UNIVERSITY OF CALGARY

FACULTY OF VETERINARY MEDICINE

The Work-Up

Diagnostic Services Unit | Issue 16 - January/February, 2025

Inside this Issue

DSU Announcements

Holiday Closures:

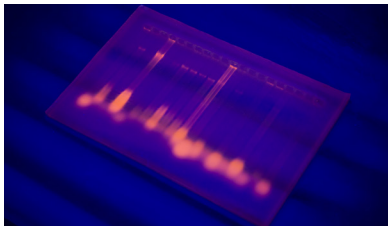
Family Day: Monday, February 17, 2025

The DSU welcomes to the team:
- Travis Davidson, Administrative Assistant
- Emery Ucol, Ancillary Services Technician

Reminder for shipping biopsies or field necropsy samples in cold weather: fix sample in 10% formalin in clinic for at least 24 hours. Transfer tissues to 70% alcohol (isopropyl, ethyl, or rubbing alcohol) for shipping.

The DSU Cytology Service is closed until further notice. All cytology submissions will be sent out during this time.

SPOTLIGHT



Molecular diagnostics is a powerful tool that uses DNA or RNA analysis to identify viruses and bacteria that can affect animals. The new molecular diagnostics lab at the DSU is expected to open in spring 2025 and will offer a variety of tests, including conventional PCR and real-time PCR to detect and characterize infectious diseases. The lab will leverage cutting-edge technology and the expertise of experienced professional and technical staff specialized in the molecular diagnostics area. It will provide accurate and timely results to veterinarians and researchers, helping them make informed decisions about animal care and disease management.

Dr. Maria Bravo Araya is a veterinary virologist with a passion for advancing diagnostic capabilities. With a Doctor of Veterinary Medicine (DVM) degree from her homeland, Chile, and a MSc in Vaccinology & Immunotherapeutics from the University of Saskatchewan, Maria has cultivated a deep understanding of infectious diseases and their impact on animal health and a strong foundation in cutting-edge diagnostic techniques. She achieved board certification from the American College of Veterinary Microbiologists (ACVM) in 2021. Maria's dedication to advancing animal health has led her to key roles in diagnostic laboratories. At Prairie Diagnostic Services in Saskatoon, she served as the Lead Microbiologist, overseeing the virology, immunology, serology, and molecular diagnostics sections. Now, Maria is eager to contribute her expertise to the UCVM and establish the DSU's new molecular diagnostics lab. She is passionate about developing innovative diagnostic services that will benefit the province of Alberta and contribute to the overall health and well-being of animals.

Sandra Damianos holds a Bachelor of Science degree in Medical Laboratory Sciences from the University of Balamand (Lebanon). With a vast experience in molecular diagnostics and next-generation sequencing, she currently serves as the Molecular Lab Supervisor at the DSU. In her previous role as Laboratory Manager at the Illumina Solutions Centre in Dubai, Sandra was pivotal in establishing the centre as a genomics solutions regional hub for internal staff, regional partners and customers. She made significant contributions to the COVID-19 response at Agiomix, a local genomics service lab in Dubai. Additionally, she spent several years at the American University of Beirut Medical Center (Lebanon) as a Molecular Laboratory Technologist. Sandra is a certified MLT from the Ministry of Public Health in Lebanon as well as the Dubai Health Authority.

Chloe Ingham completed her BSc in Psychology at Manchester Metropolitan University, England in 2014. She previously worked as a Medical Laboratory Assistant in Human Diagnostics and as a Laboratory Technician supporting teaching and research at the University of Central Lancashire. Since moving to Canada in 2022, she worked as an Animal Care Technician before joining the UCVM Diagnostic Services Unit in August 2023 as an Ancillary Services Technician. Chloe is looking forward to being part of the new Molecular Lab team at the DSU.

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Diagnostic Services Unit

Issue 16 - 2025

DSU Team

Anatomic Pathologists:
Dr. Jennifer Davies
Dr. Dayna Goldsmith
Dr. Ashish Gupta
Dr. Cameron Knight
Dr. Carolyn Legge
Dr. Jamie Rothenburger
Dr. Katie Waine
Dr. Erin Zachar

Clinical Pathologists:
Dr. Angelica Galezowski
Dr. Catherine Wagg
Dr. Amy Warren *(on leave)*

Microbiologist:
Dr. Beverly Morrison

Parasitologist:
Dr. Sawsan Ammar

Virologist:
Dr. Maria Bravo Araya

Support Staff:
Jim Carlsen
Nancy Coulter
Sandra Damianos
Travis Davidson
Dr. Manga Devi
Dr. Camila Meira
Mai Farghaly
Patrick Fuller
Karan Gadani
Lori Goodbrand
Chloe Ingham
Lilit Karapetyan
Jennifer Larios
Kelsey Lennon
Mel Nicolas
Ciara O'Higgins *(on leave)*
Dr. Lindsay Rogers
Sara Skotarek Loch
Melanie Stenner
Emery Ucol

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Clinical Skills Building
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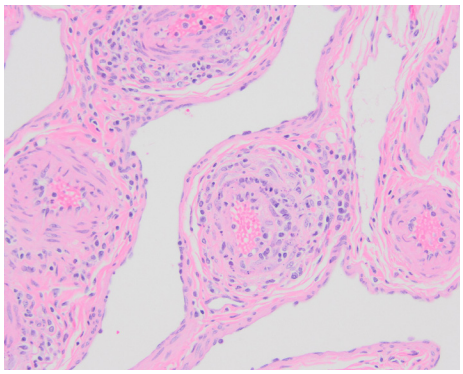
Calgary AB, T3R 1J3

Porcine circovirus 3 (PCV-3) was identified in a group of nursery age pigs with ill-thrift. The rDVM described the piglets as underweight, hairy, and failing to thrive. Fresh and fixed tissues were submitted for analysis. On histopathology there was a multisystemic nonsuppurative and necrotizing vasculitis with lesions most severe in the heart, kidney and mesocolon. This lesion was highly suggestive of a viral infection such as PCV-2 or PCV-3. Pooled lung and tonsil were submitted for PCR and were positive for PCV-3 and negative for PCV-1 and PCV-2. Positive PCR is important to determine etiology and should be interpreted in association with expected histopathologic lesions and clinical signs of disease. Useful samples include serum, oral fluid, or semen from live animals, and lung, tonsil, lymph node, or heart from dead animals.



Vasculitis due to PCV-3 (PC: Dr. J. Davies)

Clostridium perfringens type D enterotoxemia resulted in transitory diarrhea, milk drop, and sudden death in a herd of dairy goats. Field necropsy was supported by histopathology revealing a hemorrhagic enteritis. *Cl. perfringens* was isolated on culture of the small intestine and positive for alpha and epsilon toxins on PCR. Toxin typing by PCR is important when *Cl. perfringens* is suspected in disease as it can be cultured post-mortem without contirubting to the disease process. Additional differential diagnoses were Salmonella sp. and bovine coronavirus; testing was negative for these pathogens. Sudden feeding of large amounts of grain or concentrates is the most common predisposing factor for Cl. perfringens type D entertoxemia in sheep and goats. Vaccination and management of risk factors reduces prevalence of disease.

Avian metapneumovirus (aMPV) is an emerging disease in Canadian poultry. While it is present in most countries and carried and spread by wild birds, its first detection in Canada in domestic poultry was in May 2024. It is highly contagious and causes upper respiratory tract infections in turkeys (turkey rhinotracheitis, TRT), chickens (swollen head syndrome, SHS), and ducks. Detection of the virus by PCR is required for diagnosis and laboratory detection of aMPV is immediately notifiable to the CFIA. The DSU currently offers serology to detect antibodies to aMPV and plans to offer aMPV PCR when the molecular diagnostics lab opens in 2025.

Tips & Tricks

The molecular diagnostics laboratory will accept a wide range of samples, including fresh and frozen tissues, feces, serum, blood collected in EDTA tubes, and swabs collected in viral transport media, liquid culture media, or sterile saline.

It is important to note that fixed tissues, heparinized blood, and swabs collected in gel culture media will not be accepted for testing.