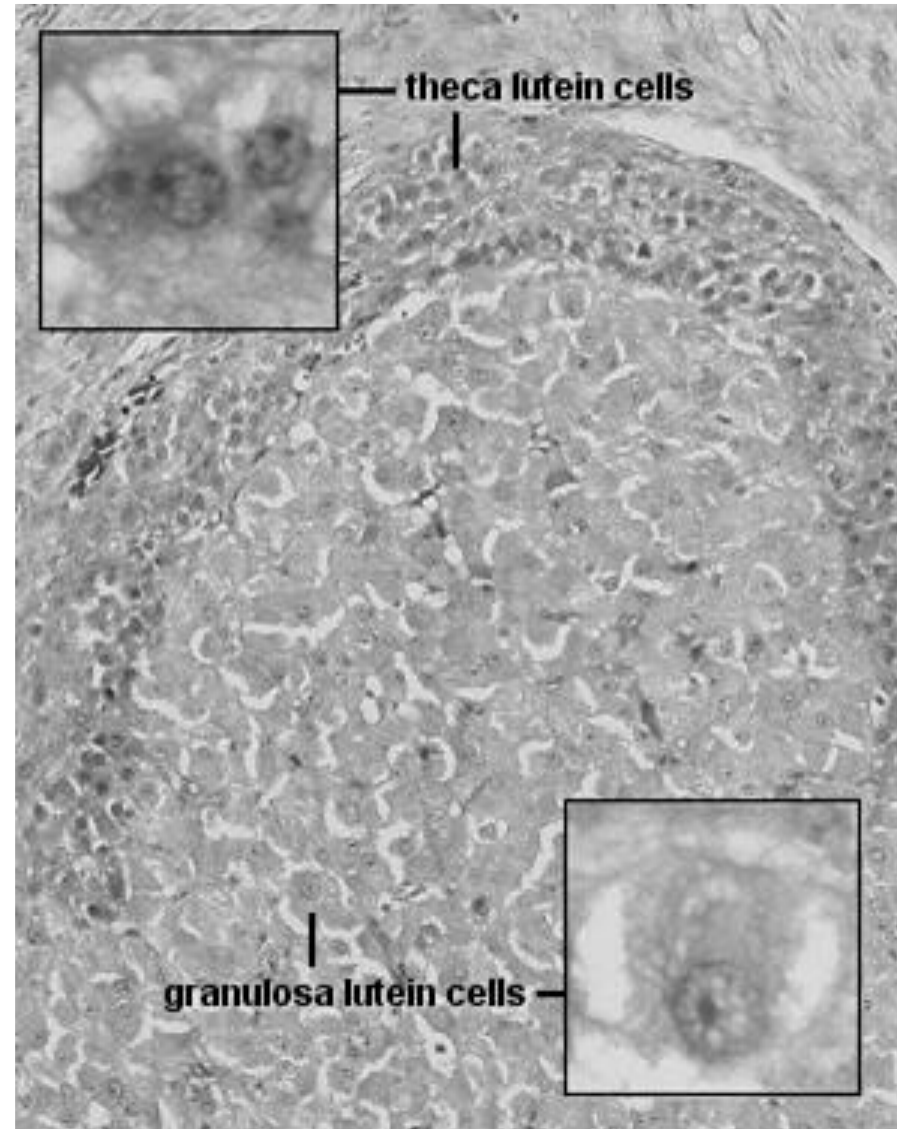
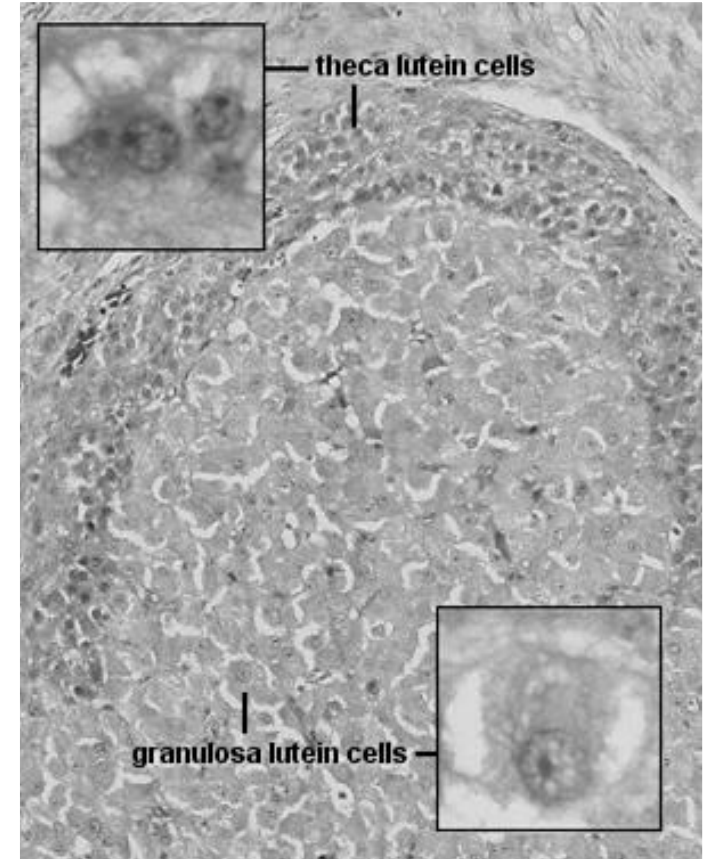
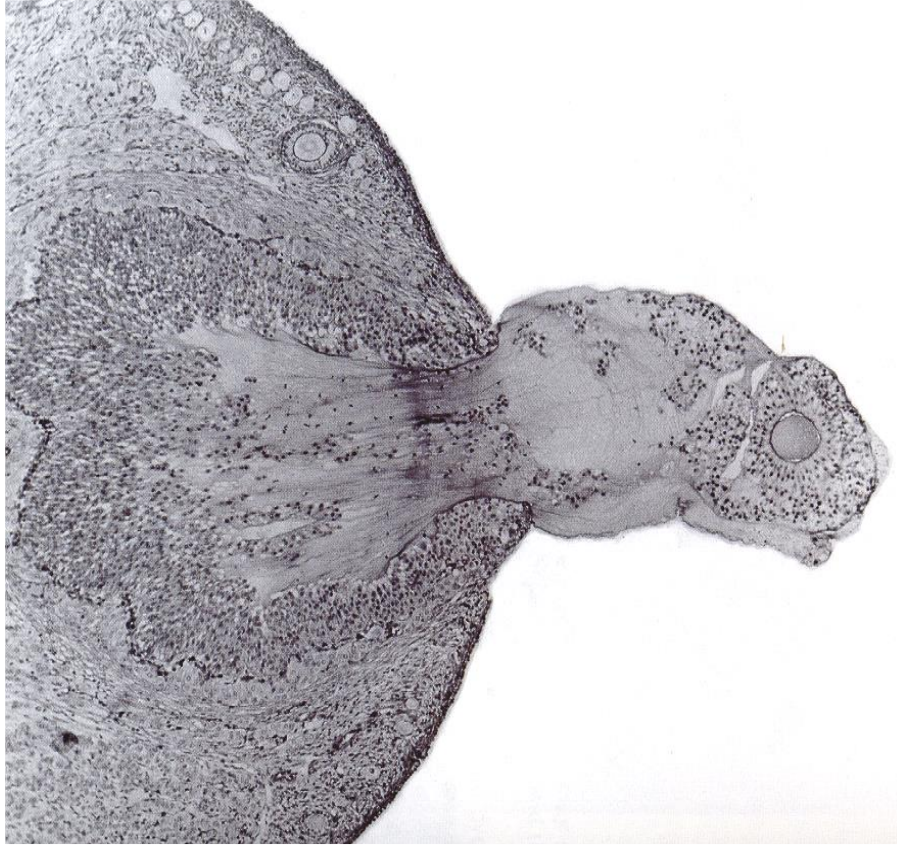


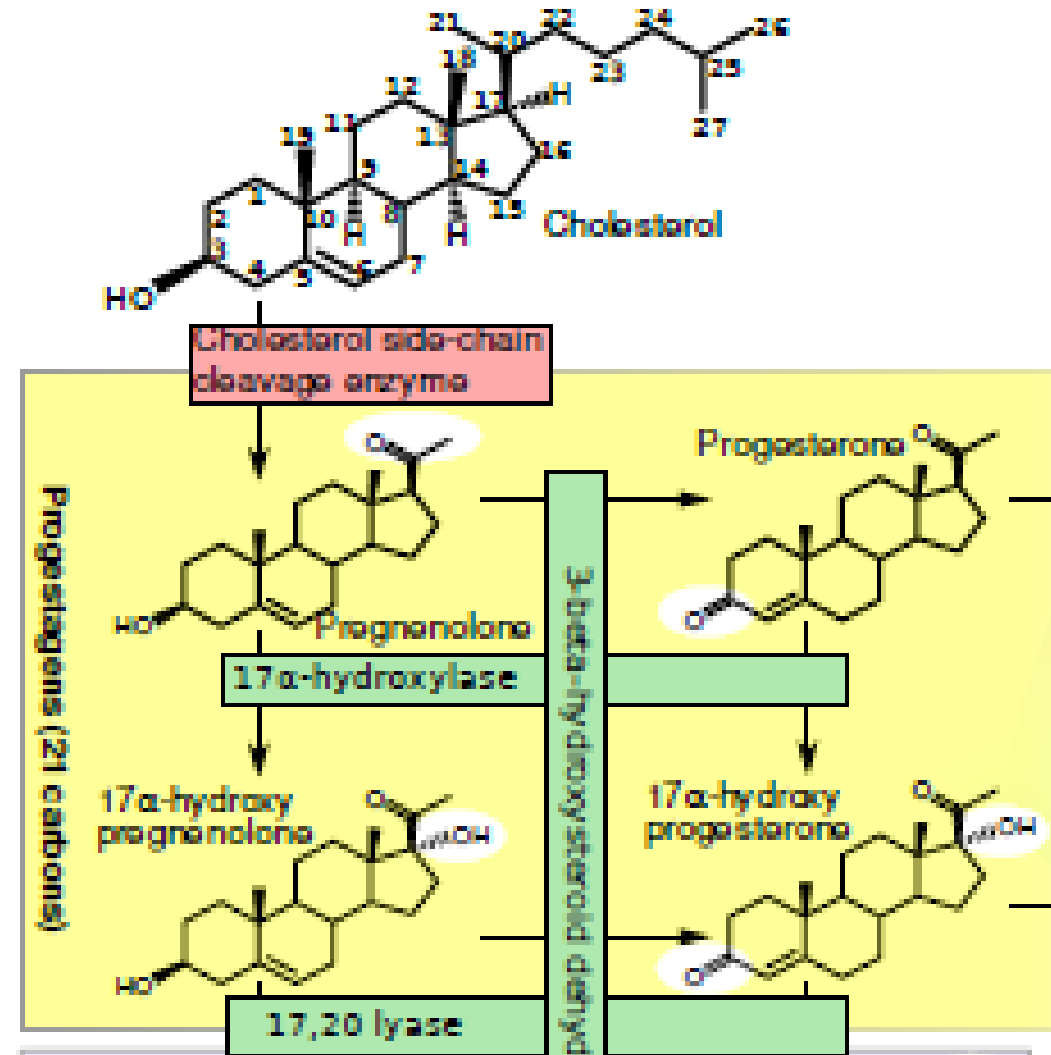
CORPUS LUTEUM

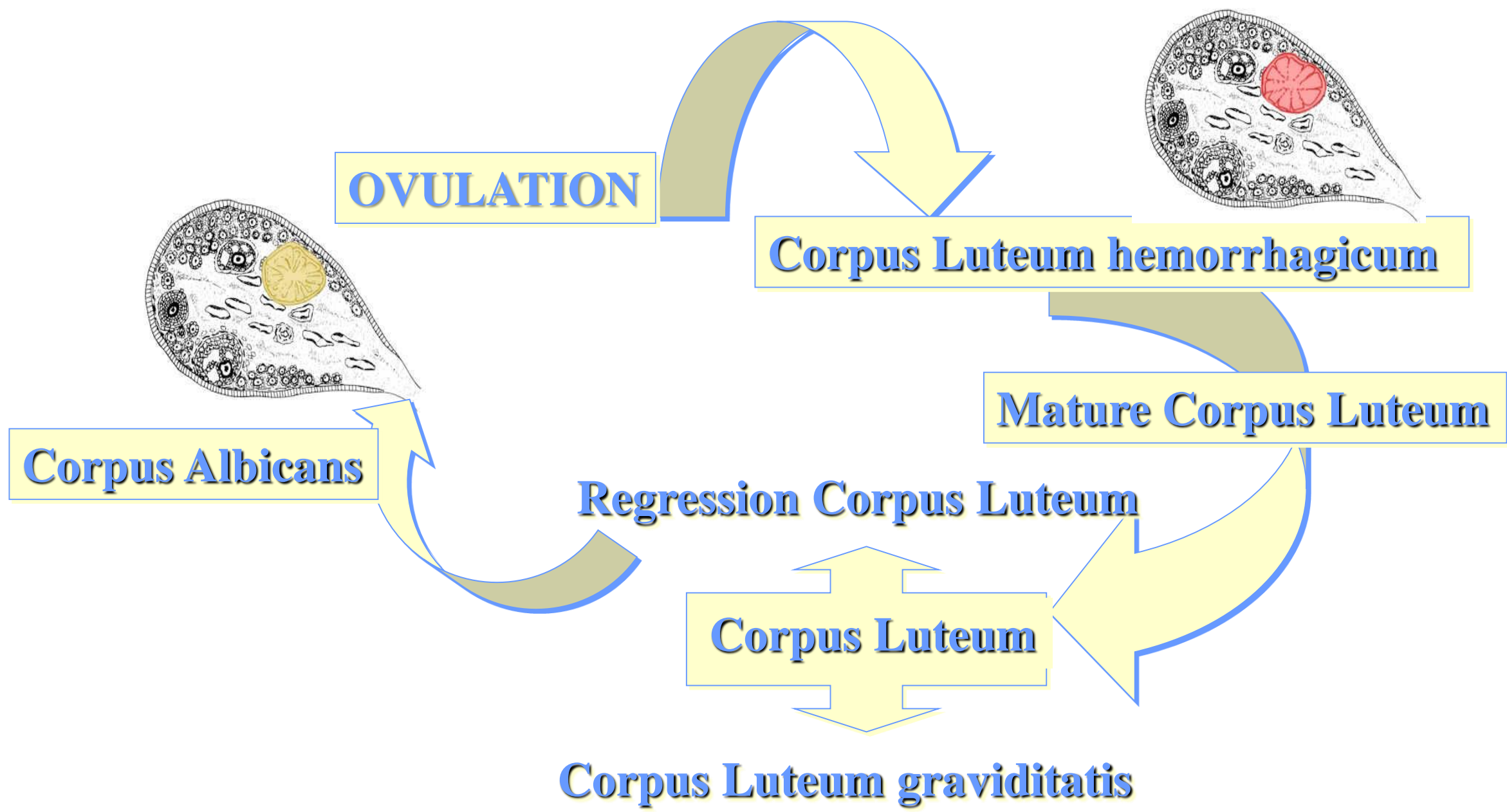


CORPUS LUTEUM

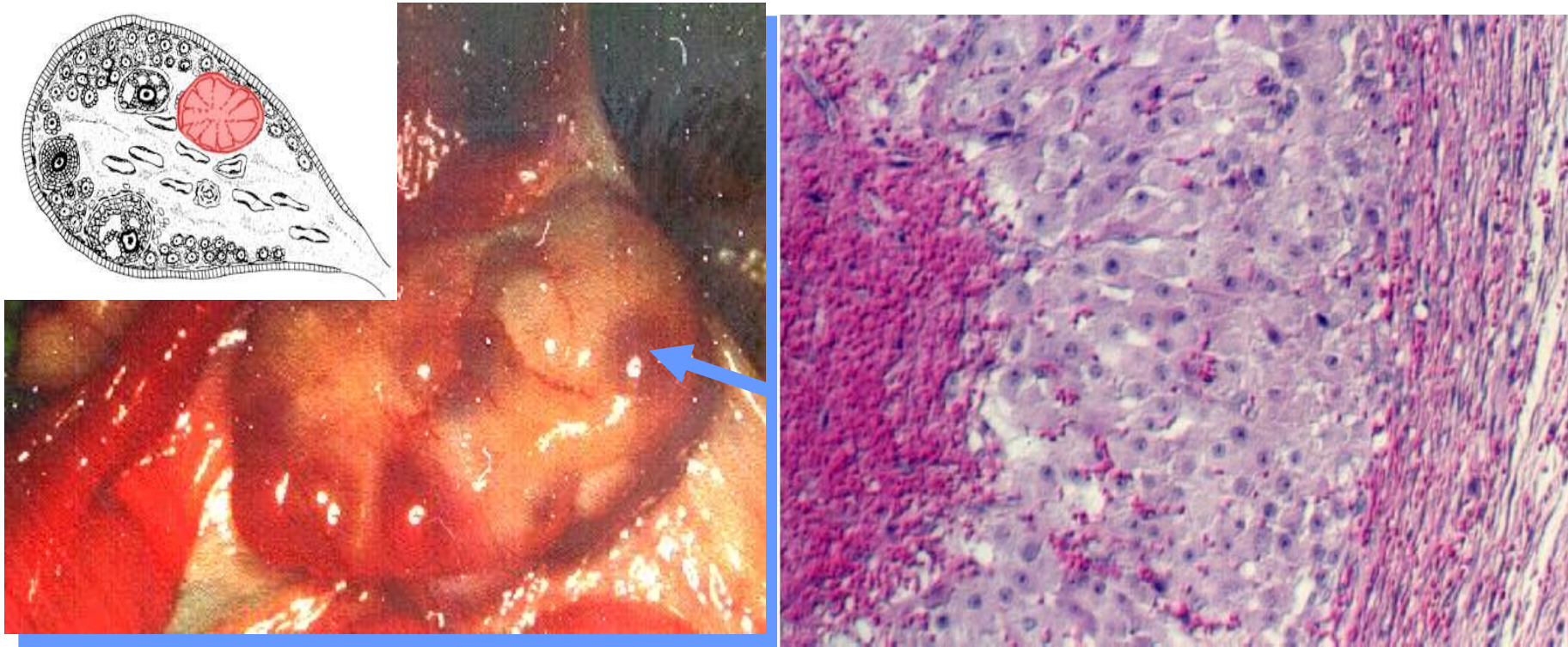


PROGESTERONE



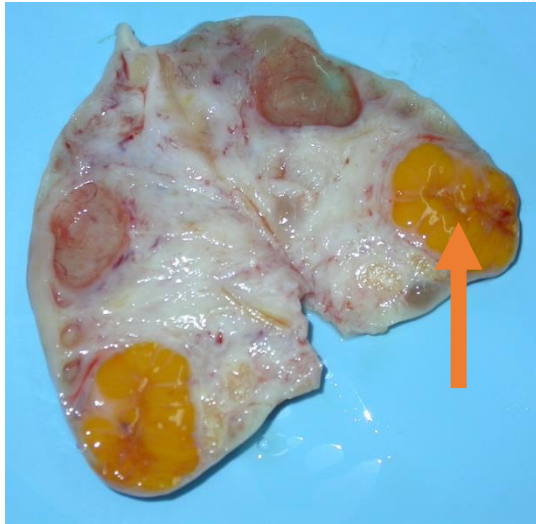
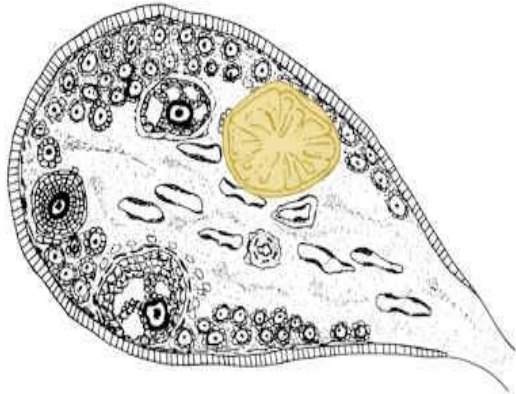


CORPUS LUTEUM: C.L. hemorrhagicum



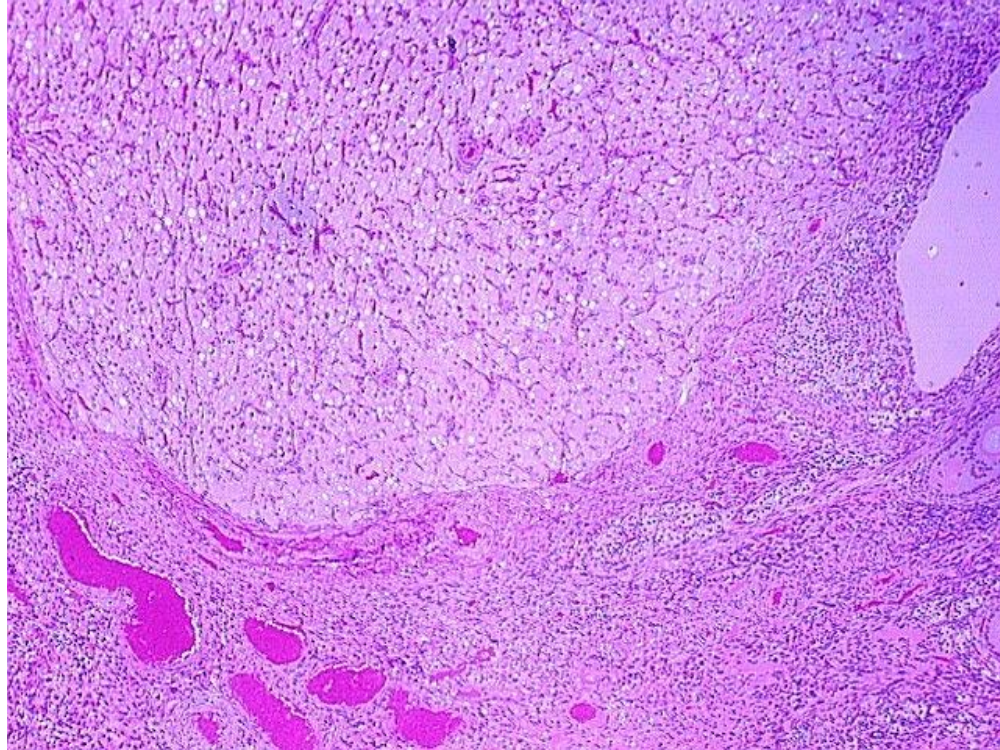
It is a temporary structure formed immediately after ovulation from the ovarian follicle as it collapses and is filled with blood that quickly clots.

MATURE CORPUS LUTEUM: Structure



Corpus luteum secretes progesterone (P4), and in less extent estrogens (E2).
It is highly vascularized.

MATURE CORPUS LUTEUM: Structure



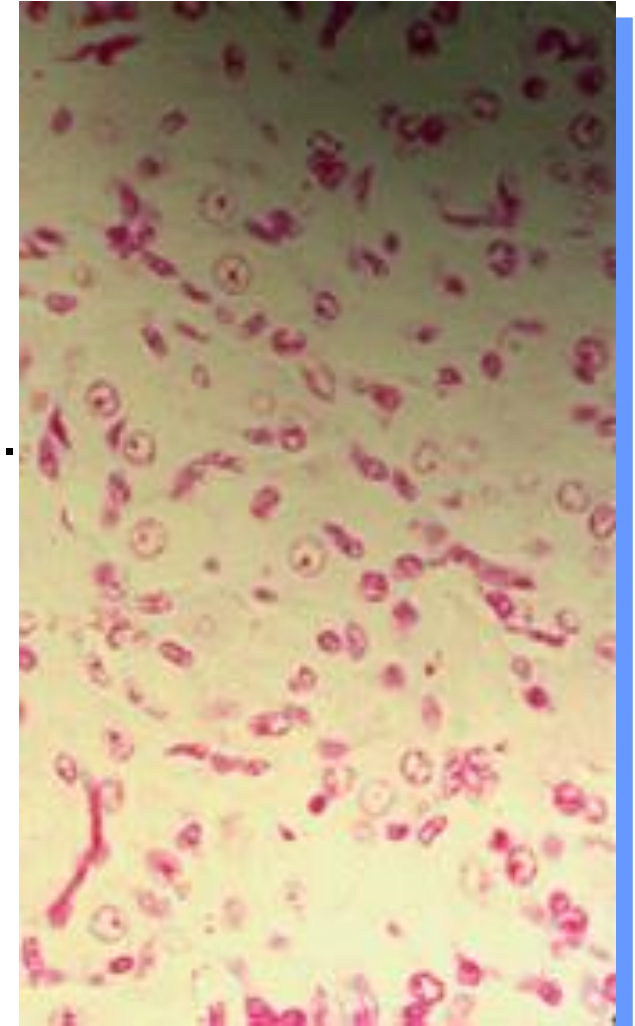
It consists at first of a radial arrangement of lutein cells with blood vessels and lymphatic spaces, and later it merges with the surrounding stroma.

MATURE CORPUS LUTEUM: luteal cells

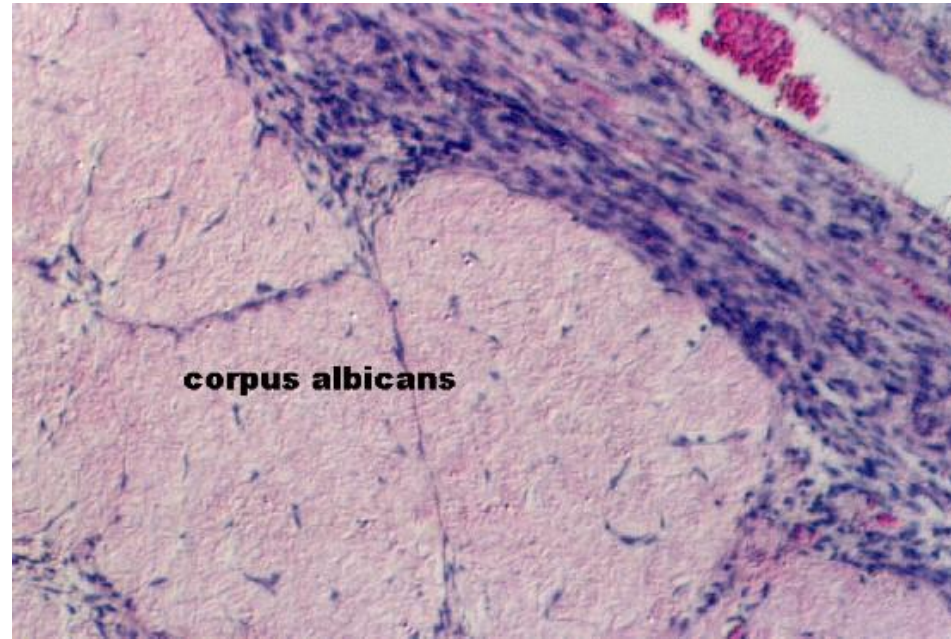
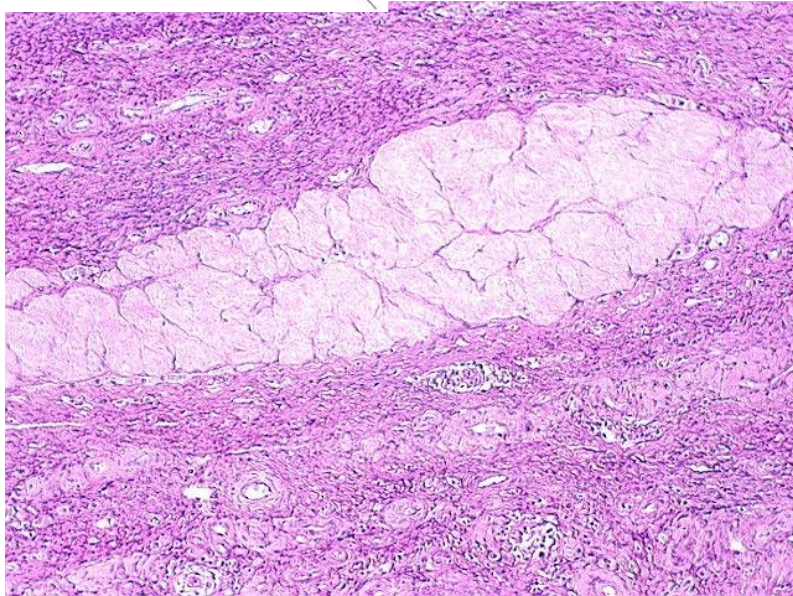
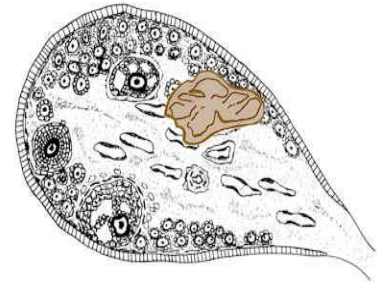
CL is made up two cell groups:

The **large luteal cells**, which originated from **granulosa cells**.

The **small luteal cells** which originated from **theca cells**.



CORPUS ALBICANS



A fibrous scar tissue forms: **corpus albicans**

Regression Corpus Luteum: luteolysis humans

Remember:

Negative feedback from rising plasma progesterone and estrogen levels inhibits LH and FSH release

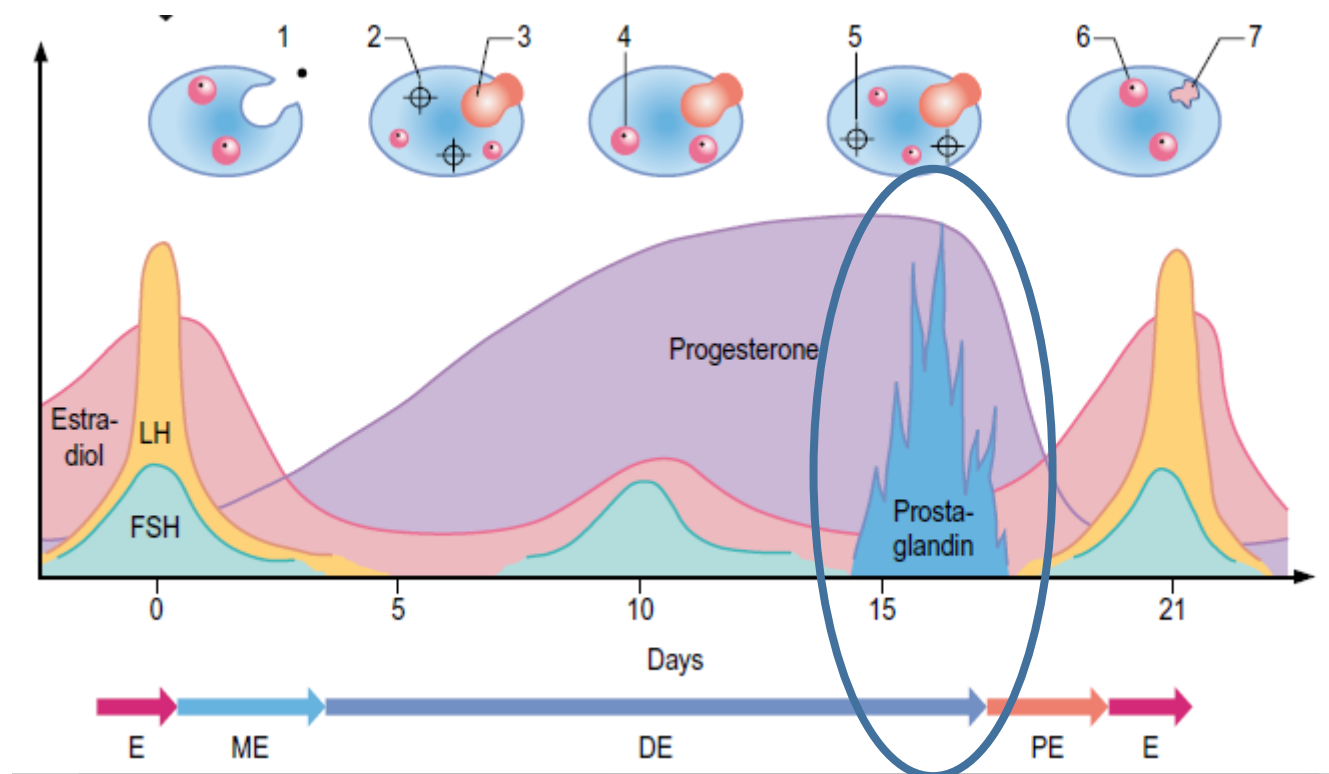
If no fertilization occurs

- Corpus luteum degenerates when LH levels fall → sharp decrease in estrogen and progesterone → ends blockage of FSH and LH secretion → ovary starts a new cycle

Regression Corpus Luteum: luteolysis

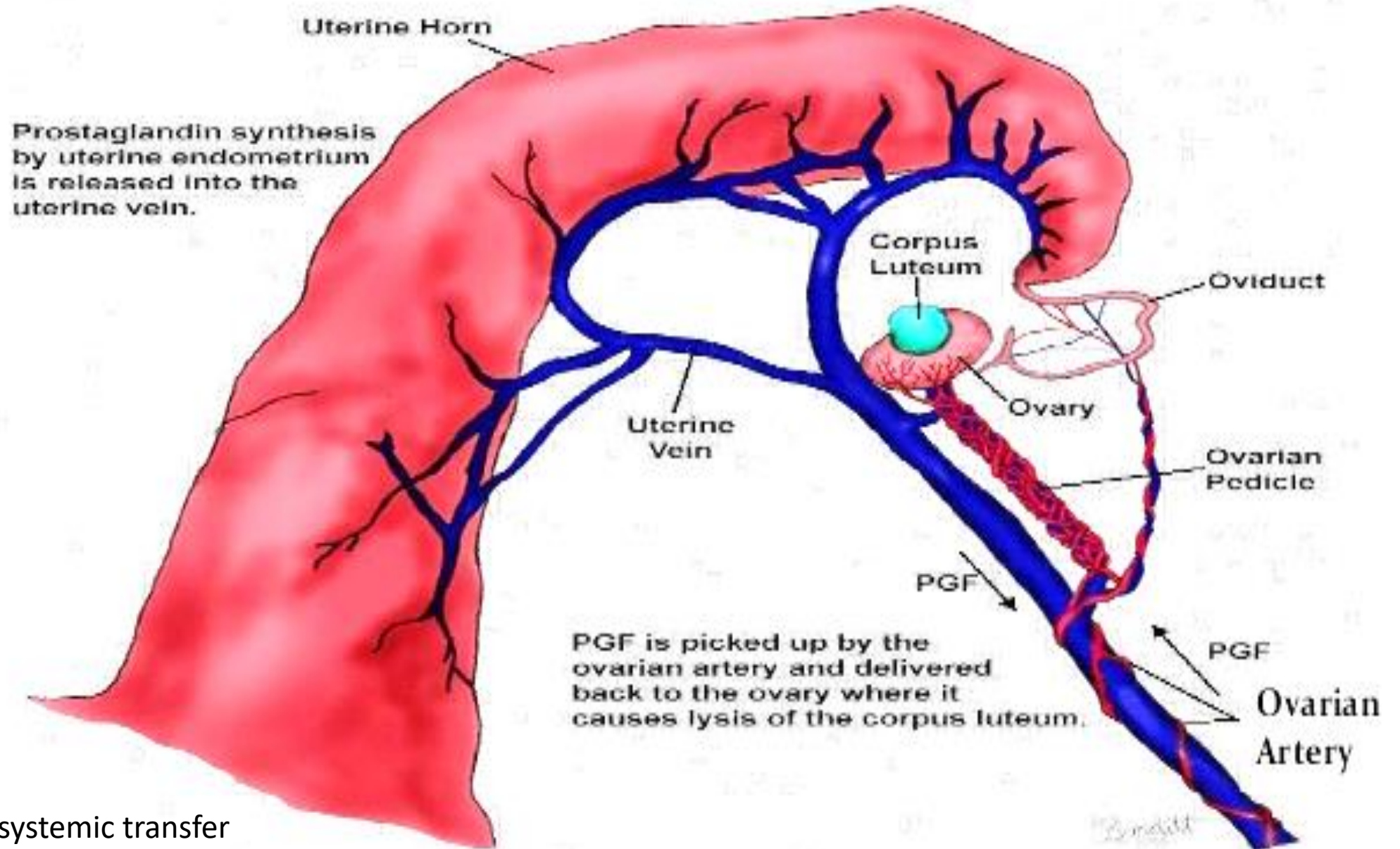
Large domestic animals

Regression of the corpus luteum in nonpregnant large domestic animals is controlled by uterine secretion of **prostaglandin-F2 α** (PGF-2 α)

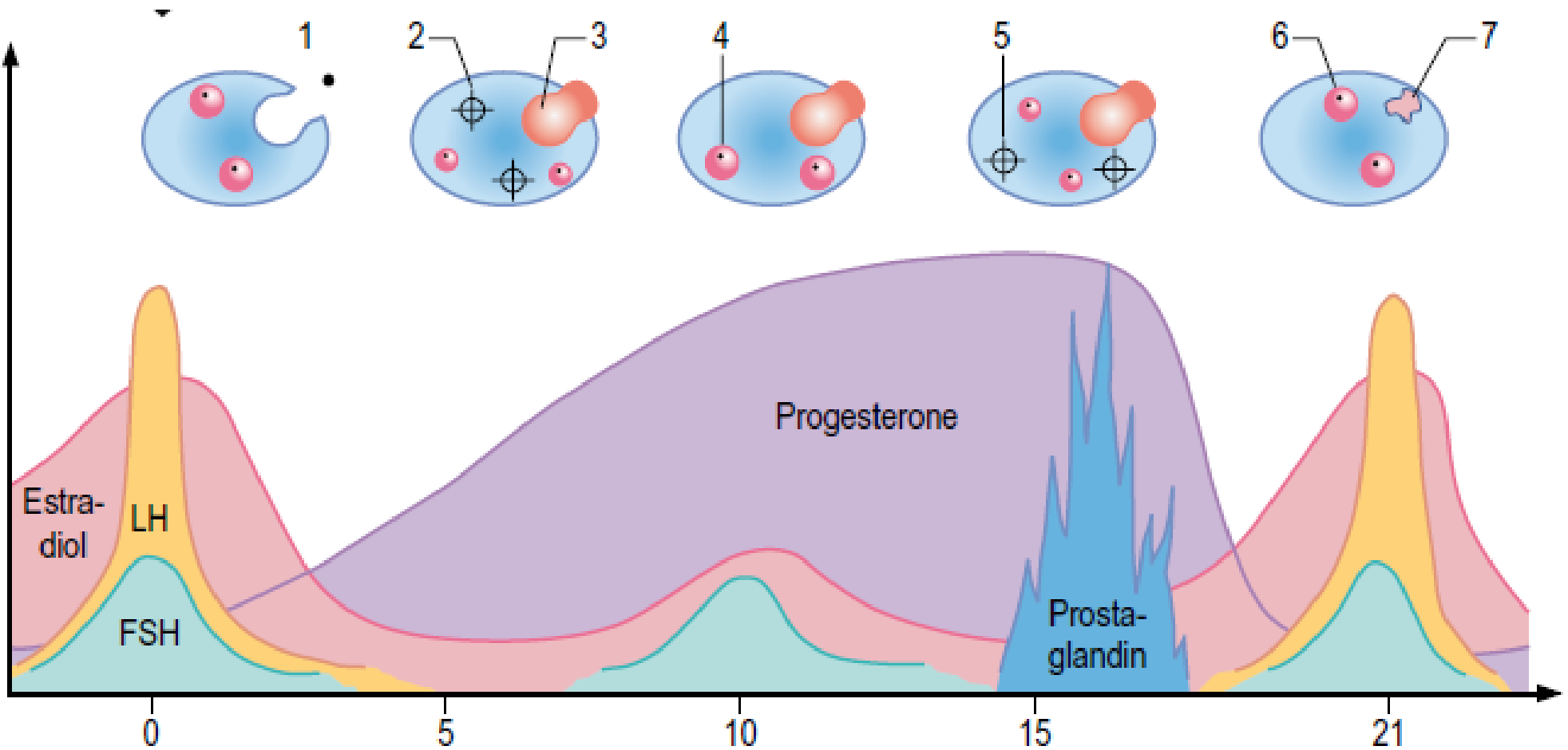


cow, sheep, horses, pigs

Counter-current transfer



cow, sheep, sow
In mare general systemic transfer



Corpus Luteum graviditatis

In the pregnant uterus of domestic animals, endometrial prostaglandin-F₂α release into the blood stream is blocked, leading to persistence of the corpus luteum. The **corpus luteum graviditatis** forms.

In humans, the human chorionic gonadotropin (hCG) is responsible for the formation of the **corpus luteum graviditatis**.

HORMONAL MAINTENANCE OF PREGNANCY Humans

- hCG maintains the corpus luteum which produces estrogen and progesterone
- hCG informs the hypothalamus and pituitary that implantation has occurred
- the placenta produces its own estrogen & progesterone to support uterine proliferation

Human pregnancy or gestation is 9 months
(38 weeks, 270 days)

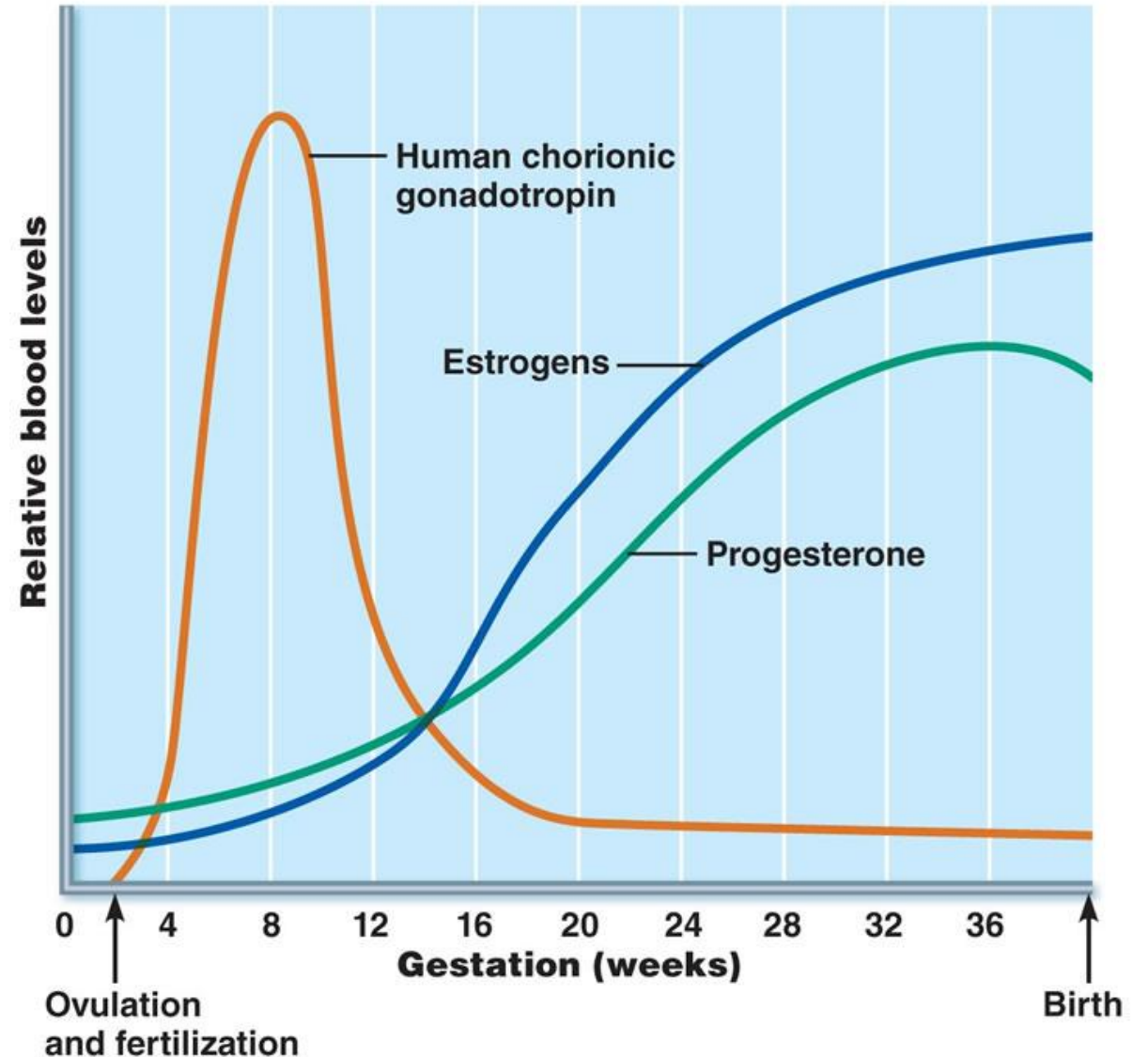


Table 3-5: Gestational length, time of maternal recognition of pregnancy, and average number of offspring in domestic animal species

Species	Gestational length	Time of maternal recognition of pregnancy	Average number of offspring
Cattle	9 months (279–290 days)	Days 16–17	1
Horse	11 months (310–365 days)	Days 6–17	1
Swine	115 days	Day 12	8–16
Sheep	5 months (144–152 days)	Days 12–13	1–3
Goat	5 months (144–151 days)	Day 17	1–3
Dog	63 (58–68 days)	¹	3–12
Cat	62 (58–65 days)	¹	3–6

¹*Mechanisms underlying maternal recognition of pregnancy in the dog and cat are poorly understood, but probably do not depend on signals from the conceptus.*

HORMONAL MAINTENANCE OF PREGNANCY

Domestic animals

In **cattle** the main source of progesterone is the **corpus luteum** during the first half of gestation (gestation: 9 months), but then placenta from around Day 120–150 up to Day 250.

In the **horse**, several **accessory corpora lutea** form during the second month of pregnancy and, together with the original or '**primary**' **corpus luteum**, produce progesterone until the end of the third month. Thereafter, the placenta takes over until term (gestation: 11 months).

In the **ewe**, **corpus luteum** is the major source during the first one-third of pregnancy, but are replaced by the placenta thereafter (gestation: 5 months).

In **pigs, goats, dogs and cats**, **corpora lutea** are the major source of progesterone throughout gestation.

Hormone	Origin	Main function
Melatonin	Pineal gland	Responsible for seasonality in the horse, sheep, goat and cat.
GnRH	Hypothalamus	Stimulates FSH and LH release from the anterior pituitary gland.
FSH	Anterior pituitary gland	Stimulates development of the follicles within the ovary.
LH	Anterior pituitary gland	Stimulates development and maturation of the follicles and oocytes, induces ovulation, and sustains formation and maintenance of corpus luteum within the ovary. Induces oestrous symptoms.
Oestrogen	Ovarian follicle	Stimulates the GnRH secretion of the hypothalamus and the number of GnRH receptors in the anterior pituitary gland.
Progesterone	Corpus luteum	Prepares the endometrium for pregnancy, maintains pregnancy, and decreases GnRH release from the hypothalamus.
Prostaglandin F _{2α}	Uterus	Induces regression of corpus luteum.