

## Bio& 242, Unit 4 Lab 3 Reproductive Histology

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### Slide #89 = Ovary (small mammal with multiple ovulation)

Observe the following

- Primordial follicles – Contain a **primary oocyte** in the early stages of meiosis I. Follicular cells occur in a single layer. These cells have fine cytoplasmic processes that connect to the oocyte for chemical signaling. These follicles are located close to the ovary surface and are dormant
- Primary follicles - Contain a **primary oocyte**. Follicular cells are cuboidal in shape and multiply into several layers surrounding the oocyte.
- Secondary follicles - Contain a **primary oocyte**. During days 1-5 of an ovarian cycle, follicular cells, called granulosa cells, begin to secrete follicular fluid into pools between cells. These pools soon merge and form a fluid-filled cavity called an antrum. By day 5, one of these secondary follicles emerges as the dominant follicle, produces increasing estrogen levels that cause other follicles to degenerate.
- Graafian follicle - During days 6-14 estrogen levels increase causing the dominant secondary follicle to grow rapidly into a mature (Graafian) follicle. Meiosis I is completed during this time so that the Graafian follicle contains a **secondary oocyte** and its first polar body by the time ovulation occurs.

Note: The ovary has germinal cuboidal epithelium which covers the surface.

Tunica albuginea = white, dense irregular connective tissue just under the germinal epithelium of the ovary. The stroma of the ovary is deep to the tunica albuginea and can be divided into two layers: Ovary cortex = superficial dense layer, Ovary medulla = deep, loose layer.

### Slide #90 = Corpus luteum (remnant of ovulated mature follicle).

- Corpus luteum - After ovulation the follicle collapses into the antrum and a blood clot forms. The remaining cells are called lutein cells and they produce high amounts of progesterone and lower amounts of estrogen along with relaxin and inhibin.

### Slide #91 = Fallopian (uterine) Tube

- Epithelium - mucosa is lined with ciliated simple columnar epithelial cells that move the egg down the fallopian tube.

**Slide #93** = Penis (cross section)

corpus cavernosa – Large mass of erectile tissue containing sinuses in the dorsal (upper) portion of the penis.

corpus spongiosum - Smaller mass of erectile tissue surrounding the spongy urethra. Spongy urethra mucosa is stratified columnar cells.

**Slide #95** = Testis and Epididymus

Seminiferous tubules - You will be able to observe many cross-sectional cuts through this tubules. Outer most (superficial) cells are **spermatogonium**, the stem cells required for sperm production. The next several layers of cells will contain various stages of spermatogenesis. First layers just inside of the spermatogonium will be **primary spermatocytes**, Deep to layers of primary spermatocytes you would find **secondary spermatocytes**, Deep to layers of secondary spermatocytes you would find **spermatids**, at the lumen you should be able to observe spermatozoa with flagella in tubules. Occasionally, Sertoli cells can also be observed. These cells nourish spermatocytes and produce inhibin and ABP

Leydig (interstitial) cells – cell islands located in between tubules. These cells produce testosterone.

Note: Each testis is covered by a dense connective tissue capsule called the tunica albuginea which is internal to an external serous membrane called the tunica vaginalis.

**Slide #96** = Spermatozoa

sperm – (spermatogonium) head and flagellum.

**Slide #97** = Vagina

Mucosa -

Nonkeratinized stratified squamous epithelial cells.

Limina Propria

areolar connective tissue.

Muscularis -

Inner circular and outer longitudinal smooth muscle.

Make sure that you understand the different stages of spermatogenesis and oogenesis on the models and charts, particularly the “black board.”

**Meiosis 1:** prophase, metaphase, anaphase, and telophase.

**Meiosis 2:** Metaphase, anaphase, and telophase