of the haploid cell to produce functional gametes



Significance of Gametogenesis

- It maintains the chromosome no. of the species.
- During meiosis (I) crossing over takes place which brings about variation.
- Supports the basic relationship of the organism as the process occurs in different organism.
- Maintains the continuity of the race.

Important terms:-

Diploid- Containing two sets of chromosomes.

Haploid- Containing only a single set of chromosome.

Gonads- An organ that produces gametes; testis in male or ovary in female.

Primordial germ cells- Precursor germ cell.