**Overview of Laboratory Services**

**Anatomic Pathology**

The Anatomic Pathology Laboratory consists of the following:

Cytopathology, Histology, Immunofluorescence, and

Immunohistochemistry areas.

**Blood Bank**

**Sandy Barnes,** MT (ASCP), SBB (ASCP), Supervisor

The Blood Bank provides cross matching of blood products for

transfusion and routine typing.

The Blood Bank also provides a full range of antibody

identification services including panels, absorptions, direct

antiglobulin (Coombs) tests, eluates, titers, and phenotyping

**Cytopathology and Histology**

**Gretchen Vollmer,** CT (ASCP), Supervisor

The Cytology Laboratory performs cytologic examination of

gynecologic and non-gynecologic specimens. Our fine-needle

aspiration service includes an outpatient clinic for referred

patients with superficial and palpable lesions. The laboratory

utilizes state-of-the-art liquid-based monolayer imaged

technology preparation for both gynecologic and nongynecologic

specimens.

The Histology Laboratory performs a wide variety of routine

histotechnologic procedures and histochemical stains. Our

Immunohistochemistry area performs over 100 antibodies on

both tissue sections and cytology specimens..

**Chemistry, Molecular Diagnostics, Immunology,**

**Point of Care Services**

**Olivia O’Neill,** MT (ASCP), Supervisor

**Jane Licklider**, MLT (ASCP), Point of Care Coordinator

The Chemistry Laboratory at Christian Hospital performs

chemistry and immunochemistry testing, and therapeutic drug

monitoring on state-of-the-art automated equipment.

Viral markers testing is performed on scheduled batch basis,

which includes tests for HIV and hepatitis.

Molecular Diagnostics provides a variety of testing:

• Flow Cytometry

• Immunology

• Electrophoresis

• Molecular probes for infectious disease, eg, Chlamydia

trachomatis and Neisseria gonorrhoeae

**Clinical Trials (Research)**

The Clinical Laboratories of Christian Hospital will assist

investigators in processing, storing, and performing laboratory

tests for clinical trials. Arrangements must be made with the

laboratory before the trials start and must have IRB approval.

**Flow Cytometry**

**Barb Wagner,** MT (ASCP), Technical Coordinator

The Flow Cytometry Laboratory performs 3 basic assays for

clinical diagnostic testing: T-and B-cell quantitation for

immune status, leukemia/lymphoma immunophenotyping, and

paroxysmal nocturnal hemoglobinuria (PNH).

**Hematology, Coagulation, Urinalysis, Patient Services**

**Beth Fauser,** MT (ASCP), Supervisor

**Dawn Bethel,** MBA, MT (ASCP), Coordinator

The Hematology Laboratory is responsible for measurement of

hematologic and hemostatic parameters as well as urinalysis.

**Hematology**

Hematology provides complete blood cell counts, reticulocyte

counts, and 5-part differentials; as well as preparing and

staining slides. Hematology also provides cell counts on body

fluids; and erythrocyte sedimentation rates and crystal analysis

on joint fluids. Testing for pregnancy and mononucleosis are

also performed in Hematology.

**Hemostasis/Thrombosis**

**•** Comprehensive analysis of coagulation factors and

inhibitors

**•** Evaluation for von Willebrand disease

**•** Platelet function testing

**•** Evaluation of hypercoagulability syndromes

**•** Lupus anticoagulant testing

**•** Deep vein thrombosis (DVT) testing

**Urinalysis**

**•** Comprehensive urinalysis testing.

**Patient Services Phlebotomy**

The Clinical Laboratories provide phlebotomy services for

inpatients and outpatients. There are 5 outpatient draw sites:

• Christian Hospital 11133 Dunn Road, St. Louis MO 63036

• Northwest HealthCare 1225 Graham Road, Florissant, MO 63031

• Christian Hospital 11155 Dunn Road, POB#1, St. Louis, MO 63136

• Christian Hospital 11125 Dunn Road, POB#2, St. Louis, MO 63136

• Network Reference Lab, 201 BJC St. Peters Drive, St. Peters, MO 63376

Central Processing

The Core Laboratory has a central area equipped with the

pneumatic tube system where all specimens are received and

entered into LIS, processed, and distributed to the appropriate

laboratory area. Patient identification has been enhanced with

the use of Mobile Care Phlebotomy units interfaced with LIS.

**Laboratory Information Systems (LIS)**

**Paula Kucharczyk,** MT (ASCP), LIS Administrator

The Clinical Laboratories has several Information Systems:

**•** McKesson’s Horizon (General Lab)

**•** CoPath (Analytical Pathology)

**•** HCLL (Blood Bank)

**•** Soarian (Registration)

**Microbiology**

**Jane Reis,** MT (ASCP), Supervisor

The Microbiology Laboratory is responsible for isolation and

identification of bacteria, mycobacteria, fungi, and parasites

from specimens, as well as susceptibility and antigen testing.

Virology is performed at St. Louis Children’s Hospital

Laboratory. See “Virology” (p. 3).

**Quality Assurance**

Our Clinical Laboratories participate in a variety of

performance improvement activities, including internal and

external proficiency testing, method validation, and

competency assessment of our staff.

**Virology**

**St. Louis Children’s Hospital Laboratory,** BJC Health

System

Virology testing is referred to the St. Louis Children’s Hospital

Virology Laboratory, which offers a full menu of testing for

viral agents found in both adult and pediatric patients.

Specimens sent to the Children’s Virology Laboratory are first

processed, then tested with methods appropriate for the

specimen type and viruses suspected. The laboratory utilizes

fluorescent antibody (FA) detection, R-mix cultures, and

conventional and shell vial cultures. The rapid FA tests utilize

monoclonal antibodies specific to viral antigens for influenza

virus, respiratory syncytial virus (RSV), adenovirus, and the

parainfluenza viruses. When the rapid FA testing is negative

for respiratory pathogens, the specimen is inoculated into an Rmix

culture for further testing. R-mix cells are screened for the

presence of respiratory viruses at 1- and 2-days postinoculation.

Non-respiratory specimens are inoculated into

conventional cell lines, then incubated and observed daily for

the appearance of cytopathic effect. Cytopathic effect is the

morphologic changes in the cells caused by the replication of

the virus within the cells. The Virology Laboratory also

performs shell vial cultures for the detection of *Chlamydia*

*trachomatis*.

The Molecular Virology section of the laboratory performs

infectious disease testing using both standard and “real time”

PCR testing to specifically amplify and detect the presence of

nucleic acid sequences for the suspected agent. The laboratory

is able to test specific specimen types for the following agents:

Epstein-Barr virus (quantitative on blood), herpes simplex

virus, varicella-zoster virus, cytomegalovirus (quantitative on

blood), BK virus (quantitative on blood and urine), JC virus,

parvovirus, enterovirus, *Ehrlichia* (includes speciation),

*Toxoplasma gondii*, *Bartonella*, human herpesvirus-6 (HHV-

6), *Mycoplasma pneumoniae*, *Bordatella pertussis,* and

adenovirus.

Virology

The Virology Laboratory at St. Louis Children’s Hospital offers a full range of testing for common viral agents isolated from adult and pediatric patients. Cell culture and shell-vial assays are the mainstay of offered tests. Specimens are received, processed, and inoculated into a variety of cell cultures which support the growth of common viral isolates. Inoculated cell cultures are then observed daily for the development of viral cytopathic effect. In an effort to provide a more timely diagnosis, the laboratory also offers rapid antigen detection tests for a variety of viral agents. These rapid assays rely on the use of monoclonal antibodies in fluorescent antibody test format to detect viral antigens in cells present in the specimen. Viruses detected in these rapid assays include: respiratory syncytial virus (RSV), influenza virus, parainfluenza viruses, adenovirus, and varicella-zoster virus (VZV). Recognizing the increased usage of antiviral drugs and concomitant development of resistance to these agents, the Virology Laboratory also offers susceptibility testing for isolates of herpes simplex virus (HSV) and cytomegalovirus (CMV) to the drugs acyclovir and ganciclovir. The laboratory also performs cell culture for Chlamydia.

The Molecular Virology section performs tests using PCR- based technology to specifically amplify and detect the presence of nucleic acid sequences from a variety of infectious disease agents in patient specimens.

Agents detected include the following organisms causing systemic infections: CMV, Epstein-Barr virus (EBV), human herpes virus type 6 (HHV-6), parvovirus B19, and Ehrlichia species. Blood is the specimen of choice for these agents. The laboratory also offers a test for the detection of Bartonella henselae the causative agent of another systemic illness, cat- scratch disease. For this agent, the specimen of choice is either lymph node tissue or lymph node aspirate. A second group of agents include those associated with infections of the central nervous system. These agents include: HSV, CMV, VZV, EBV, HHV-6, human polyomavirus JC, enteroviruses, and Toxoplasma gondii. The specimen of choice for these infections is spinal fluid. To rule out renal infection with the human polyomavirus BK, urine or blood specimens are tested. Lastly, testing for bacterial agents of whooping cough, Bordetella pertussis/Bordetella parapertussis is accomplished by testing nasopharyngeal swab specimens submitted in saline.