WASHINGTON ANIMAL DISEASE DIAGNOSTIC LABORATORY
Test Details

Mycoplasma ovipneumoniae PCR

Lab that runs the test	Washington Animal Disease Diagnostic Lab - WADDL Pullman, Washington
Test Type	PCR
Lab Section	Molecular Diagnostics
Test days	Unscheduled test, performed as needed
Pricing	Quantities Washington clients Non-Washington clients 1-3 each 50.00 75.00 4+ each 40.00 60.00
Disease Hosts:	Small ruminant: Sheep,Caprine,Goat,Ovine domestic sheep caprine bighorn sheep caribou
General Notes	• Transtracheal wash (submitted in any sterile tube, purple top is acceptable) • Cultured *Mycoplasma* specimens in broth media or on plated media • Fresh or fixed lung tissue • Upper or lower respiratory swabs (plastic swabs preferable. Do not submit swabs in agarose media since agarose inhibits PCR. Calcium alginate swabs are also unsuitable.)
Purpose Notes	Bronchopneumonia is a population-limiting disease in bighorn sheep in much of western North America. *Mycoplasma ovipneumoniae* has been detected as a predominant member of the pneumonic lung flora in lambs with early lesions of bronchopneumonia. Specific PCR tests have revealed the

consistent presence of *M. ovipneumoniae* in the lungs of pneumonic bighorn sheep, and *M. ovipneumoniae* has been isolated from lung specimens. Retrospective application of *M. ovipneumoniae* PCR to DNA extracted from archived formalin-fixed, paraffin-embedded lung tissues of historical adult bighorn sheep necropsy specimens supported the association of this agent with bronchopneumonia. *M. ovipneumoniae* is strongly associated with bronchopneumonia in free-ranging bighorn sheep and is a candidate primary etiologic agent for this disease.

A real-time PCR for detection of *M. ovipneumoniae* was developed in-house at WADDL. The real-time assay can detect 6 cfu/ml of *Mycoplasma ovipneumoniae,* compared with 600 cfu/ml for the standard PCR. This assay detects *Mycoplasma ovipneumoniae* with high sensitivity (ability to detect true positives) and specificity (ability to detect true negatives) based on WADDL validation studies. The assay has a sensitivity of 100% [300/300] versus a standard PCR published by McAuliffe (McAuliffe, et. al. 2003. Detection of Mycoplasma ovipneumoniae in Pasteurella-vaccinated sheep flocks with respiratory disease in England. Vet. Rec. 153:687-688), with specificity of >98.7% [1388/1419] in sheep, bighorn sheep, and goats using this same standard PCR followed by sequencing as a gold standard. This assay is published (Manlove K, Branan M, Baker K, Bradway D, Cassirer EF, Marshall KL, Miller RS, Sweeney S, Cross PC, Besser TE. Risk factors and productivity losses associated with Mycoplasma ovipneumoniae infection in United States domestic sheep operations. Prev Vet Med. 2019 Jul 1;168:30-38. doi:10.1016/j.prevetmed.2019.04.006. Epub 2019 Apr 15. PubMed PMID: 31097121) and was used to detect *M. ovipneumoniae* which was confirmed and strain typed for the following paper: Kamath PL, Manlove K, Cassirer EF, Cross PC, Besser TE. Genetic structure of Mycoplasma ovipneumoniae informs pathogen spillover dynamics between domestic and wild Caprinae in the western United States. Sci Rep. 2019 Oct 25;9(1):15318. doi: 10.1038/s41598-019-51444-x. PubMed PMID: 31653889; PubMed Central PMCID:PMC6814754.

Confirmatory testing and strain typing by DNA sequencing is available if desired. [Indeterminate results may be caused by sampling or transport issues, low level of shedding at time of

collection, PCR inhibitors such as dirt, or in rare cases, cross-reacting Mycoplasma species.]

Culture is available at WADDL to detect other species of Mycoplasma if desired.

An ELISA for antibody testing is also available. See the Immunodiagnostics section for details.

Turnaround 4 days - 7 days (Average: 5 days)

Specimen Types

Culture Medium
Ear swab, Left.
Ear swab, Right.
Lung
Lung, Swab
Lymph Node
Lymph Node, Tracheobronchial
Nasal swab
Nose, swab
Swab
Swab pool
Tissue Block Embedded
Tissue Pool
Tonsil
Trachea
Transport Medium