

Spermatogenesis

What receptors do sertoli cells have?

FSH & Testosterone

What receptors do leydig cells have?

LH

What do sertoli cells produce?

Androgen binding protein, Dihydrotestosterone (DHT), sulfated glycoproteins, Transferin, Inhibin, Estrogen, Spermatids

What do leydig cells produce?

Testosterone

What are the phases of Spermatogenesis?

1. Proliferation
2. Meiosis
 - a. Meiosis 1 & 2
3. Differentiation
 - a. Golgi phase
 - b. Cap phase
 - c. Acrosomal phase
 - d. Maturation phase

What type of sperm are in the proliferation phase?

- A spermatogonia
 - o Undergo several mitotic divisions (A1-A4)
- I spermatogonia
- B spermatogonia
 - o Mitotic division of B results in primary spermatocytes

What type of sperm are in the Meiosis phase?

Primary spermatocytes and secondary spermatocytes

What type of sperm does Meiosis 1 produce?

Secondary spermatocytes

What type of sperm does Meiosis 2 produce?

1N Spermatids

What type of sperm are in the differentiation phase?

Spermatozoa & spermatids

What 4 phases make up the differentiation phase?

1. Golgi phase
 - a. Acrosomic vessel forms and fuses to the nucleus
 - b. Centrioles migrate to opposite end of acrosomic vessel
2. Cap phase
 - a. Acrosomic vessel flattens to form a “cap” over the anterior portion of the nucleus
 - b. Tail begins to form and project towards the lumen of the seminiferous tubule
3. Acrosomal phase
 - a. Sperm head takes shape -> nucleus begins to elongate
 - b. Acrosome continues to spread
 - c. Chromatin condenses
 - d. Mitochondria migrates toward neck
4. Maturation phase
 - a. Cytoplasm shrink wraps around cell

True/False: All portions of the seminiferous tubules are releasing sperm at the same time.

Some

Occurs in waves

Why are blood vessels important in the interstitial space?

Provides nutrients, oxygen, growth factors, and hormones to leydig cells

What junctions are present in the seminiferous tubules? What do they make up?

Tight junctions

- Blood-testis barrier
- Destruction of Tight Junctions causes impairment of meiosis

True/False: Sertoli cells in the seminiferous tubules do not have to be in contact with developing spermatozoa.

What are the 3 compartments of the seminiferous tubules? What happens in each?

- Basal
 - Mitosis
 - Spermatogonia (A, I, B)
 - Primary Spermatocytes
- Adluminal
 - Meiosis
 - Primary spermatocytes
 - Secondary spermatocytes
 - Spermatids
 - Spermiogenesis
- Luminal
 - Spermiation

What type of sperm are most sensitive to heat and cold stress? Why?

- Spermatids because they are going through the most morphological changes