



UC DAVIS
VETERINARY MEDICINE
*California Animal Health and
 Food Safety Laboratory System*

CAHFS CONNECTION

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Q Fever Testing Now Available

The CAHFS Davis laboratory is now offering an ELISA antibody test for Q fever (*Coxiella burnetii*). The test can be run on serum, plasma, or milk in any ruminant species. This test has been added to the sheep and goat abortion panels.

If you have any questions, please call the Davis laboratory at 530-752-8700.

Aquatic

As part of CAHFS' efforts to improve and diversify services to our clientele, the CAHFS-San Bernardino lab is now receiving fish for diagnostic testing. In the recent past, we have collaborated with state and federal agencies on investigations of fish die-offs in southern California, and we have also received submissions from private aquaria in California and elsewhere. Conditions identified have included fungal infection [phaeohyphomycosis], bacterial infections e.g. *Aeromonas* spp., parasitic infestations e.g. protozoa such as scuticociliate, and neoplastic conditions e.g. lymphoma. Both fresh samples and formalin-fixed tissues or whole fish can be submitted.

Bovine

Bovine viral diarrhea virus (BVDV) in cattle can cause abortion, fetal deformities, bleeding disorders, digestive disease, coronitis, persistent infection (PI) and immune suppression thus contributing to respiratory and other infections. PI animals are of great concern due to their constant shedding of BVDV, therefore many monitoring programs focus on the detection of PI animals. CAHFS offers several tests to detect the presence of the virus in live animals. PCR molecular testing on whole blood in EDTA or serum will reliably detect both acute and persistent infection in any age animal. Whole blood is preferred over serum as virus accumulates in white blood cells. For persistent infection an antigen ELISA test is available on ear notches (any age) and serum (must be over 3 months old). The antigen ELISA test does not reliably detect all acute infections. To distinguish between a transiently infected animal and a PI animal, retesting in 3 weeks is recommended. Serology (SVN) will indicate exposure to field or vaccine strains and titers can last for years. Serology results are meaningful if samples from two different time points in the same animal are compared to each other or results from exposed versus non exposed animals are compared.

Exotic Avian

Among heavy metal toxicities in pet and exotic birds **zinc toxicity** is one of the most common occurrences. Zinc toxicosis in pet birds is also called "New cage disease" because of the galvanized cages made out of zinc that are used for housing pet birds. Other sources of zinc include pennies minted after 1982, hardware, metallic toys and accessories. Pancreas and kidneys are the most commonly affected organs due to zinc toxicity in birds. The intoxication produces a variety of clinical alterations, including, lethargy, depression, anorexia, vomiting, diarrhea, polydipsia and loss of weight. Toxic levels of zinc cause degeneration and necrosis of pancreas and sometimes necrosis of the kidney tubules. Serum or plasma can be analyzed for zinc levels in live birds and liver and pancreas in dead birds. There are differences between species of birds in regards to toxic levels of zinc: cockatoos and Eclectus parrots have higher normal concentrations of zinc in their serum or plasma compared to other psittacines

Contagious Equine Metritis (CEM) is a reportable disease in the U.S. Sample requirements are very strict with regards to sampling sites; transport conditions, and timing from collection to set-up. The test requires samples to be kept cool and set up within 48 hours of collection. As CAHFS does not currently perform CEM cultures, samples should be shipped directly to the UC Davis Vet Med Teaching Hospital (VMTH) Microbiology Service. CEM submission form is available at:
http://www.vetmed.ucdavis.edu/vmth/small_animal/laboratory/local-assets/pdfs/Exportsubm.pdf.
 For any questions contact the VMTH Microbiology Service at 530-752-9445.

CAHFS Lab Locations

CAHFS - Davis

University of California
West Health Sciences Drive
Davis, CA 95616
Phone: 530-752-8700
Fax: 530-752-6253
cahfsdavis@cahfs.ucdavis.edu

CAHFS - San Bernardino

105 W. Central Avenue
San Bernardino, CA 92408
Phone: (909) 383-4287
Fax: (909) 884-5980
cahfsanbernardino@cahfs.ucdavis.edu

CAHFS - Tulare

18830 Road 112
Tulare, CA 93274
Phone: (559) 688-7543
Fax: (559) 686-4231
cahfstulare@cahfs.ucdavis.edu

CAHFS—Turlock

1550 Soderquist Road
Turlock, CA 95381
Phone: (209) 634-5837
Fax: (209) 667-4261
cahfsturlock@cahfs.ucdavis.edu

Your feedback is always welcome. To provide comments or to get additional information on any of the covered topics or services, please contact Sharon Hein at slhein@ucdavis.edu.

We're on the Web
www.cahfs.ucdavis.edu

Poultry

Marek's Disease (MD) is a common, acute or chronic, very contagious, and economically important disease of poultry, caused by an alpha herpes virus, named Marek's disease virus (MDV). There is wide variation in pathogenicity among the strains of MDV, which range from non-pathogenic to very virulent. MD has been reported in turkeys, quail and pheasants; however, **chickens** of any age are by far the most susceptible species. MD is the most common disease diagnosed in California backyard chicken flocks. MD infection occurs by **inhalation** of feather and dander epithelial cells containing infectious virus. Common clinical conditions include lymphomas (lymphoid tumors) in multiple internal organs, peripheral nerves, feather follicles, and eyes; **immunosuppression**; transient paralysis; lymphoid

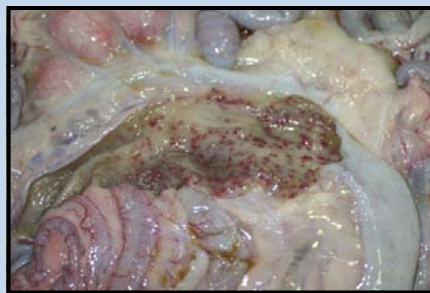


Leg paralysis in a chicken with Marek's

tissue degeneration; and vascular syndromes. Microscopic lesions due to MD can be seen as early as **2 weeks of age**. As a result of MD, flocks may have reduced weight gain, egg production and feed conversion; and increased susceptibility to other pathogens. Other problems include increased mortality in layers, and increased condemnation rate in broilers, which can be as high as 60% and 10% respectively in unvaccinated flocks. Histopathological examination of affected organs, including **peripheral nerves**, is very useful for diagnosing MD. Since 1970, MD has been controlled very successfully through vaccination which can provide **greater than 90% protection** if done properly. Interestingly, MD vaccine protects birds only from tumor formation, not from infection. MD was the first cancer that was successfully controlled through vaccination in **any** species, one of the most remarkable achievements of veterinary medicine. MD vaccination in commercial poultry is performed mostly by *in ovo* injection at the 19th day of embryo development, but can also be controlled successfully with subcutaneous vaccination in the neck of day-old chicks.

Small Ruminants

Yersinia pseudotuberculosis infection in goats in California. In January, three 1- to 2-year-old goats from two different premises located in Sonoma and Yolo counties were diagnosed with *Yersinia pseudotuberculosis* infections. Two of the goats (Angora) from one premise had died without prior clinical signs. The third (Boer) presented with melena of < 30-day duration; this goat came from a flock of 1100 animals, 50 with similar clinical signs and 25 which had died



Ulcerative colitis and enlarged mesenteric lymph nodes in the spiral colon of a goat with *Y. pseudotuberculosis*.

in the previous month. Postmortem examination at CAHFS revealed lesions of ulcerative enterotyphlocolitis, mesenteric lymphadenitis, and hepatitis with abundant intralesional bacterial colonies. *Yersinia pseudotuberculosis* was isolated from intestines, mesenteric lymph nodes and/or liver in all 3 cases. All 3 goats had selenium and copper deficiency, as well as gastrointestinal parasitism (*Haemonchus* sp., *Teladorsagia* sp., *Nematodirus* sp., and/or *Trichuris* sp.). A review of CAHFS records between January 1990 and June 2011 revealed 43 cases of *Y. pseudotuberculosis* in goats; 25 of these 43 cases (58%) were diagnosed between 2004 and 2006. Clinical syndromes included enteritis/colitis with or without septicemia (27 cases, 62.8%), abortions (7 cases, 16.3%), abscesses (6 cases, 14%), conjunctivitis (2 cases, 4.6%) and hepatitis (1 case, 2.3%). Cases occurred in meat (30.2%), dairy (25.6%) and fiber (2.3%) breeds, with no breed reported in 41.8% of cases. All 27 cases of enteritis/colitis occurred between December and May. Twenty one out of the 27 cases (77.8%) occurred in goats from 1 to 9 years of age, and 5 cases (18.5%) were in goats less than 1 year old. Both goats with normal and subnormal levels of hepatic copper and selenium were affected. Cases of enteritis/colitis show a marked seasonal distribution (only seen in winter and autumn) and are more frequent in animals over 1 year of age.