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VETERINARY DIAGNOSTIC LABORATORY

Featured in this issue: Featured Faculty, Canine Parvovirus (CPV), Canine Influenza A Virus (CIV)

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Director's Message

Hopefully you are finding the newsletter of value. We can address any topic you may find useful, such as various tests offered, disease conditions, or the logistics of utilizing the VDL. Please send suggestions to vdldirectoroffice@vetmed.illinois.edu or call 217-333-7259. Also for those of you using WEBVAD to obtain your lab reports, you can click the icon to request additional information regarding your case or other information needed.

Walter E. Hoffmann, DVM, PhD, Interim Director

Featured Faculty

Dr. Gail Scherba, professor of virology, joined the faculty in 1985. She received both the DVM and PhD from Purdue University. Dr. Scherba teaches virology to 2nd year veterinary students and has an active research program, along with serving as section head and being an active participant in the VDL virology and molecular virology areas. The virology laboratory uses numerous testing methodologies such as virus isolation, serology, fluorescent antibody, PCR, and gene sequencing among others for the detection of viral diseases.

Dr. Scherba has done an outstanding job developing the molecular virology laboratory over the past 8 years. This technology now allows for the detection of several viral diseases in an efficient and highly sensitive manner. Under Dr. Scherba's guidance, the VDL now has five staff members who meet the requirements and are approved by the USDA National Animal Health Laboratory Network (NAHLN) for surveillance testing for classical swine fever, foot and mouth disease, Newcastle disease, and avian influenza. These individuals will be a major asset to the laboratory and the State of Illinois if we are threatened by one of these foreign animal diseases in the future.

Canine Parvovirus (CPV): Dr. Gail Scherba

CPV type 2b (CPV-2b) is the most common type in the United States, but CPV-2c (first detected in the US in 2006 and noted to be more virulent than 2b) is becoming the second most common. Experimental studies have shown that the commercially available ELISA tests for use with fecal specimens are able to detect all variants of CPV-2b and CPV-2c. In addition, vaccine challenge studies indicate that the currently available CPV vaccines (Fort Dodge Animal Health, Intervet, Merial, Pfizer and Schering-Plough), when administered correctly, provide cross-protective immunity against all CPV variants. It should be noted that vaccination (immunization) does not prevent infection, but helps to keep the infection subclinical. However, empirical evidence in the clinical setting indicates that there appear to be vaccine failures. Consequently, a much-debated topic is whether the current canine parvovirus vaccines will establish a sufficient immune response to protect dogs from clinical disease with the variants that are arising from the currently circulating type 2b as well as the emerging 2c. Risk of infection is highest when large numbers of dogs are housed together in close contact, such as boarding or "doggie daycare" kennels and shelter facilities. This reflects an increase of virus titer in the environment that may overwhelm vaccinal immunity, as well as an immunocompromised status due to stress response or concurrent infection with other pathogens in the animal. Thorough cleaning of the environment would include the use of bleach to inactivate this non-enveloped virus.

Negative staining electron microscopy is offered on diarrheic fecal samples to help identify enteric pathogens in acutely diseased dogs (\$25.80 per sample; test run on M, W, F mornings with results that afternoon). Samples determined to have CPV also can be sent out for further analysis to determine the genotype (~\$100 with a turnaround of several weeks). Histopathology or full necropsy workups can be provided as needed.

Canine Influenza A Virus (CIV): Dr. Gail Scherba

Currently there is only one CIV serotype, H3N8, which was first identified in the canine population in 2004 as a host-range variant of equine influenza A virus. The incubation period is 2 to 5 days, much like our human form of the virus. Infected dogs will shed the virus for less than 1 week, with the peak of nasal shedding around day 2 or 3 post-infection. Dogs typically will develop an antibody titer detectable by hemagglutination inhibition by 8 days post-infection.

Last summer there were several cases of CIV infections in Illinois. We are finding that casual contact is not sufficient to spread this virus, but rather transmission requires close contact. Shelter facilities, boarding kennels or "doggie daycare" settings are where the virus would be most effectively transmitted; in such group settings, > 50% of the dogs may show clinical signs. Typically the disease manifests as lethargy, vomiting, fever (> 103°F), cough, serous then mucopurulent (secondary bacterial infection) nasal discharge. Morbidity will increase with secondary bacterial infections. Fortunately influenza viruses are enveloped, which means that they are susceptible to inactivation by thorough washing with detergents.

VDL offers an influenza A virus real time RT-PCR test, which detects the highly conserved matrix portion among all influenza A viruses. Therefore, regardless of the emergence of any new serotype of CIV, we would be able to detect the presence of the virus. The preferred ante-mortem sample is a nasal swab (transfer in red-topped tube with 4-5 drops of sterile saline) and kept cold (\$33 per animal) or post-mortem fresh lung tissue (\$35 per sample). Keep all samples cold; ship for next-day arrival. Histopathology or full necropsy workups are available.