PRAIRIE DIAGNOSTIC
PERSPECTIVE

PRAIRIE DIAGNOSTIC SERVICES INC

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Our New Website Is Live!

We're pleased to announce the launch of our newly redesigned website. The updated site offers improved navigation, clearer information, and overall better experience for our clients.
Visit us at pdsinc.ca.
Please let us know if you have any feedback—we'd love to hear from you. Email pdsclientservices@usask.ca

Campylobacter fetus spp venerealis: Case investigation and test updates

Dr. Ruwani Karunarathna (Diagnostic Microbiologist, PDS),
Dhinesh Periyasamy (Molecular Biologist, PDS)

Campylobacter fetus spp. venerealis (CFV) is an important bacterial species associated with infertility, early embryonic death, and abortion in cattle with considerable economic losses. It can be isolated from the genital tract of cattle (e.g. preputial smegma, vaginal mucus) or internal organs of aborted fetuses. Bulls are important reservoirs and should therefore be targeted for diagnostic testing and disease control.

During a recent review of CFV-positive cases, we identified instances in which the PCR assay produced cross-reactivity with *Campylobacter portucalensis*, leading to false-positive results. *C. portucalensis* is a newly recognized species, first described in 2020 isolated from bull preputial mucosa. At present, it is considered a commensal organism of the preputial environment, and its pathogenic significance remains unknown. Confirmatory testing for these cases was performed through Sanger sequencing of the amplified PCR products. We recognize that these findings may have had economic implications for affected producers.

Improvements Implemented
To enhance test specificity and ensure accurate reporting, we have updated our diagnostic protocols. Any sample that tests positive for CFV will now undergo additional PCR testing to confirm the presence of CFV prior to final reporting.

For further information or questions, please contact: dso@usask.ca

Important Shipping Guidelines for Shipping Samples in Winter Months

It's crucial to adjust how samples are shipped to PDS to minimize the risk of freezing during winter months.

Tips to help decrease the risk of freezing:

- Formalin Fixed Tissue: Fix in 10% formalin for 24 hours, then transfer to 70% alcohol (e.g., isopropyl) if shipping in very cold weather.
- Use a Room-Temperature Ice Pack: Helps prevent freezing in transit.
- Label Packages: Mark "Protect from freezing" on the outside.
- Avoid Friday Shipping: Don't ship temperature-sensitive samples on Fridays or before long weekends.

Samples to Protect from Freezing:

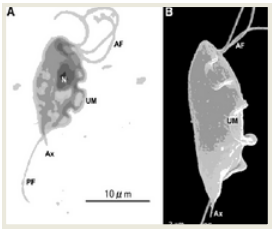
- Trichomonas Pouches: Use a warm pack in the container.
- Whole Blood: Includes EDTA, heparin, sodium citrate, and red top tubes.
- Formalin-Fixed Tissues: Ship in 70% alcohol in winter.
- Feces for Parasitology: Avoid freeze-thaw cycles.
- Gel Swabs: Prevent thawing to maintain gel consistency.

For test-specific guidelines, see the PDS Test and Services Guide. Contact PDS at dso@usask.ca or 306-966-7316 with questions.

Chronic diarrhea in Cats: Have you considered Tritrichomonas?

Dr. Ruwani Karunarathna (Diagnostic Microbiologist, PDS), Dr. Maria Jarque (Parasitology Specialist, WCVM)

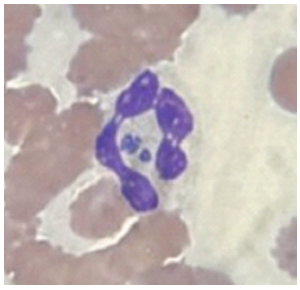
Protozoan parasites can significantly impact feline gastrointestinal health. Among those, *Tritrichomonas foetus* (also known as *Tritrichomonas blagburni*) plays a major role in chronic large bowel diarrhea in cats. This organism is not a part of the normal feline gastrointestinal microbiome. The predilection sites for *T. foetus* trophozoites in cats are the epithelial surface and crypts of cecum and colon, leading to cellular damage and cell death. Infections may occur alone or as co-infections, most commonly with *Giardia* species, *Cryptosporidium* and coccidian such as *Cystoisospora*. Suspicion of *T. foetus* should be considered in young cats experiencing chronic, intermittent waxing and waning large-bowel diarrhea. Clinical signs often include mucus, fresh blood and straining. The risk is especially elevated in densely housed populations such as shelters, caterers, purebred or show cats. Although symptoms can last up to two years *T. foetus* is not known to be zoonotic. At Prairie Diagnosis Services, we offer Real-Time PCR assay to detect this parasite directly from freshly collected fecal samples, no enrichment with "InPouch™ TF medium is required. You may consider requesting *T. fetus* PCR alongside bacterial culture, fecal egg counts or fluorescent antibody (FA) testing. Samples can be refrigerated or shipped on ice.



Tiny Clues in White Blood Cells: A Case of Canine Anaplasmosis

Alireza Rocky (Clinical Pathology student, Vet Path)

A blood sample from a six-year-old neutered male Wirehaired Pointing Griffon, with a history of lethargy, reluctance to go for walks, and a low platelet count reported at the referring clinic, was evaluated. The dog had a history of frequent travel to Winnipeg throughout the year. Bloodwork revealed moderate thrombocytopenia, mild lymphopenia, and a mildly increased total protein level as measured by refractometry. Hematocrit was within normal limits.



Blood smear evaluation revealed numerous neutrophils containing intracytoplasmic inclusions consistent with morulae, suggestive of *Anaplasma phagocytophilum* infection. These inclusions appeared as small, basophilic to purple-staining coccoid organisms arranged in clusters within the cytoplasm of neutrophils. No significant toxic changes were observed in the neutrophils. A 4Dx SNAP test performed in-clinic was positive for *Anaplasma* spp.

Anaplasma phagocytophilum (formerly known as *Ehrlichia equi*) is an obligate intracellular bacterium transmitted by *Ixodes* ticks. It infects neutrophils and causes granulocytic anaplasmosis, a tick-borne disease seen in dogs, humans, and other mammals. Clinical signs are often nonspecific and may include fever, lethargy, inappetence, and joint pain. Laboratory abnormalities typically include thrombocytopenia, neutrophilic inflammation, and occasionally anemia. Diagnosis is confirmed by identifying morulae in neutrophils, serologic testing, or PCR.

Affected dogs are usually treated with antibiotics such as doxycycline and receive supportive care, including fluid therapy and monitoring of platelet counts due to the risk of hemorrhage associated with thrombocytopenia. Clinical signs typically improve markedly within 48 hours of initiating antibiotic therapy, and the dog often returns to normal activity levels within one week. In this case, the dog was started on doxycycline but has not yet been rechecked following the initiation of therapy.

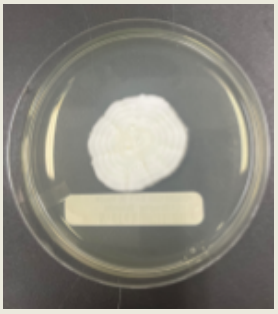
This case highlights the importance of blood smear and buffy coat evaluation in identifying vector-borne pathogens. Early recognition and treatment of *Anaplasma phagocytophilum* infection can lead to rapid clinical improvement and favorable outcomes.

Behind the Yellow Crusts: Molecular diagnostics to reveal the fungal culprit

Prasobh Raveendran Thampy (Laboratory Technologist, Molecular Diagnostics, PDS), Dr. Ruwani Karunarathna (Diagnostic Microbiologist, PDS)

Skin scrapings from a bearded dragon with yellow crusting lesions were submitted to Prairie Diagnostic Services (PDS). As part of an ongoing research and development initiative aimed at improving molecular assays for fungal pathogen detection, this case was selected for parallel fungal culture and molecular diagnostic testing.

Total DNA was extracted from the submitted skin scraping, and the conserved Internal Transcribed Spacer (ITS) region of the fungal genome was amplified using universal ITS primers. The resulting PCR amplicons were sequenced using both Sanger sequencing and Oxford Nanopore long-read sequencing. BLAST analysis of the consensus sequences from both platforms identified *Nannizziopsis guarroi* as the top match, with no notable secondary alignments suggesting additional fungal species. The organism was also successfully isolated in pure culture. Together, these findings confirm yellow fungal disease (YFD) in this bearded dragon.



YFD is one of the most common and highly contagious fungal diseases in captive reptiles. Affected animals typically develop yellow to brown crusts on the skin, which can progress to widespread yellow or yellow-brown discoloration. *Nannizziopsis guarroi* is recognized as the classical etiologic agent of YFD in bearded dragons.

Traditional fungal culture can be time-consuming, and pathogenic species may be difficult to recover when rapidly growing environmental fungi overtake culture plates. To address these challenges, PDS provisionally validated a molecular workflow that uses PCR followed by amplicon sequencing to rapidly and accurately identify fungal pathogens directly from clinical specimens. While Sanger sequencing can be limited in samples with mixed fungal populations—where overlapping chromatogram peaks obscure species identification, Nanopore sequencing provides long reads capable of resolving polymicrobial mixtures.