



UC DAVIS

VETERINARY MEDICINE

California Animal Health and
Food Safety Laboratory System

CAHFS CONNECTION

LEADING DIAGNOSTICS NATIONALLY, PROTECTING CALIFORNIA LOCALLY • DECEMBER, 2023



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HOLIDAY SCHEDULE

CAHFS will be closed on
Mon,
Dec 25, Open on Tues, Dec
26 from 8 am -12 pm for the
Winter Holiday.

CAHFS will be open Fri, Dec
29, 8 am to 12 pm, Closed
Mon Jan 1, 2024 for the New
Years Holiday.

Serology: how to improve titer interpretation!

Submit acute and convalescent samples:

For most non-chronic diseases, it's important to compare antibody levels at the time of disease onset ("acute") with those a few weeks later ("convalescent") to see whether titers changed due to disease onset. Without a convalescent sample, recent exposure cannot be distinguished from vaccination or historic exposure. When paired acute and convalescent sera are submitted together, we run both on the same plate to reduce variability and provide the most accurate results. Collect acute serum as early in the disease as possible, followed by a convalescent sample 2-4 weeks later. If you do not want to wait, we can test the acute sample initially, then test the acute and convalescent samples together at a later date (we keep serum for 3 months). When recheck titers are requested to evaluate treatment response, re-testing the acute serum provides a better comparison by reducing intra-plate variability. Note that each test does incur a fee.

Compare titers between groups:

When obtaining acute & convalescent samples is not possible (e.g. abortion), then titers in affected animals ("cases") can be compared with animals that are not affected ("controls"). At no additional cost, CAHFS will provide statistical analysis if cases and controls are clearly identified. When submitting serum for group comparison: 1) serum from case and control animals MUST be submitted on the same accession, 2) control animals should be of the same breed, sex, age, gestation, and parity as the cases, and 3) animals should be of the same cohort regarding vaccination schedule/history and general management (to account for similar risk factors for disease exposure). New arrivals should not be compared to animals that have been in the herd for a long time.

Provide a thorough history including any treatments and vaccinations, along with details about the clinical course of disease. Specimen quality and history are vital to all diagnostic interpretations, including titers!

Request endpoint testing. For any serologic test result that includes a titer value with a > symbol (i.e. BVD SN titer >1:512, L. pomona MAT titer >1:3200), the actual titer cannot be determined without doing a higher dilution series. If a more precise titer is needed, endpoint testing beyond our standard dilution series can be requested for an additional fee.



"Corynebacterium synergistic hemolysis inhibition plate for equine serum containing control and patient serum. Clear rings indicate an absence of antibody to *C. pseudotuberculosis* in the serum well."

Bovine

Locoweed toxicosis was diagnosed in a herd of 132 cows and 65 heifers grazing a foothill pasture. One heifer was found dead, and 9 were found ataxic and with signs of abortion. Necropsy was unremarkable in one heifer. On histopathology, the neurons in the brain, hepatocytes and proximal renal convoluted tubules were finely vacuolated, which was compatible with locoweed exposure. A plant in the pasture was identified as *Astragalus oxyphysus*, also known as locoweed,

Stanislaus or Mr. Diablo milkvetch, which is a common plant in the dry grasslands of Central California. Cattle, horses, sheep, goats, deer, elk and antelope can be poisoned by grazing locoweed. Clinical signs often appear after eating this plant for 2 to 3 weeks. The toxicosis causes neurological disease, emaciation, abortion and congestive heart failure when animals graze at high elevations.



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Avian

Acute septicemic pasteurellosis (fowl cholera) was diagnosed in a 2-year-old swan. The animal was found dead without any premonitory signs, and was submitted for necropsy. No significant signs observed, but on histopathology, multiple organs had numerous coccobacilli within blood vessels. Aerobic culture of the liver, lung, and coelomic cavity yielded large numbers of *Pasteurella multocida*, the agent of fowl cholera. This disease can present as peracute septicemia (as in this case), acute or chronic disease.

Small ruminants

Chlamydia abortus placentitis was diagnosed on placental tissue submitted from a flock of 1,200 ewes where over 20 ewes had aborted 4.5-month gestation fetuses in one week. The placenta had white, thickened intercotyledonary areas, and reddening of cotyledons with some brownish/white suppurative material present on the surface. *C. abortus* was detected by PCR and immunohistochemistry in the placenta.

Equine

Lumbar fracture was diagnosed in a 4-year-old racing Quarter Horse gelding. The horse had a history of being unable to stand the morning after racing. The main gross lesion found was a catastrophic, complete, displaced, comminuted, articular, closed, oblique fracture on L5 and L6 vertebrae including the laminae, body and transverse processes, associated with pre-existing periosteal bone proliferation- "callus". Catastrophic fractures of the lumbar vertebrae are responsible for 7.9% of the Quarter Horses' musculoskeletal fatalities in California and usually are located at the L5-L6 vertebral junction. These fractures typically occur as a consequence of trauma, or pre-existent stress damage, like in this case. Complete vertebral fractures are more frequent in Quarter Horses than Thoroughbreds.



Vertebral fracture in a Quarter Horse gelding

Aquatic

Disseminated mycobacteriosis with granulomatous inflammation in kidney, liver, brain, eye, pharynx, intestine, pancreas, mesentery, and ovary was diagnosed in one of 4, 2-year-old female mosquito fish housed indoors. On gross exam, the affected fish had bulging eyes. Acid fast bacilli compatible with *Mycobacterium spp.* were seen in multiple organs with the largest numbers in the brain.

CAHFS is Hiring!

FINANCIAL SVC SUPV 1 (Financial Services Supervisor) (53981)

Oversees centralized financial services for CAHFS' four branch locations, supporting approximately 200 faculty, staff and students in the areas of accounts payable (AP), travel, entertainment, and procurement, and provides direct supervision of Business Office staff and front desk reception for the Davis laboratory.

[Careers \(universityofcalifornia.edu\)](https://careers.universityofcalifornia.edu)

SRA 2 (Screening Chemist) (61925) Davis

Responsible for the performance of organic analyses for the determination of drugs and their metabolites in biological specimens using liquid chromatography – mass spectrometry and other analytical techniques. Responsible for care and maintenance of laboratory equipment and complex analytical instruments.

[Careers \(universityofcalifornia.edu\)](https://careers.universityofcalifornia.edu)

SRA 3 (Confirmation Chemist) (61929) Davis

Responsible for the performance of organic analysis for the determination of xenobiotic residues in biological specimens.

[Careers \(universityofcalifornia.edu\)](https://careers.universityofcalifornia.edu)

