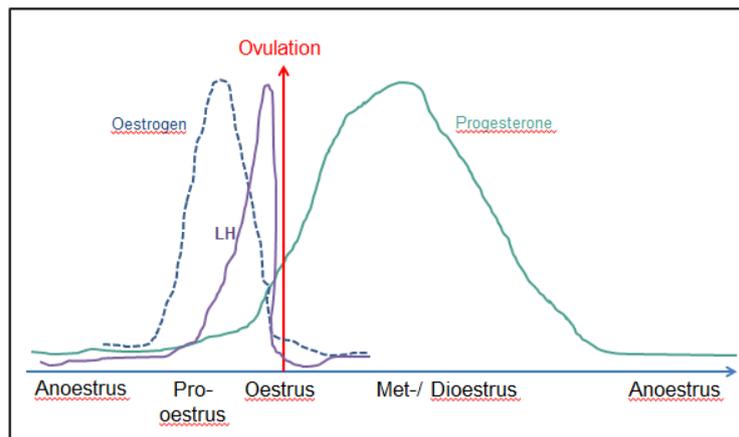


# Progesterone

EuroLyser, Fuji Immuno AU10V

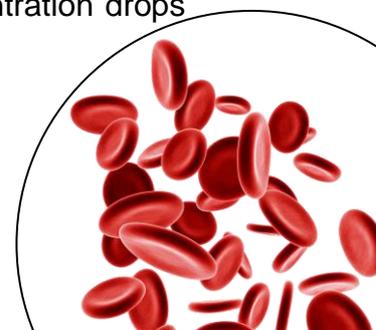
Progesterone is a steroid hormone and part of the group of sex hormones. The reproduction cycle is the results of a rise and drop of different sex hormones.



During the period of **anoestrus** the ovary is resting. When ovarian follicles start to grow the **proestrus** phase is initiated. This phase is exemplified by a rise in estrogen concentration. Clinically, edema of the vulva and a sanguineous discharge may be noted.

**Oestrus** is initiated by the rise of progesterone concentration due to the developing preovulatory luteinization of follicles. Characteristic of oestrus is a drop in estrogen and a subsequent rise in progesterone concentration. Drop in the oestrogen: progesterone ratio initiates sharp increase in concentration of the luteinization hormone (LH) followed by a quick decrease of the concentration. Approximately two days after the LH peak, ovulation occurs. Vaginal discharge will at this point be clearer and vulva will become less oedematous. The bitch will now also allow mating of the male dog. **Progesterone rose until this point up to 4-10 ng/ml approximately, and mating should be initiated the same or the next day.**

After ovulation the corpus luteum is formed. It further produces progesterone which leads to a continuous rise in progesterone concentration. This phase is called **metoestrus or dioestrus**. After approx. 4 month, progesterone concentration drops again and anoestrus is, reached.



Progesteron	Interpretation
1.2 ng/ml ( $<4$ nmol/l)	no luteinization bitch in pre-oestrus or early oestrus re-sample in 3-4d
1.2 – 3 ng/ml (4 – 10 nmol/l)	functional luteinization Bitch close to ovulation or has just ovulated re-sample in 2-3d
3 - 6.2 ng/ml (10 - 20 nmol/l)	Ovulation occurred almost certainly re-sample within 1 d
$> 12$ ng/ml ( $> 20$ nmol/l)	Ovulation has occurred re-sampling not required
$> 25$ ng/ml ( $> 80$ nmol/l)	end of fertile period for most bitches most bitches will not stand to be mated

Follow-up examinations of the progesterone concentration are crucial to identify the ovulation time point and to start mating. As always, evaluation of the laboratory result should be accompanied by results of vaginoscopy and vaginal cytology to assess the complete picture of the bitch.

### ➔ Ovulation at approx 4-10 ng/ml progesterone

Progesterone concentration is similar independently of if the bitch is pregnant or not. It thereby does not serve as a pregnancy indicator (this would be relaxin from day 24 of the pregnancy onwards). During the end of a pregnancy (i.e. day 60), the progesterone concentration, drops significantly from i.e. 4.5 ng/ml progesterone 5 days prepartum until 1 ng/ml progesterone 24-16h prepartum.

- ✓ **Do follow-up progesterone measurements**
- ✓ **Start when clinical signs occur (vulval swelling, sanguineous discharge)**
- ✓ **Recheck progesterone every 2-3 days**
- ✓ **Correlate progesterone with results of vaginoscopy and vaginal cytology**

#### References:

BSAVA Manual of Canine and Feline Clinical Pathology, 3<sup>rd</sup> edition, E- Villiers & J. Ristic

