FEMALE REPRODUCTIVE SYSTEM

- Female reproductive system of rabbit consists of a pair each of ovaries, Fallopian tubes, uteri, a vagina and certain accessory glands.

1. Ovaries

- Rabbit has a pair of oval flattened and whitish ovaries. Each ovary is about 1.8 - 2.0 cm. long. The ovary has four regions, *viz.,* the **medulla** (an inner zone containing relatively large blood and lymph vessels), the **cortex** (an area surrounding medulla and contains ova at various stages of development), the **tunica albugenea** (connective tissue layer surrounding the cortex) and **germinal epithelium** (covering epithelium of ovary).
- Ovaries are attached to the inner surface of dorsal abdominal wall (behind the kidneys) by a thin peritoneum, called **mesovarium**. The germinal epithelium is continuous with the mesovarium. From the surface of each ovary, several small, round projections are formed, known as **Graafian follicles**. Each Graafian follicle contains a secondary oocyte.
- In the ovary, during foetus stage itself, many oogonia are formed. They undergo mitosis and form **primary oocytes** which remain at prophase I of meiosis I throughout the childhood. These primary oocytes are enclosed by a layer of cells called **granulosa cells** or **follicle cells** and form primary follicles.
- Eventually, the granulosa cells increase forming two layers. Other cells encircling the oocyte form the **discus proligerous**.
- The layer surrounding the follicle is called membrana granulosa.
- Now they are covered by a connective tissue layer called, **theca**.
- The inner part of theca and granulosa cells secrete oestrogen. Now a fluid - filled cavity called **antrum** appears in the follicle.
- Antrum does not extend on the side of the ovum. Now the follicle is called **secondary follicle**.
- Fully matured oocyte is covered by a transparent membrane called **zona pellucida,** which is covered by another striated layer, known **as corona radiata.** Such a mature follicle is called **Graafian follicle.** It migrates towards the periphery of ovary and projects out as a small round structure.
- Graafian follicle bursts and releases the secondary oocyte into the body cavity. The process of liberation of ovum (at secondary oocyte stage) from the follicle of ovary is known as **ovulation.**
- After ovulation, the follicutar cells in the follicle proliferate and are transformed into an yellowish substance called **corpus luteum.**
- Corpus luteum acts as a temporary endocrine gland. It secretes a hormone **progesterone,** which is responsible for the preparation of uterus and maintains the uterus during pregnancy. (Progestcron prevents ovulation, if the fertilization takes place). If ovum is not fertilized, corpus luteum degenerates and remains as a scar called **corpus aibicans.**

2. Oviducts :

- A pair of oviducts is present, one on each side. Each oviduct is divisible into three parts –

a) Oviducal funnel

- It is the anterior part of the oviduct. It is a wide funnel that lies near the outer border of the ovary. The opening of the funnel is known as **ostium**, and the edges of funnel are fimbriated. Through this ostium, oviduct receives the ova (at secondary oocyte stage) released from the ovary.

b) Fallopian tube

- Oviducal funnel leads into a short, narrow, convoluted tube called **Fallopian tube**, Internally, it is lined by ciliated epithelium. Fertilization of ovum takes place in this part. Fallopian tube is attached to the abdominal wall by a mesentery called **mesosalpinx**.

c) Uterus

- Fallopian tube leads into a wide, long, thick walled muscular tube called **uterus**.
- The wall of uterus is richly supplied with blood capillaries and is highly distensible.
- Fertilized ova *(i.e.,* zygotes) are implanted in uterus and undergo further development. Uterus is attached to the dorsal body wall by a mesentary called **mesometrium**.
- Uterii of both sides open into the vagina through separate openings. Hence uteri of rabbit are described as duplex type (In humans uterus is simplex type).

3. Vagina and vestibule

- Vagina is a wide, median sac. Vagina extends backwards on the dorsal side of urinary bladder.
- Then the vagina unites with the neck of urinary bladder and forms a common passage, called urinogenital canal or **vestibule.**
- Vestibule extends posteriorly, ventral to rectum and opens out through a slit-like aperture known as **vulva.**
- Vagina receives the penis of male during copulation, A small rod-like structure lies on the anterior or ventral wall of vestibule just inside the vulva.

- It is known as **clitoris,** which is homologous to penis of male. Clitoris contains erectile tissue **(corpora cavernosa)** and is highly sensitive.

4. Accessory glands

- Associated with female genital organs, the following glands are present in rabbit.

a) Bartholin's glands :

- A pair of Bartholin glands is embedded in the wall of vestibule.
- They are similar to Cowper's glands of male. Their secretions lubricate the vaginal passage.

b) Perineal glands :

- A pair of perineal glands open into the hairless depressions near the anus. Their secretions produce characteristic smell to the rabbit.

c) Rectal glands :

- On the sides of rectum, are two rectal glands of unknown function.

Mammary glands :

- These are milk producing glands present on the ventral side of trunk. The ducts of the milk glands open on the surface of teats or nipples present on the ventral side of abdomen. There are four or five pairs of teats in rabbit. The milk glands become functional after parturition of young ones. In males, these are non functional and vestigial.

Copulation :

- Wild rabbits copulate from January to June. But domesticated forms can mate at any time. Female allows the male to copulate with it only when she is on heat *(i.e.,* in oestrous). At the time of copulation, male introduces its penis into the vagina of female and ejaculates the semen into it.
- **Capacitation**

Cholesterol, glycoproteins and some proteins are removed from the plasma membrane of the sperm in the female reproductive tract hence the tail of the sperm rapidly moves and helps in fusion of plasmmembrane of Ovum. These changes are collectively called **capacitation.**