

Colorado State University

Veterinary Diagnostic Laboratories

Fort Collins - Rocky Ford – Western Slope

IMPORTANT: Time required for testing, as shown in the test schedule below, is only an estimate. We make every effort to adhere to these schedules, however, unexpected sample volumes, poor sample quality, equipment failure of other factors beyond our control may impact our ability to meet these timelines. Always collect and submit samples well in advance of YOUR deadline to provide us with ample time should problems arise.

CLINICAL PATHOLOGY

Samples should be hemolysis and lipemia free. EDTA (PTT) tube should be at least 3/4 full and Heparin (GTT) tube should be at least half-full. Other clinical pathology tests available. Call laboratory at (970) 297-1290 for complete listing.

IMPORTANT: If submitting local samples during emergency/weekend/holiday hours, place in brown fridge at south end of the VTH (large animal entrance) and push indicator button on wall to notify lab that samples have arrived. If sample is critical (i.e. spinal fluid) please call ahead to inform the tech of estimated time of arrival.

PLEASE NOTE: Clinical Pathology charges are set by the Colorado State University Veterinary Teaching Hospital and Department of Microbiology, Immunology and Pathology.

CLINICAL PATHOLOGY TESTS	Automated Chemistry					
	SUBMISSION	CONTAINER	COOLANT	DEAD-LINE	TIME REQUIRED	SPECIAL COMMENTS
Alkaline Phosphatase, Total and Corticosteroid Fraction only.	1 ml serum	RTT	Refrigerate or freeze	M-F by 3:30 p.m.	Half day.	Serum should be free from hemolysis.
Bile Acid	≥ ½ ml serum	RTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day.	Indicate whether fasted or 2 ^o post prandial.
BUN	≥ ½ ml serum OR heparinized plasma	RTT or GTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day.	
CSF Protein	≥ ¼ ml CSF	RTT or EDTA	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day	
Diagnostic Panels - Small animal (SADP) - Food animal, Lg Exotic (FADP) - Equine (EDP) - Avian, reptile (ARDP)	≥ ½ ml serum OR heparinized plasma	RTT or GTT (GTT required for avian, reptile)	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day.	Separate serum or plasma from RBC's within one hour.
Fructosamine	1 ml serum refrigerated up to two weeks.	RTT	Refrigerate	Tue & Fri by 12:00 p.m.	Tue & Fri by 5:00 p.m.	Avoid lipemia. Ship overnight with cold pack.
Iron/TIBC	≥ ½ ml serum OR heparinized plasma	RTT or GTT	Refrigerate	M-F by 3:30 p.m.	Read out by 5:00 p.m.	
Single Tests and "Pick" Panels Pick 1,2,3,4 or 5 tests from the following: Alb, ALP, Amylase, AST, ALT, BUN,	1) >.25-1 ml serum OR 2) >.25-1 ml heparinized plasma	1) RTT 2) GTT	1) Refrigerate 2) Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day.	Separate serum or plasma from RBCs within one hour. Globulin calculated when TP and albumin ordered.

Ca, Chol, CK, Creat, GGT, Gluc, Iron, Lipase, Mg, Phos, SDH, T-Bili, TP, T-CO2, Trig, Uric acid, Lytes (Na, K, Cl)	(required for birds or reptiles).					Note: if 6 or more tests desired, ask for a Diagnostic Panel.
Urine NA/K/CL	½ ml urine supernatant	RTT	Refrigerate	By 3:30 M-F By 1 p.m. Holidays	Within 24 hours	Centrifuge the urine. Remove supernatant from cellular sediment
Urine Protein/Creatinine ratio Urine Fractional Excretions (Creat, Na, K, Phos, Ca)	Serum AND ½ ml urine supernatant.	RTT x 2	Refrigerate	By 3:30 M-F By 1 p.m. Holidays	Within 24 hours	Centrifuge the urine and clot. Submit supernatant and serum; label appropriately. Equine FE excludes Ca.

CLINICAL PATHOLOGY	Hematology, Cytology and Urinalysis					
	<i>Note: All cytology samples must be protected from freezing and formalin fumes</i>					
TESTS	SUBMISSION	CONTAINER	COOLANT	DEAD-LINE	TIME REQUIRED	SPECIAL COMMENTS
Blood Film Review (by a clinical pathologist)	Fresh smears (made within 1 hour of collection)	Air-dried, unstained Smears	None	M-F by 3:30 p.m.	Read out by 5:00 p.m.	Submit as "review only". No STATs. Provide CBC data.
Bone Marrow evaluation (includes CBC at no additional cost)	1) 1 ml whole blood AND at least 1 fresh blood smear AND 2) Bone marrow film(s) containing spicules +/- excess BM in EDTA. 3) CBC data w/ retic	1) PTT and Smears 2) Smears +/- PTT Label appropriately.	1) Smears. Room temperature, no fixative, preferably unstained. 2) PTT: Refrigerate, DO NOT FREEZE.	M-F by 3:30, by 1:00 p.m. on holidays.	Within 24 hours.	CBC <u>must</u> be collected same day as bone marrow. Fresh blood and bone marrow smears REQUIRED. Include complete concurrent CBC data including reticulocyte count if available.
CBC (with differential) - Avian Exotic - Small animal - Large animal	1) At least 1 fresh blood smear AND 2) Whole blood (tube at least 3/4 full)	1) Slide AND 2) PTT, GTT if reptile, BTT (citrate) if ostrich	1) Room temperature. No fixative. 2) Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day.	Platelet count and plasma protein included. Reticulocyte count included if anemic. Fibrinogen included for large animals.
CSF analysis* (CSF protein only available to all clients)	1 ml CSF Submit within 30 min. of collection for valid results.	RTT preferred. Can use PTT.	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Within 2 hours. STAT available.	*Local clients only. Includes count, differential, cytology and protein. Indicate site as cisternal or lumbar. Advance notification suggested for ALL.
Cytology 1) Tissue aspirate/imprints 2) TTW/BAL	1) Fresh smear(s) 2) Fresh smear(s) + TTW/BAL. Cell count done only if requested.	1) Slides. Air dried. No fixative. 2) Direct AND concentrated films +/- PTT.	1) Films. Room temperature, no fixative. 2) PTT. Refrigerate.	M-F by 3:30 p.m.	Read out within 24 hours. Fluids read out same day if submitted during ER hours. Pathologists' report within 24 business hours.	1, 2) Prefer one or more unstained representative films. No fixative. 2) Cells in TTW and BAL do not preserve well; <i>fresh direct and concentrated films required for best results.</i> No fixative. Avoid formalin/fumes.
Fibrinogen	Whole blood (tube must be at least ¾ full).	PTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	2 hours	Semi-quantitative results. Large animals only. Note: Included in CBC.
Fluid Analysis Abdominal Thoracic Synovial, etc.	Fresh smear(s) + fluid	Slides and PTT	Films: Room temperature, no fixative. PTT: Refrigerate	M-F by 3:30 p.m.	Same day preliminary report if submitted during ER hours. Pathologist's report within 24 business hours.	PTT preferred, RTT ok. Add RTT for synovial fluid mucin clot (please indicate). Avoid formalin fumes.
Iron Stain	Fresh smear	Slide	None	Room temperature	½ day	
Platelet count only.	1) 1 ml whole blood 2) fresh blood smear	1) PTT 2) Slide	1) Refrigerate 2) Room temperature	By 7 p.m. By 1 p.m. Holidays	Half day.	Mix immediately. Any clots will invalidate test. Sample must be fresh. GTT or BTT if clumping in EDTA (PTT).
Urine cytology	1) Urine sediment prep 2) +/- urine sediment	1) Slide 2) +/- sediment in conical tube	1) Air-dried, unstained, room temperature 2) Refrigerate	By noon M-F	Within 24 business hours.	1) Remove coverslip after sediment exam, air dry, no fixative. Label
Urinalysis	≥5 ml urine	RTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day. STAT available.	Submit within two hours of collection. If > two hours call lab for instructions.

CLINICAL PATHOLOGY	Miscellaneous Bench Tests: Coagulation, Blood Banking, Blood Gas, etc.					
TESTS	SUBMISSION	CONTAINER	COOLANT	DEAD-LINE	TIME REQUIRED	SPECIAL COMMENTS
1) Blood gas 2) Lytes, HCO ₃ , ionized Ca ⁺⁺ , glucose, lactate 3) Carbon monoxide and methemoglobin	2 ml whole blood anaerobic.	Syringe rinsed with heparin and expelled. Do not over heparinize.	On ice water. Two hour maximum.	By 7 p.m. By 1 p.m. Holidays	Tests are run STAT	Local clients only. Deliver within one hour. Select 1-3 test groupings.
Blood type - Canine (DEA1.1only) - Feline	1 ml whole blood, fresh	PTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day. STAT available.	Blood should be fresh, sent overnight, and free of autoagglutination. Indicate species.
COAGULATION TESTS AND PANELS: APTT PT FDP D-Dimer (DD) Antithrombin (AT) COAG Panel: PT/APTT/FDP C3 Panel: PT/APTT/PLT C4 Panel: PT/APTT/DD/AT C5 Panel: COAG + Plt, DD C6 Panel: C5 + AT	1 ml citrated plasma. 9 parts blood to 1 part citrate crucial . Clot hemolysis and lipemia free.	Citrate tube (blue) Tube size: volume 5 ml: 4.5 ml blood 3 ml: 2.7 ml blood 2 ml: 1.8 ml blood	Room Temperature <4 hours Refrigerate <8 hours Freeze <1 month Send on dry ice.	By 7 p.m. By 1 p.m. Holidays	Half day.	APTT (Activated Partial Thromboplastin Time) PT (Prothrombin time) FDP (Fibrinogen Degradation Products) FDP for dogs only. D-Dimer (DD): K9, feline, equine only. Plt: Platelet count C3: Submit matched species normal if other than dog, cat, horse.
Coombs*	2 ml whole blood, fresh to avoid hemolysis.	PTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day. STAT available.	Canine, feline, equine only. Advance notification suggested for STAT.
Crossmatch*	Whole blood AND serum from patient AND donor.	PTT and RTT x 2	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Half day. STAT available.	*Local clients only. Advance notification suggested for STAT.
Equine Colostrum Crossmatch*	1) Whole blood from foal AND 2) Colostrum from mare	1) PTT AND 2) Sterile container	1) Refrigerate 2) Refrigerate	M-F by 6:00 p.m. Sat & Sun by 6:30 p.m.	Read out by 5:00 p.m. STAT available.	*Local clients only. Submit immediately. Advance notification suggested for STAT.
Equine Neonatal Isoerythrolysis*	1) Whole blood from foal or stallion 2) Serum from mare	Foal/stallion: PTT AND RTT mare	1) Refrigerate 2) Refrigerate	M-F by 6:00 p.m. Sat & Sun by 6:30 p.m.		*Local clients only. Submit immediately. Advance notification suggested for STAT.
Ionized Ca ⁺	1) 2 ml whole blood anaerobic 2) Mail in – serum; obtain, handle, store anaerobically.	1) Heparinized syringe.* Do not over heparinize	1) On ice water* 2) Cold pack if <72 hours. Freeze if >72 hours.	By 7 p.m. By 1 p.m. Holidays	Tests are run STAT.	1) * Local clients only. Deliver within one hour. 2) Mail-Ins: Serum collected and clotted anaerobically. Remove serum and store anaerobically, frozen.
Osmolality	1) 1 ml serum 2) 1 ml supernatant urine	RTT	Refrigerate	By 7 p.m. By 1 p.m. Holidays	Read out same day.	