A newsletter distributed by the Division of Laboratory & Genomic Medicine in the Department of Pathology & Immunology at Washington University School of Medicine

Washington University in St. Louis
School of Medicine

LGM NEWS

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BURNHAM & DANTAS RECEIVE DISTINGUISHED FACULTY AWARDS

Each year, Washington University School of Medicine faculty members have the opportunity to nominate their peers for Distinguished Faculty Awards. These awards recognize their colleagues' wide-ranging achievements, talents, and dedication in clinical care community service, research, and teaching. Two faculty in LGM received awards in a ceremony on February 28 at the Eric P. Newman Education Center on the Medical Campus.

Carey-Ann D. Burnham, PhD, Associate Professor, received a Distinguished Educator award for Graduate Medical Education/Residents or Clinical Fellows and Gautam Dantas, PhD, Associate Professor, received a Distinguished Educator award for Graduate Student Teaching or Mentoring. Congratulations to both!

TESTING FOR INSULIN, C-PEPTIDE AND DHEAS TO BE PERFORMED AT BJH

Effective May 1st, Insulin and C-peptid and Dehydroepiandrosterone sulfate (DHEAS) (effective May 1st) will no longer be sent to Mayo Laboratories. This testing will be performed internally using the Roche Cobas instrumentation, allowing for improved turnaround times.

Reference intervals for insulin and C-peptide will be the same as Mayo laboratories (Insulin 2.6-25 mcU/mL; C-peptide 1.1-4.4 ng/mL) as they also use the Roche Cobas method. Reference intervals for DHEAS are age and sex dependent and will be different from Mayo Laboratories, and can be found at http://bjhlab.testcatalog.org/ when it goes live. If you have questions, please contact Jennifer Hayes at 314-362-5009 or contact the chemistry laboratory medicine resident/fellow at beeper 747-1320, opt. 2.

CELLULAR THERAPY LABORATORY TRANSPLANT MILESTONE

by Suzanne Thibodeaux, MD, PhD

As highlighted in BJC Today in December 2017, the Bone Marrow and Stem Cell Transplant Program met a milestone of 7,500 transplants!

Stem cells collected from a donor's bone marrow, peripheral blood, or umbilical cord blood can replace the recipient's bone marrow, helping to restore the source of blood and immune system destroyed by cancer and/or chemotherapy. Stem cell transplants are commonly used for cancers of the hematopoietic system, such as multiple myeloma, leukemia and lymphomas.

The Cellular Therapy laboratory plays a critical role in the success of this program. The lab receives, processes, and stores products containing the life-saving stem cells until they are needed for re-infusion back into the patient. According to the most recent data available for the U.S., from 2010-2014 stem cell transplants performed at BJH accounted for 2.4% of total transplants performed, and in 2014-2015 BJH was #5 of 177 stem cell transplant centers by volume.

Congratulations to the Cellular Therapy Laboratory team for their ongoing efforts for the continued success of this program.

CLINICAL FACULTY CONTACT INFO

** denotes laboratory director*

Co-Chief Laboratory & Genomic Medicine

Charles Eby, MD*	362-1302

BJH Clinical Chemistry

Mitch Scott, PhD*	362-1503
Ann Gronowski, PhD*	362-0194

BJH Drug Monitoring · Toxicology

John Turk, MD, PhD*	362-2602

BJH Serology · Immunology

Ann Gronowski, PhD*	362-0194
Neil Anderson, MD*	362-1307

BJH Microbiology

Carey-Ann Burnham, PhD*	362-1547
Neil Anderson, MD.*	362-1307
Melanie Yarbrough, PhD*	362-2669

BJH Blood Bank · Transfusion Medicine

Brenda Grossman, MD*	362-6032
Ron Jackups, MD, PhD	362-8413
Chang Liu, MD, PhD*	747-5773
Charles Eby, MD	362-1302
George Despotis, MD	362-6586
Suzie Thibodeaux, MD, PhD*	273-1465

BJH Hematology · Hemostasis

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Ron Jackups, MD, PhD*	362-8413
Charles Eby, MD*	362-1302

BJH Flow Cytometry

Friederike Kreisel, MD*	362-0346

BJH Cytogenomics

Julie Neidich, M.D.*	273-7120
Ina Amarillo, Ph.D.	747-4966
Yang Cao, Ph.D.	474-8071

BJH Molecular Diagnostics

Jackie Payton, MD, PhD*	362-5935
Julie Neidich, MD	273-7120
Wojciech Swat, PhD	747-8889

BJH Histocompatibility

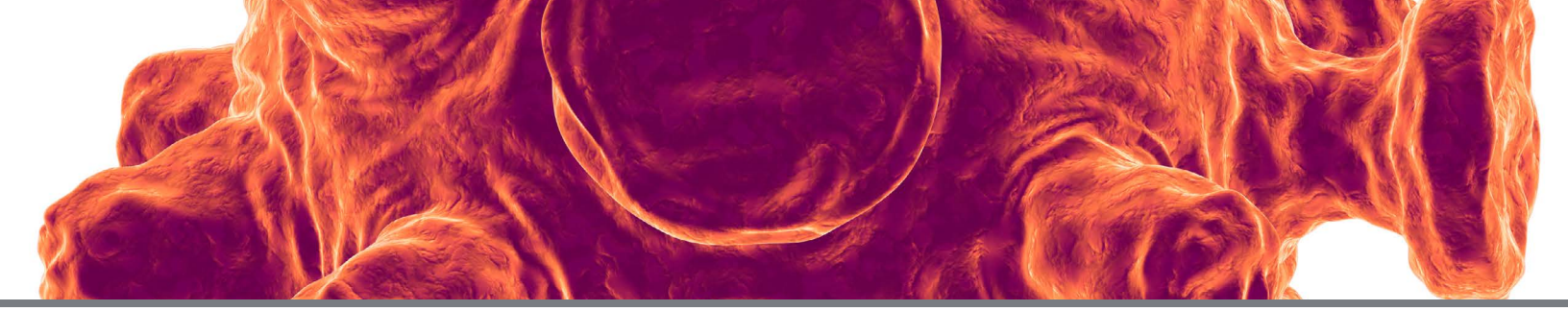
Chang Liu, MD, PhD*	747-5773

BJH Clinical & Translational Genomics

Jon Heusel, MD, PhD*	747-3887
Latisha Love-Gregory, PhD	362-8672
Samantha McNulty, PhD	362-3615
Molly Schroder, PhD	273-7102

SLCH Core Laboratory

Dennis Dietzen, PhD*	286-2857
Stephen Roper, PhD*	454-4087
Ron Jackups, MD, PhD*	362-8413



VIROLOGY TESTING AT BJH *by Lindsay Lay & Neil Anderson, MD*

Virology testing previously performed at the SLCH Virology Laboratory officially transitioned to the BJH Molecular Infectious Disease Laboratory (MIDL) on January 29, 2018. This transition, a component of the "Making BJC Better" initiative, has been carefully planned over recent years.

For BJH and SLCH physicians, there will not be any changes in test ordering practices. In addition, there will be no significant changes in methodologies or turnaround times, though results will now be reported with a comment specifying BJH as the testing location.

This transition was made possible due to the hard work and dedication of the SLCH Virology and BJH MIDL teams. As part of the transition, 7 new molecular assays were developed for use on a variety of sample types, requiring testing of >2,500 validation specimens. The goal is to provide a wide range of virology tests at the new location while continuing to offer the high quality service previously provided by SLCH.

This transition will also provide the opportunity for future improvements including both expansion of the test menu as well as increasing testing volume capacity, allowing us to better serve the BJC system. Finally, the close proximity of the BJH microbiology and MIDL allows for exciting new areas of synergy that were not previously possible.

Thank you in advance for your support and patience in this effort as we navigate this transition. If you have any questions, please contact Neil Anderson, M.D., Assistant Medical Director of Microbiology (314-362-1307, nwanderson@wustl.edu) or Lindsay Lay, Manager of the Barnes-Jewish Hospital Molecular Infectious Diseases Laboratory (314-454-7601, Lindsay.Lay@bjc.org).

NEW HEPARIN-INDUCED THROMBOCTYOPENIA (HIT) SCREENING TEST METHOD

Beginning May 1st, the Core Lab will transition from the current ELISA anti-PF4/heparin antibody test to a latex immunoturbidimetric assay (LIA) performed on the TOPS coagulation analyzer. The test will be available 24/7 with an in-lab turnaround time of 1-2 hours. Laboratory comparisons to SRA sendout results show a sensitivity of 100% and a specificity of 68%, consistent with published performance results on over 400 patients with suspected HIT. The results are expressed in arbitrary units ranging from 0.0 to 16 U/mL. A result of >/= 1.0 U/mL is reported as heparin/anti-PF4 antibody positive. A result of < 1.0 U/mL is reported as heparin/anti-PF4 antibody negative. The quantitative result will be reported with the qualitative result. Although a positive result may indicate the presence of Heparin-associated antibodies, IT DOES NOT CONFIRM the diagnosis of Heparin Induced Thrombocytopenia (HIT). However, the likelihood of a positive SRA result increases with higher LIA positive results.

A reflex Serotonin Release Assay (SRA) will be sent to Blood Center of Wisconsin (BCW) for confirmatory testing on the first positive PF4 antibody test during an admission. No concurrent ordering of SRA will be sent out. Repeat PF4 testing will be available after a 24 hour period. Situations that require testing more frequently or the need to send out an SRA despite a negative PF4 antibody test will require Lab Medicine Resident approval. If you have questions, please contact the chemistry laboratory medicine resident/fellow at beeper 747-1320, opt.

FEATURED COLLEAGUE

MICROBIOLOGY UPDATE: AVAILABILITY OF ANTIMICROBIAL SUSCEPTIBILITY TESTING FOR NEW ANTIMICROBIAL AGENTS

by Sophonie Jean, PhD, William Lainhart, PhD and Carey-Ann Burham, PhD

Infections due to antibiotic resistant bacteria are a global public health crisis. To help combat infections with multi-drug resistant bacteria, there has been a recent surge in the development of antimicrobial agents. The BJH Microbiology Laboratory is now able to perform susceptibility testing for a number of these new antibiotics. Information regarding this testing is summarized below. Please feel free to contact Dr. Carey-Ann Burnham, Medical Director of Microbiology, (cburnham@wustl.edu) or the senior microbiology fellow (314-801-3108) with any questions.

Antibiotic (Trade name)	Antibiotic Class	Testing Protocol	Agent is Active Against	Agent Lacks Activity Against
Ceftazidime/ Avibactam (AVYCAZ®)	beta-lactam/beta-lactamase inhibitor combination	CRE routinely tested, otherwise by special request	KPC-producing and some OXA-producing Enterobacteriaceae	NDM-1, other metallo-beta-lactamases
Ceftolozane/ Tazobactam (ZERBAXA®)	beta-lactam/beta-lactamase inhibitor combination	*P. aeruginosa* routinely tested, otherwise by special request	*P. aeruginosa*	CRE, no additional benefit against *Acinetobacter* spp.
Meropenem/ Vaborbactam (VABOMERE™)	carbapenem/beta-lactamase inhibitor combination	CRE routinely tested, otherwise by special request. NOTE: No *P. aeruginosa* breakpoints	KPC-producing and some OXA-producing *Enterobacteriaceae*	NDM-1, other metallo-beta-lactamases no additional benefit against *Acinetobacter* spp.
Delafloxacin (BAXDELA™)	fluoroquinolone	Special request only	May be active against ciprofloxacin-resistant *S. aureus* (MRSA or MSSA); has activity against many other organisms	No additional benefit for ciprofloxacin resistant *P. aeruginosa*
Tedizolid (SIVEXTRO™)	oxazolidinone	Linezolid resistant isolates or by special request	*Staphylococcus* spp., *Enterococcus* spp.	
Dalbavancin (DALVANCE®)	glycopeptide	Vancomycin intermediate MRSA or by special request	*Staphylococcus* spp.	VRE
Telavancin (VIBATIV®)	lipoglycopeptide	Vancomycin intermediate MRSA or by special request	*Staphylococcus* spp.	VRE

CRE - carbapenem-resistant *Enterobacteriaceae*; *P. aeruginosa* – *Pseudomonas aeruginosa*; MRSA – methicillin-resistant *Staphylococcus aureus*; methicillin-susceptible *Staphylococcus aureus*; *S. aureus* – *Staphylococcus aureus*; VRE- vancomycin resistant Enterococci

STEPHEN ROPER, PHD

Stephen Roper joined Washington University as Assistant Professor of Pathology and Immunology and Assistant Director, Pediatric Laboratory Services in the Division of Laboratory and Genomic Medicine in August, 2017. He is NRCC (National Registry Certified Chemists) certified in Clinical Chemistry. Dr. Roper obtained his BS and MS at Texas Tech University and his PhD at the Medical University of South Carolina. He conducted a Postdoctoral Fellowship in Clinical Chemistry at Baylor College of Medicine and Texas Children's Hospital, Houston.

Dr. Roper's research and academic interests include LC-MS/MS method development and optimization, detection of inborn errors of metabolism, and increasing the window of detection for drugs of abuse. During his training, he investigated the performance of calculated and directly-measured LDL cholesterol in children and discovered that a novel equation was more accurate than the Friedewald equation.

We welcome Dr. Roper to the LGM community!

LABORATORY OUTREACH AT BJC AND BEYOND

by Ronald Jackups, MD, PhD, Stephen Roper, PhD, Suzanne Thibodeaux, MD, PhD, George Wettach, MD and Melanie Yarbrough, PhD

The faculty in the Division of Laboratory and Genomic Medicine (LGM) serve as medical directors for the clinical laboratories at BJH; however, they also provide medical direction and clinical consulting services to hospital laboratories in the St. Louis region and beyond.

Drs. Dennis Dietzen, Stephen Roper, Neil Anderson, and Ronald Jackups serve as medical directors for St. Louis Children's Hospital Core Laboratory, Microbiology/Virology Laboratory, and Blood Bank. The SLCH laboratory is unique: the inpatient population is 60% critical care and testing often involves very limited sample volume. The SLCH medical directors provide clinical service, education, research, and laboratory oversight, as well as consultative services for pediatric providers from around the community.

Dr. Suzanne Thibodeaux serves as the laboratory medical director for Barnes-Jewish West County Hospital (BJWCH), a 108-bed hospital in Creve Coeur, MO that serves the local community with an emergency department, surgical services, and a Siteman Cancer Center. Dr. Thibodeaux oversees laboratory services and provides clinical consultations to physicians and serves on the Medical Executive Committee. The BJWCH team looks forward to continued growth as an individual laboratory and as part of BJC, with the overall goal to improve patient care on an ongoing basis.

Drs. George Wettach and Steven La Rue serve as medical directors for the laboratories at SoutheastHEALTH in Cape Girardeau, MO. Washington University allied with SoutheastHEALTH in 2017 to offer anatomic pathology and select laboratory services throughout the southeastern corner of MO. The diverse and challenging case mix has a projection of 12,000 surgical and non-gynecologic cytology specimens in 2018. A broad range of subspecialty support is available via telepathology and daily courier, including the Washington University Digital Pathology Exchange (WUPAX), a web-based, HIPAA-compliant platform, which allows leverage of subspecialty expertise of colleagues at the WU campus.

Drs. Melanie Yarbrough and Neil Anderson are clinical liaisons to BJC hospitals that send microbiology testing to the BJH lab (including SLCH, Christian, Alton Memorial, and Parkland Hospitals). An important part of this consolidation involves harmonizing blood cultures for all facilities to a new blood culture system in 2018. Services provided include bacteriology, antimicrobial susceptibility, mycology, mycobacteriology, parasitology, virology, and molecular infectious disease testing. Dr. Carey-Ann Burnham serves as the medical director of the BJH microbiology laboratory.

Drs. Melanie Yarbrough and Charles Eby are medical directors for the laboratory at Shriners Hospital for Children – St. Louis. Shriner's Hospital houses the Center for Metabolic Bone Disease and Molecular Research, which investigates, diagnoses, and treats more than 100 rare genetic bone diseases in children. The hospital has a large outpatient base, surgical facilities, and a strong research component.

In addition to the efforts described here, the Division of LGM and the Department of Pathology & Immunology continue to enhance outreach at other regional hospitals. In 2018, the Department will assume medical direction of Memorial Hospital Belleville laboratories in Belleville, IL. LGM medical directors serve on the BJC Clinical Laboratory Standardization Committee and Laboratory Utilization Clinical Expert Council, thus contributing to efforts to provide high-quality, evidence-based laboratory services across BJC. We welcome the opportunity to increase our role in patient care outreach.

DID YOU KNOW?

In 2017, the BJH laboratory performed the following numbers of each test:

- BMP – 302,101
- CMP – 169,022
- CBC w diff- 285,451
- CBC w/o diff-173,684