

Vetpath is a specialist veterinary laboratory dedicated to providing our clients with the finest laboratory diagnostic service. A team of veterinary pathologists and medical scientists with extensive experience in veterinary diagnostic pathology forms the core of the Vetpath team.

VN News

APRIL 2019

Progesterone

Progesterone is commonly measured in many veterinary species during the oestrus cycle and pregnancy.

Dogs

Serial measurement of blood progesterone is useful to determine the onset of oestrus and predict the optimal time for mating. The correct time to perform the first progesterone test is variable and depends on the length of the oestrus cycle in the individual bitch. If in doubt, start testing immediately and consider rechecking every 48 hours. Progesterone concentrations of 15 - 25nmol/L are associated with ovulation.

Whelping occurs approximately 63 days after ovulation. Progesterone concentration starts to decline in late pregnancy, and can be used to assist in determining the time of

parturition or timing of an elective caesarean, if the day of ovulation is not known. Progesterone typically remains elevated above 9.5 - 16 nmol/L until 1 - 3 days pre-partum when it declines to <3-6 nmol/L. Whelping is expected when progesterone declines to 6.5 nmol/L or undergoes an abrupt decline to 6.5 - 9.5 nmol/L over a 24 - 36 hour period.

Progesterone can also be used to evaluate for the presence of luteal tissue if measured when there is evidence of oestrus activity. It can improve the chance of detecting the presence of an ovarian remnant if measured together with anti-Mullerian hormone (AMH).

Horses

Progesterone can be used for early pregnancy detection. Measurement can be done 13 - 22 days after mating, with concentrations of 20 - 24nmol/L consistent with early pregnancy. Synthetic progestagens should not interfere with the assay for progesterone.

Other species

Progesterone can be measured in other species to screen for pregnancy (eg goats and camelids).

The progesterone assay used at Vetpath is a sequential competitive immunoassay on an Immulite 2000. There are variations in results based on methodology, and the published progesterone concentrations provided above are a guide only and must be interpreted in conjunction with clinical history and presentation.

References:

1. Patrick W. Concannon: Understanding and Monitoring Canine Pregnancy - WSAVA2005 - VIN
2. Progesterone as a Diagnostic Tool During Equine Pregnancy, Equine Disease Quarterly | Jul 8, 2016



In what order should I fill my blood collection tubes?

The order of filling blood tubes is important to minimise contamination of the blood placed in each tube.

Blood from veterinary patients is often placed in the EDTA tube first to minimise clotting and optimise the sample for a CBC. However, no matter how careful you are, EDTA can end up being transferred to the serum tube.

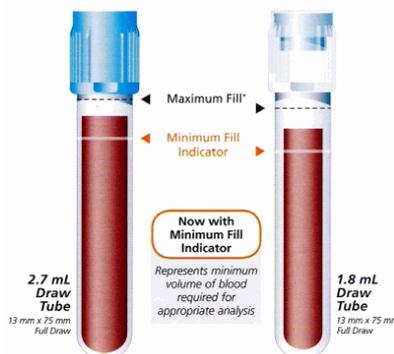
Guidelines for blood collection recommended by the Clinical Laboratory Standards Institute (CLSI) recommend the following order:

1. Blood culture tubes (yellow)
2. Coagulation (citrate) tubes (light blue)
3. Serum tubes (red)
4. Additive tubes:
 - a. Heparin (light or dark green),
 - b. EDTA (purple/lavender or pink) and
 - c. Sodium fluoride/potassium oxalate (grey)

The order of draw is the same whether the specimens are

collected by vacutainer tube method or by syringe and is also the same for plastic or glass tubes. In a paper looking at low Na:K ratios¹, samples were collected from 238 dogs with Na:K ratios of <27. Of these, 74 (31%) were excluded due to suspected sample contamination with EDTA. Hypoadrenocorticism was diagnosed in 27 of the dogs (16.7%) with low Na:K ratios. Even a small amount of EDTA contamination can skew results.

Don't forget that citrate tubes must be filled to indicator line to ensure the correct citrate: blood ratio is obtained.



References:

1. Nielsen, L. et al. (2008) *Veterinary Record* **162**, 431-435.
2. CLSI, Collection of Diagnostic Venous Blood Specimens, 7 th ed. Standard GP41, April 2017
3. <https://www.ephlebotomytraining.com/phlebotomy-order-draw-explained/> :accessed Feb 2019

Questions? Check out our website!

www.vetpath.com.au

The Vetpath website contains a large amount information to help you with sample collection and submission. Some of the features include:

- Information on individual tests including sample requirements and estimated turnaround time.
- Downloadable Supply Order Form.
- Information on export testing.
- Serology testing timetable.
- Downloadable VNews including a summary of each edition to help locate a particular article.
- Information sheets on a variety of topics including endocrine test protocols, monitoring of therapeutic drug levels, recently developed tests, and intrinsic bacterial resistance patterns.



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Memory Jogger For the order of draw:

