

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

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How does storage affect urine?

Vetpath Laboratory evaluates many urine samples each day. While sending urine samples to the lab helps to more accurately assess these specimens, there is an inevitable delay in processing during sample transport.

But how much does this really affect the urine sample? Unfortunately, the answer can be variable; particularly given urine samples will be stored for different lengths of time. Urine is relatively unstable and is especially affected by temperature and changes in pH. Microorganisms can have a significant effect through their ability to change urine pH (eg with urease producing bacteria), catabolise glucose, or production

of peroxidases which can cause false positive dipstick blood results.

Both the dipstick reactions and urinary sediment can be altered with storage. Some of the potential changes include:
Dipstick: ↑ pH, ↓ glucose, ↓ bilirubin, ↓ ketones.
Sediment: Disintegration of cells and casts, formation or dissolution of crystals depending on solubility of the crystal in alkaline urine, increased *in vitro* bacterial growth.



Figure 1: Struvite crystals in dog urine.

Immediate analysis of the urine sediment is recommended for the most accurate results. You may choose to take an aliquot to analyze in house, and then submit the remaining sample to the laboratory. If the sample will not be collected within an hour,

the sample should be **refrigerated** in an airtight container. This will help to preserve the sediment, and inhibit *in vitro* bacterial growth. Once at the laboratory the sample will be stored at room temperature to enhance temperate-sensitive enzyme reactions and to help re-dissolve any precipitated crystals.



Figure 2: WBC and bacteria in dog urine.

Analysis of stored urine will still provide important information about the urinary tract of the patient. However, the potential changes must be considered during interpretation of the results.

Reference: Osborne CA and Stevens JB. Urinalysis: A Clinical Guide to Compassionate Patient Care. Bayer. 1999.

DGGR lipase is now routinely used

The tests offered at Vetpath are continually being monitored and upgraded as new information is published in the literature.

One of our most recent upgrades is the inclusion of the DGGR lipase test as part of the canine biochemistry profile. DGGR lipase activity has been found to be a more sensitive and specific indicator of pancreatitis compared to the historically used lipase assay.

Vetpath has been trialling the DGGR lipase assay in conjunction with the usual lipase assay to get a feel for how the test performs. After several months of comparison, the DGGR lipase is now being routinely included in the canine biochemistry panel. The reference range has been changed accordingly. If you have any questions about the new lipase test, please contact the laboratory to speak with a pathologist.

Reference: JVIM 2014;28:863-870.



How to optimise sample submission for histopathology

Histopathology is an extremely valuable tool in veterinary practice but the benefits may be overlooked at times due to associated costs of surgery and sample collection. Under these circumstances it is critical to ensure the samples submitted are of the best quality possible.

Outlined below are a few basic steps for the submission of formalin fixed tissue samples to Vetpath for histopathological examination. Following this advice should help improve the quality of material submitted for diagnosis, hasten turnaround times by preventing delays relating to inadequately fixed tissues, and allow optimal interpretation of the condition under investigation.

1. Ensure the **sample is appropriate** to allow diagnosis of the suspected condition.
2. **Larger or multiple biopsies** (especially skin biopsies) will increase the chance of an accurate diagnosis.
3. **Biopsy skin lesions early** and avoid old chronic lesions distorted by trauma and ulceration or after extensive therapy.

4. **Minimise trauma** and handling of the tissues, especially prior to fixation.
5. Allow a **1:10 ratio of tissue to formalin** to allow adequate and rapid fixation.
6. **Incise large tissues** into 1 cm thick slices to allow formalin penetration enhancing fixation.
7. Consider **sending digital images** of the lesion and the biopsied sample with appropriate orientation.
8. Always provide a **pertinent history**.

If you have any questions regarding the collection or handling of samples for histopathology, don't hesitate to give us a call.



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