

# SPERMATOGENESIS

Although it is a continuous process, for sake of convenience it is divided into two parts.

1. formation of spermatid

2. Spermiogenesis

Primordial germ cells or primary germinal cells (of germinal epithelium) produce the spermatozoa.

Primary germinal cell



Multiple steps

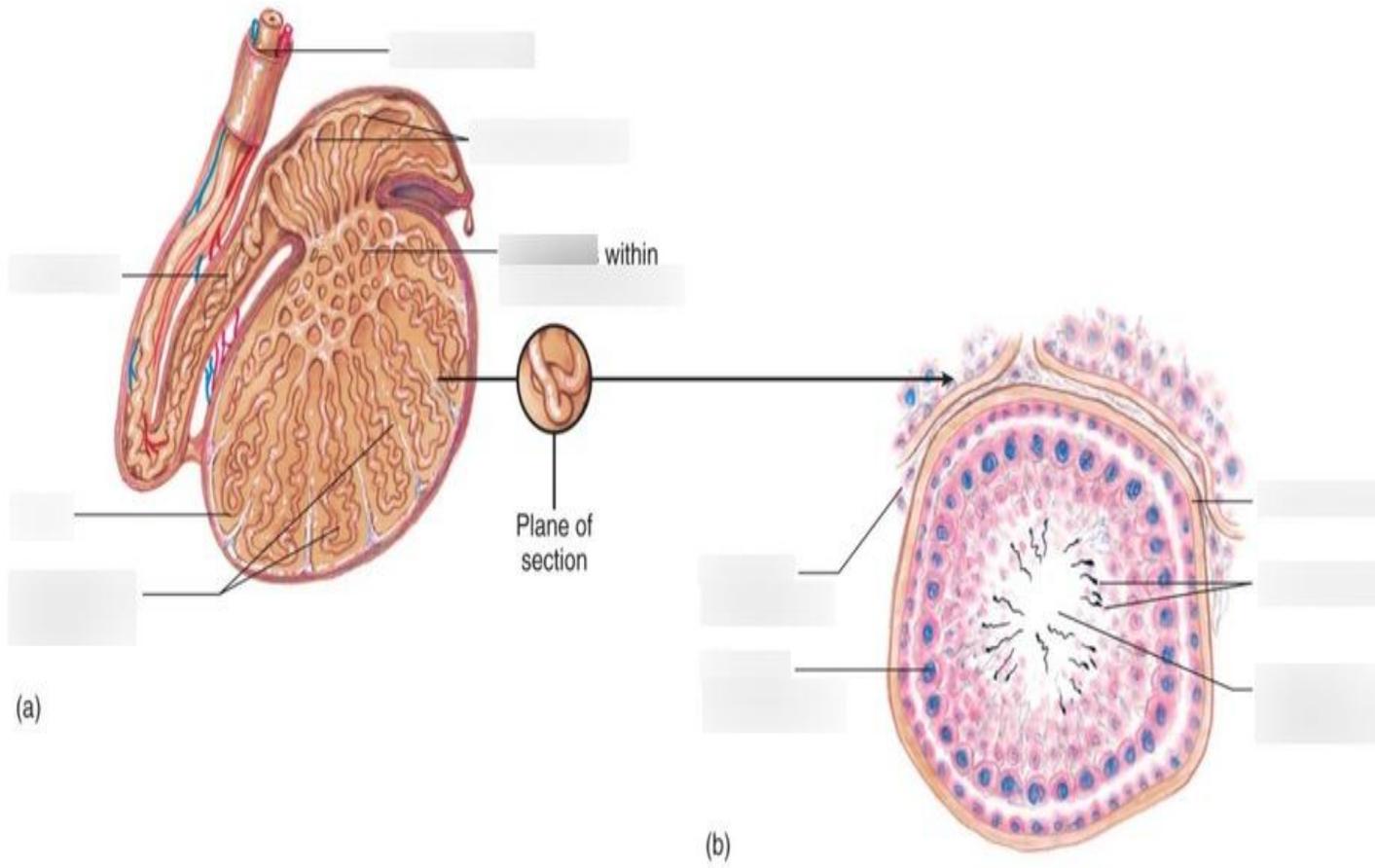
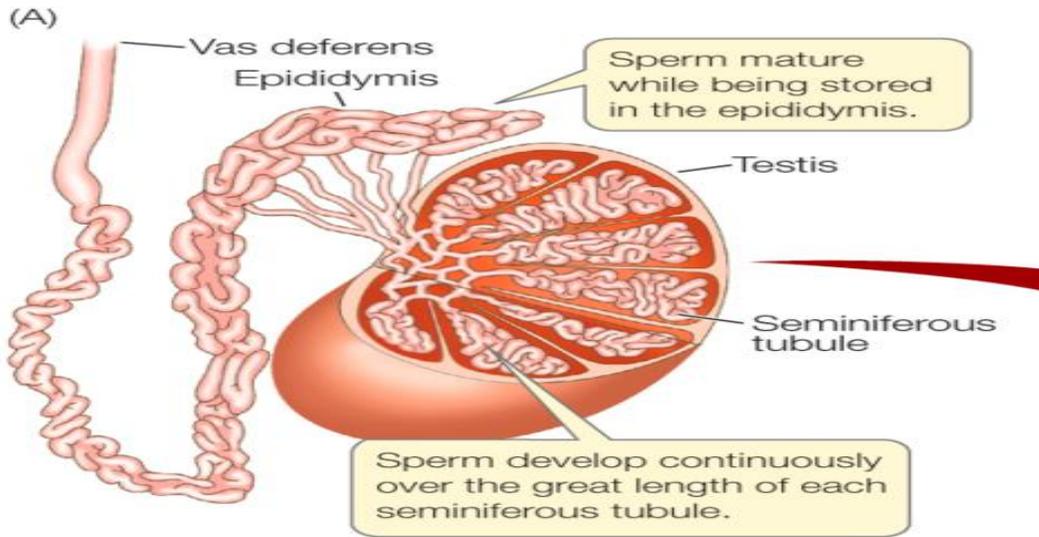


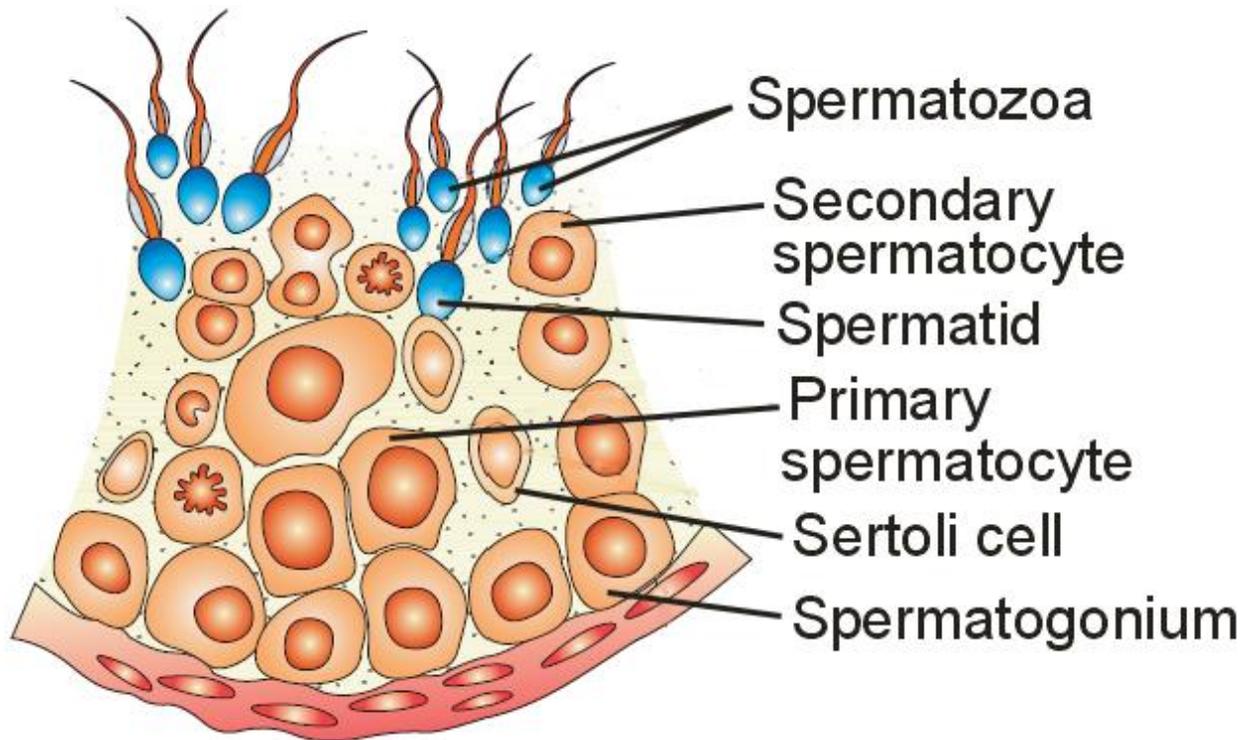
Spermatozoa is outcome

Steps: (A) Multiplication phase

(B) Growth phase

(C) Maturation phase





### (A) MULTIPLICATION PHASE

The primordial Germ Cells (undifferentiated by nature) contain a large sized or chromatin rich nucleus. It divides by repeated mitotic cell divisions and produces the cells which ultimately become the sperm mother cells which is also called as spermatogonia ( $2n$ ). These are diploid cells and found in vertebrates next to basal membrane of the seminiferous tubules.

**NOTE:** In mammals, spermatogenesis typically proceeds in cycles of activity. The spermatogonia in one region of seminiferous tubule are typically at the same stage or that cycle.

Adjacent region are often in next stage and thus wave of spermatogenesis is observed along the length of seminiferous tubule in mammals.

In rat, at the initiation of the process spermatogonia can be identified as **A1 spermatogonia**.

This type of spermatogonia divides twice to form **A2 spermatogonia**. One of these four cells become a cell that remains dormant and does not divide further until another cycle of spermatogenesis begins.

The process of spermatogenesis usually continues throughout the adult life of the animal.



Here cell divides by meiotic division and each cell created four haploid spermtid. These spermatids upon getting nourished by sertoli cells get converted into spermatozoa (Depicted in figure).

Sertoli cells are the cells meant for nourishment found in lumen of seminiferous tubule.

This way spermatogenesis gets completed.