**Information for grant and manuscript preparation**

**For grant ‘facilities and equipment’ support section:**

The Animal Diagnostic Laboratory in the Department of Comparative Medicine is a shared resource within the School of Medicine. The Animal Diagnostic Laboratory provides clinical pathology services for all laboratory animal species. Laboratory departments include hematology, clinical chemistry, urinalysis, fluid analysis and cytology, serology, microbiology, parasitology, and molecular diagnostics. Referral testing is provided for low volume esoteric tests. Aquatic tank water and drinking water quality testing is available and performed routinely. The instrumentation in the Diagnostic Laboratory includes a Sysmex XN-1000V hematology analyzer system, a Siemens Dimension EXL200/LOCI analyzer, a Bio-Plex 200 Luminex-based suspension array system, a Shandon cytocentrifuge, an Applied Biosystems StepOnePlus Real-Time PCR System, a Bio-Rad DNA Engine Thermal Cycler, a KingFisher Flex Magnetic Particle Processor Purification System, a TissueLyser II High-throughput Homogenizer, a Thermo Varioskan Lux Multimode (absorbance, fluorescence, and luminescence) Microplate Reader, a Hach 6000 Water Spectrophotomer System, a Seal Water discrete analyzer, Sensititre antimicrobial system and a BioLog Microbial Identification system. The main Clinical Pathology testing lab is located centrally in the Stanford Medical School in the Edwards Building, room R320.

**For materials and methods section of manuscripts:**

Hematology: Automated hematology is currently performed on the Sysmex XN-1000V hematology analyzer system. Blood smears are made for all CBC samples and reviewed by a clinical laboratory scientist. Manual differentials are performed as indicated by species and automated analysis.

Exotic hematology is done manually. WBC , RBC and thrombocyte counts are performed using a hemacytometer. The hemoglobin is determined using a HemaCue Hgb POC analyzer. The hematocrit is spun in a HCT tube using a Clay Adams Microhematocrit centrifuge. Blood smears are prepared and stained with Wrights-Giemsa stain. Manual differentials are performed.

Clinical chemistry: Chemistry analysis is performed on the Siemens Dimension EXL200/LOCI analyzer. A clinical laboratory scientist performs all testing, including dilutions and repeat tests as indicated, and reviews all data.

Urinalysis: Full urinalysis includes specific gravity testing by refractometry, dipstick analyte testing, and microscopic sediment examination performed by a clinical laboratory scientist.

Fluid analysis, cytology and bone marrow evaluation: Automated evaluation of body fluids is performed on the Sysmex XN-1000V hematology analyzer system which has a body fluid channel. Direct, sediment and/or cytocentrifuge smears are made from fluid specimens. Direct smears are prepared from solid tissue aspirate specimens. Bone marrow direct or cytocentrifuge smears are prepared.

Microbiology and parasitology: All diagnostic procedures are performed by a clinical laboratory scientist. Most microbial identifications are done on the BioLog Microbial Identification Analyzer. Alternatively, they are verified with manual biochemical tests and/or MALDI-Tof identification. Occasionally, organisms are sequenced for proper identification. Antimicobial sensitivities are performed with a Sensititre analyzer. Please contact the laboratory for additional information regarding specific procedures.

Serology and Immunoassays: Multiple technologies are available for the detection and quantification of antibodies, cytokines, and assorted biomarkers. The Bio-Plex 200 Luminex-based supension array system is used for consistent, multiplex assessments of up to 100 biomolecules per sample. More sensitive, singleplex applications are handled by the Thermo Varioskan Lux Multimode Microplate Reader, compatible with absorbance, fluorescence, and luminescence-based immunoassays . Sample preparation is carried out using the KingFisher Flex Magnetic Particle Processor Purification System for large-scale, automated processing, and a TissueLyser II Homogenizer for high-throughput and heavy-duty processing. Custom assay assistance is available by a clinical laboratory scientist.

Molecular Diagnostics: DNA- and RNA-based assessments of infectious diseases in animal specimens are executed in both real-time and endpoint PCR modalities (using the Applied Biosystems StepOnePlus Real-Time PCR System and the Bio-Rad DNA Engine Thermal Cycler, respectively). Sample preparation is carried out using the KingFisher Flex Magnetic Particle Processor Purification System for large-scale, automated processing, and a TissueLyser II Homogenizer for high-throughput and heavy-duty processing. Custom assay assistance is available by a clinical laboratory scientist.

Additional information:

All blood smears, cytology/fluid smears and bone marrow smears are stained with Wright-Giemsa stain. All cytocentrifuge smears are prepared using a Thermo Shandon cytocentrifuge. Slides are retained for approximately 10 years.

**Note:** If you acknowledge the Animal Diagnostic Lab in a manuscript that is published, please email us the manuscript – this is very helpful to support our lab! We will list your manuscript on our website. Send manuscripts to Roberta Moorhead (moorhead@stanford.edu).