

# Submitting Specimens To The Veterinary Diagnostic Laboratory

by  
John L. Andrews†  
and  
Stephen J. Fynaardt\*

The advances in diagnostic veterinary medicine are developing at an ever increasing rate. As new techniques are put into use, there are difficulties in informing the general practitioner of these procedures. This paper was compiled to aid you, the practitioner, in submitting specimens to the ISU Veterinary Diagnostic Laboratory. This section is centered in this issue so that removal is possible. In this listing, each disease will have comments on the specimen(s) to submit, the preservation of that specimen, and the procedures that will be performed by the laboratory.

## KEY: PRESERVATION

**fresh:** Fresh carcass or representative tissue or swabs; refrigerate or pack in ice if this is necessary or feasible. Keep swabs moist (transport media).

**for.:** 1/4" section(s) of affected tissue in 10% formalin in a sealed plastic container.

**frz.:** Frozen; tissues or representative portions of tissues.

**live:** Live, preferably untreated animal.

**fx.:** Fixed in methyl alcohol. Refers to blood smears and other tissue smears.

**nec.:** Necropsy. Performed by or under the direction of a staff pathologist.

**b. iso.:** Bacteriologic isolation attempts. This includes antibiotic sensi-

tivity tests on all aerobic organisms considered significant. Results may be available in 48 hours. Some organisms require a much longer time. This includes *Mycoplasma* isolation attempts when desired.

**v. iso.:** Virus isolation attempts. Generally requires from 1-2 weeks for results.

**f. iso.:** Fungus isolation attempts. Requires several weeks in most cases for final results.

**histo.:** Histopathologic examination. Requires at least 3-4 days for procedure and may be longer if special stains or other procedures are necessary.

**micro.:** Direct microscopic examination. Refers to blood smears, tissue smears and intestinal mucosal scrapings. Attempts are made to demonstrate the presence of pathogens.

**ser.:** Serology. May be an agglutination, complement fixation or serum neutralization procedure. Paired (acute and convalescent) samples are usually necessary and the time involved varies with the procedure (e.g. 1 day for leptospirosis tests to 1-2 weeks for virus serum neutralization tests).

**f.a.:** Fluorescent antibody examination. May be either a direct or indirect fluorescent antibody examination.

**an. inoc.:** Laboratory animal inoculation.

**N.A.D.L.:** National Animal Disease Laboratory, Ames, Iowa.

\* Mr. Fynaardt is a fourth year student in the College of Veterinary Medicine, Iowa State University.

† Dr. Andrews is an Assistant Professor in Veterinary Pathology, Veterinary Medical Diagnostic Laboratory, Iowa State.

DISEASE	SPECIMENS	PRESERVATION	LABORATORY TESTS	DISEASE	SPECIMENS	PRESERVATION	LABORATORY TESTS
Abortion	fetus, & placenta and serum samples from dam & other affected animals	fresh	nec., histo., b. iso., & v. iso. ser.	Histoplasmosis	affected tissues	for.	histo.
				Infectious bovine rhinotracheitis	entire animal or trachea, tracheal lymph node and tonsil and/or serums (paired) and conjunctival swabs	fresh frz. fresh or frz fresh	nec., and v. iso. v. iso. ser. v. iso.
Abscess	swab	fresh	b. iso.	IBR abortion	see abortion		
Actinobacillosis or Actinomycosis	biopsy	fresh and for.	b. iso. and histo	Iron deficiency anemia	blood (with anticoagulant)	fresh	hemoglobin, PCV, and RBC count
Anaplasmosis	serum and blood smear	fresh—avoid hemolysis! fx.	ser. (complement fixation) micro.	Leptospirosis	kidney and liver and serum samples from several animals (send samples now, get pairs later if needed)	for. fresh	histo. ser.
Anthrax	umbilical tape soaked in blood or tissues if animal was necropsied	fresh ( <i>sealed container labeled Anthrax suspect!</i> )	b. iso.				
Arthritis	entire pig or joint fluid & tonsil (if possible)	live fresh &/or frz.	nec., histo. and b. iso. b. iso. (includes PPLO iso.)	Leptospirosis abortion	see abortion		
Atrophic rhinitis	entire pig or snout or nasal swabs	live or fresh fresh fresh	nec., b. iso. and histo. b. iso. & histo, b. iso.	Listeriosis	see encephalitis and/or abortion		
Aujesky's disease (pseudorabies)	see encephalitis			Malignant catarrhal fever	brain, kidney and liver	for.	histo.
Blackleg and malignant edema	affected muscle or tissue	fresh	b. iso. and an. inoc.	Mastitis	milk sample in sterile container from CMT positive quarter	fresh	b. iso.
Blastomycosis	affected tissues	for.	histo.	Mulberry heart disease	entire pig	fresh	nec., b. iso. and histo.
Bluetongue	serum	fresh	ser. (complement fixation, forwarded to N.A.D.L.)	Neoplasms	tumor	for.	histo.
				Panleukopenia feline	entire animal or affected intestines, & mesenteric lymph nodes	fresh for.	nec. and histo. histo.
Brucellosis	serum	send to State-Federal Lab in Des Moines, Iowa		Pasteurellosis	lung, & bronchial lymph nodes	fresh	b. iso.
Bovine virus diarrhea	entire animal and paired serum samples and/or spleen, mesenteric lymph node, & tonsil	fresh fresh or frz. frz.	nec., histo. and v. iso. ser. (virus neutralization) v. iso.	Paratuberculosis	entire animal or rectal biopsy or affected rectum, intestines, mesenteric lymph nodes, colonic, and rectal lymph nodes	fresh for. fresh and for.	nec., histo., and micro. histo. histo, and micro.
Bacillary hemoglobinuria	affected liver	fresh	b. iso., an. inoc., and micro.				
Buss disease (sporadic bovine encephalomyelitis)	see encephalitis			Pinkeye, bovine	conjunctival swabs (medial canthus beneath third eyelid)	fresh	b. iso. and v. iso.
Clostridial enteritis or enterotoxemia	affected tissues	fresh	b. iso. and micro.	Pneumonia	entire animal and serum (paired)	fresh fresh	b. iso., v. iso. and histo.
Coccidiosis	affected intestine or liver	fresh and for.	micro. and histo.				

Colibacillosis	entire animal or duodenum, & small intestine	fresh	nec., b. iso., and histo. b. iso.				ser. (virus neu- tralization and <i>Hemophilus</i> complement fixation)
Distemper, canine	entire dog or brain, kidney, stomach, lung, and urinary bladder	fresh  for.	nec. and histo.  histo.		and/or lung, trachea, tonsil, and pulmonary lymph nodes	fresh	b. iso., v. iso. and histo.
Dysentery, swine	affected pig	live	nec., b. iso., and micro.	Pseudorabies	see encephalitis		
Edema disease	entire pig	fresh	nec., b. iso., and histo.	Polioencephalo- malacia	see encephalitis		
Encephalitis	brain (including brain stem) and serum	fresh and for.  fresh	b. iso., v. iso. histo., and an. inoc. ser.	Rabies	brain (whole) No live animals! serum (paired) and nasal swabs	fresh—do not freeze! fresh frz.	f.a. and an. inoc.  ser. (forwarded to N.A.D.L.) v. iso. (N.A.D.L.)
Encephalomyelitis equine	see encephalitis			Rhinopneumonitis	see abortion		
Equine infectious anemia	serum	fresh	ser. (Coggins test forwarded to N.A.D.L.)	Rhinopneumonitis abortion			
Erysipelas	entire animal or spleen, liver, kidney, tonsil, lymph nodes, and joint swabs	fresh  fresh	nec., b. iso.  b. iso.	Salmonellosis	entire animal or intestines, liver, kidney, lung, spleen, and mesenteric lnn.	fresh fresh	nec., b. iso.  b. iso.
Exudative epidermitis (greasy pig)	entire animal	fresh	nec., b. iso., and histo.	Shigellosis	same as Salmonellosis		
Glasser's disease	entire animal	fresh	nec., b. iso., and histo.	Toxoplasmosis	entire animal or affected tissues and serum	fresh for. fresh	histo histo ser. (indirect hemagglutination)
Grass tetany	clear serum from affected or recently dead (1 hr. or less) animal, random serum samples from herd	fresh	nec., b. iso., and histo. calcium and magnesium determination	Transmissible gastroenteritis	entire animal	live	nec., fa., b. iso., and histo.
				Thromboembolic meningoenceph- alitis	see encephalitis		
Habronemiasis	biopsy of lesion	for.	histo.	Tuberculosis	affected tissues	fresh and for.	histo. and micro.
Hemorbartonel- losis	blood smears	fx.	micro.	Tularemia	entire animal or liver and other affected tissues	fresh	nec. and b. iso.  b. iso.
<i>Hemophilus</i> <i>somnus</i> infection	see encephalitis, pneumonia, and/or arthritis			Vibriosis	please contact laboratory regarding sample collection and submission		b. iso.
Hepatitis, infec- tious, canine	entire animal or liver, brain, and kidney	fresh  for.	nec. and histo.  histo.	Vibriosis abortion	see abortion		
Hypoglycemia (starvation)	blood	fresh with sodium fluoride anticoagulant	blood glucose and total protein levels	Vitamin E— selenium deficiency	entire animal or liver & skeletal and cardiac muscle	fresh for.	nec. and histo.  histo.
Herpesvirus, canine	entire animal	fresh	nec., histo., and v. iso.	Water deprivation	brain and clear cerebro- spinal fluid and serum	for. fresh or frz.	histo.  sodium analysis
Hog cholera	entire animal	fresh	nec., b. iso., histo., fa., & v. iso. histo.	White muscle disease	affected muscle and/or clear serum from live affected animal	for. fresh	histo.  S.G.O.T.
	brain. and spleen, tonsil, and lymph nodes	for.  fresh	f.a. and v. iso. (N.A.D.L.)				