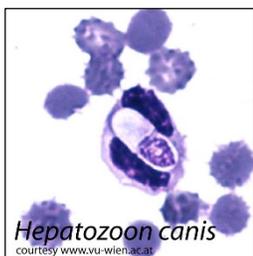


Canine Hepatozoonosis



Hepatozoon canis gamont in a canine granulocyte. A blood smear of an infected dog was stained with Diff-Quick.

Samples:

Blood	EDTA-blood as is, purple-top tubes or EDTA-blood preserved in sample buffer (preferred)
Notes: Send all samples at room temperature, preferably preserved in sample buffer MD Submission Form	

Interpretation of PCR Results:

High Positive (> 500 copies/ml blood)	Hepatozoonosis (interpretation must be correlated to clinical symptoms)
Low Positive (<500 copies/ml blood)	
Negative	<i>Hepatozoon</i> spp. not detectable

Hepatozoon americanum/canis

Canine hepatozoonosis is an emerging protozoal tick-borne disease of dogs that has been reported in the United States of Texas, Louisiana, Alabama, Georgia, Mississippi, Oklahoma, Tennessee, and Florida. The causative agent of canine hepatozoonosis in North America is *Hepatozoon americanum*. It induces severe myositis and gait abnormalities, and is transmitted to dogs (the intermediate host) through the definitive host, *Amblyomma maculatum*. Another species is *H. canis* that causes a similar disease on dogs outside of North America. Transmission occurs when a dog ingests an infected tick, and then the organisms are released and invade canine host cells, where asexual reproduction and multiplication occur through schizogony ([Ewing & Panciera, 2003](#)).

Clinical Signs

Infected dogs usually exhibit a waxing and waning course of recurrent fever spikes, muscle pain, and progressive debilitation for up to several months. In the later stages, dogs develop proteinuria and renal failure secondary to immunoproliferative glomerulonephritis ([Ewing & Panciera, 2003](#)). Death may occur 12 months after ingestion of the infected tick without treatment.

Standard Diagnostic Methods

Diagnosis of American canine hepatozoonosis is based on the disease symptoms, physical examination, and laboratory findings. This disease must be differentiated from diskospondylitis, meningitis, canine distemper, insulinoma, pyometritis, polyarthritis, and particularly other tick-borne diseases such as babesiosis, bartonellosis, Rocky Mountain spotted fever, ehrlichiosis, and borreliosis.

Our Method

Our lab has developed a quantitative PCR approach that detects the 18S rRNA gene of this organism that is capable of diagnosing American canine hepatozoonosis with high sensitivity (as few as 7 organisms per ml blood) and specificity, and *H. americanum* from other similar protozoa such as *Hepatozoon canis*, *Babesia gibsoni*, and *Babesia canis* ([Li et al., 2008](#)). This quick and sensitive diagnostic method can help veterinarians treat dogs timely and efficiently, and to monitor the treatment effectiveness.