A team of clinician scientists representing College of American Pathologists (CAP), International Association for the Study of Lung Cancer (IASLC), and Association for Molecular Pathology (AMP) has been recognized by the American Society of Association Executives (ASAE) for their landmark Lung Cancer Biomarkers Guideline. The multi-organization task force, led by Drs. Philip Cagle, Neal Lindeman, and Marc Ladanyi, has been awarded a prestigious 2014 Power of A Gold Award and is being considered for the ASAE Summit Award, the highest ASAE honor for associations. “The Power of A Award recognizes and celebrates the extraordinary contributions an association made to society by enriching lives, creating a competitive workforce, preparing society for the future, driving innovation, and making a better world,” explains Mr. Chris Vest, director of ASAE public policy.

Lung cancer is the leading cause of cancer-related mortality worldwide, accounting for more than 1.4 million annual deaths. In the United States alone it is responsible for almost 160,000 deaths, and there are 220,000 new cases diagnosed each year. Recent advances in the characterization of molecular pathways driving lung cancer progression indicated the therapeutic importance of EGFR and ALK, two well-characterized targetable receptor tyrosine kinases. The CAP/IASLC/AMP task force reviewed published scientific data and developed an evidence-based guideline for the molecular testing of lung cancer patients for these two predictive biomarkers. “Dr. Cagle and the co-directors of the task force are being recognized for their innovative guidelines that positively impact the care of the many patients with lung cancer here in the U.S. and abroad,” said Dr. Mary Schwartz, medical director of anatomic pathology.

Upcoming Conferences and Symposia:

Table of Contents

2 Chikungunya PCR-Based Test Now Available
3 Next-Generation Sequencing-Based Cancer Assays Now Available
4 In Focus: Houston Methodist St. John
6 Trainee Research Spotlight Department Members Are Recognized
7 Pathology Laboratory Automation Department Awards 2 Microgrants
8 IAP International Congress News Two Department Doctors Volunteer In Peru
9 I CARE In Action New Resources Available For Faculty And Staff
10 Department Welcomes New Fellows
Chikungunya is a mosquito-borne disease caused by infection with Togaviridae Alphavirus. The Togaviridae family of viruses also includes rubella virus and several viruses that cause encephalitis. While the rubella virus is an air-borne pathogen, all viruses that fall into the Alphavirus genus, including chikungunya, are transmitted by arthropods. Specifically, chikungunya is transmitted by Aedes mosquitoes, which are common in tropical and subtropical zones and are present in the southern United States, including Texas.

Epidemiologically, chikungunya is endemic in Africa, Australia, India, Thailand, and many Caribbean islands. In 2005-2006, it caused a major epidemic on La Reunion Island in the Indian Ocean, and subsequently migrated to India, where over 1.5 million cases were detected. The virus made its first appearance in the Western Hemisphere in 2013, when it was diagnosed in a non-traveler patient on the French side of St. Martin in the Caribbean. To date, all cases of chikungunya viral illness diagnosed in the United States are related to infections acquired during travel. However, local transmission in Houston is a distinct possibility. The first case in Texas, a patient from Williamson County near Austin who recently returned from the Caribbean, was confirmed earlier in July.

Chikungunya disease pathogenesis is similar to several other mosquito-borne diseases and causes flu-like symptoms that include fever, headaches, rash, and marked lower extremity edema. What sets chikungunya apart is the disease-associated polyarthralgia or joint pain, which could become severe and may persist for years. This characteristic gave the disease its name, which comes from the Makonde language spoken in Tanzania and Mozambique and translates to “that which bends up,” referring to the contorted posture observed among patients afflicted with severe joint pain.

Chikungunya virus infection can be confirmed by PCR or serological testing. Importantly, while the serologic antibody titer test takes 9 days to complete, the PCR-based detection has a 48-hour turnaround time. The Molecular Diagnostics Laboratory at Houston Methodist Hospital has validated and is now performing a PCR test to detect chikungunya virus. In fact, the first chikungunya case in Harris County was diagnosed with our PCR-based test.

For more information on this assay or any Molecular Diagnostics Laboratory test, please contact:

Dr. Randall Olsen (RJOlsen@houstonmethodist.org)
Dr. Bryce Portier (BPPortier@houstonmethodist.org)
Ms. Heather Hendrickson (HLHenderson@houstonmethodist.org)

The Molecular Diagnostics Laboratory can be reached by phone at 713-441-5727.
Cancer is a disease of hyperproliferative cells, usually caused by mutations in several genes that control normal cell homeostasis. Traditionally, cancer patients have been assigned a generic chemotherapy regimen, radiation, and/or surgery based on the clinical knowledge gathered from patients with similar cancer types. Advances in basic science and clinical diagnostics within the last decade have brought about a paradigm shift, in which patients diagnosed with a particular type of cancer are further subdivided into categories based on their molecular tumor profile and then "targeted" therapeutics can be administered, if available. However, the major hurdle in this approach was the time and technical capabilities required to extensively characterize each patient's tumor.

Next-Generation Sequencing (NGS) is a relatively new technique that allows for analysis of the tumor at a genetic level, and has been added to the battery of clinical cancer diagnostics only very recently. NGS assays have modernized the medical research field by providing a rapid, inexpensive, and highly scalable method for genetic analysis. Using the Ion Torrent Personal Genome NGS System from Life Technologies, Dr. Bryce Portier and his team from the Department of Pathology and Genomic Medicine validated a new assay that investigates over 200 mutations in 50 cancer-related genes that are most frequently found in tumors. Some of these genes include EGFR, HER2, AKT, and KRAS, all of which are known drivers of cancer progression. This new NGS cancer assay is ready for immediate implementation to aid in clinical care. The system can analyze up to 8 patient samples per run and can complete sequencing in 4-6 hours. The Molecular Diagnostics Laboratory plans to run NGS analysis once per week, but it is expected that as demand increases so will the run frequency.

As the NGS technology continues to evolve, our Department recently expanded its NGS capabilities to include the Ion Proton and Ion Chef from Life Technologies. These highly advanced, cutting-edge instruments are poised to revolutionize cancer research and treatment and will be utilized in conjunction with the existing NGS portfolio. For instance, the newly-acquired Ion Proton adds 10 times the current sequencing capacity, and will allow for future full-exome assays. Dr. Portier's team is now working to expand the existing NGS cancer assay by designing cancer type-specific assays. For example, a proprietary breast cancer-specific assay will add mutation detection for 32 additional genes specific to breast cancer. Likewise, a hematologic cancer panel will include detection of mutations and clinically-relevant chromosomal translocations for blood malignancies.

In summary, NGS technology is driving rapid advancements in translating personalized cancer therapeutics from the bench to the bedside. Patients’ tumor samples collected during the initial diagnosis can be sent for NGS analysis and the results will be available prior to patients’ next follow-up oncologist visit. Thus, patients will be assigned more specific, targeted therapy regimens early, when their likelihood of achieving a strong clinical response is the highest.

“The NGS diagnostic tools are so novel, they are only available in a few reference laboratories across the country. By validating this technology here at Houston Methodist, we will truly be leading cancer medicine.”

- Dr. Bryce Portier
Houston Methodist St. John Hospital joined the growing family of Methodist health care facilities on February 3rd, 2014. As the result of this expansion, the Department of Pathology and Genomic Medicine has added two new faculty members, Drs. David Alrahwan and Anna Castiglione Richmond. Methodist St. John is a full-service hospital that provides a range of laboratory and pathology services to the residents of Clear Lake and the Greater Bay Area.

At St. John, I give 100% to serve my patients with confidence, integrity, and compassion. I discuss cases daily with the surgeons, and the medical staff is warm and eager to deliver high quality care. – David Alrahwan, MD, laboratory medical director.

I have worked at St. John since 1992. Our stellar staff is committed to providing quality patient care. Despite major laboratory space renovations, our team never lost their dedication to providing excellent service for our patients. – Rebecca Simon, director of laboratory services.

I always wanted to work in healthcare, so I enjoy working with the highly skilled staff in our safe and professional environment. My co-workers make even the most challenging days fun! – Sara Taqi, histology technician.
The Houston Methodist St. John laboratory encompasses histology, microbiology, clinical chemistry, and hematology and blood bank laboratories. All laboratories are located on the 2nd floor of the main hospital, and as a result of damage sustained during Hurricane Ike, underwent a major renovation in 2008. The resultant space is bright and modern, with an open floor plan and dedicated patient stations.

As Houston continues to expand to the southeast, Houston Methodist St. John has established itself as a vital component of the community. Ms. Rebecca Simon, director of laboratory services, explains, “Our laboratory service grew by almost 20% in the past 3 years. The post-Ike renovations allowed us to grow our outpatient services and become a regional reference lab. Currently, we provide over 35,000 units of service per month, which translates to 1.4 million tests per year. Most of our tests are performed in-house and only 4-5% are sent out to other reference labs.”

Ms. Simon went on to explain that the laboratory partners with a number of stand-alone clinics in the area, including St. Mary’s Mobile clinic, and is affiliated with The University of Texas Medical Branch at Galveston. Consequently, students pursuing degrees in medical technology and associated disciplines can complete their clinical fellowships in the St. John laboratories and many times are offered full-time employment. This, along with the exceptional quality and friendly atmosphere in the lab, leads to a very low employee turnover rate.
Trainee Research Spotlight

Two of the Department’s trainees, Drs. Erik Salazar and Jaclyn Jerz, recently published their research in the Archives of Pathology & Laboratory Medicine. These articles highlight the Department’s efforts to improve clinical laboratory services and patient care.

Dr. Salazar’s paper is titled “Improving Positive Blood Culture Removal Time Significantly Decreases Total Processing Time” and was co-authored by several Department faculty and research staff. It outlines the Department’s efforts to reduce the time required to process blood cultures in the clinical microbiology laboratory and to notify physicians caring for patients with suspected systemic bacteremia. The research team determined that prior to their intervention, the average processing time for blood cultures was 38 minutes, and only 51.8% of the positive blood cultures were removed in less than 10 minutes. By holding three in-service meetings with the clinical microbiology staff, one for each shift, these numbers improved to 8 minutes for the processing time, and 84.5% of cultures were removed within 10 minutes. This study illustrates how a small, non-technical intervention can significantly enhance patient care.

Dr. Eric Salazar is a second-year resident in the Department of Pathology and Genomic Medicine. He received his MD and PhD degrees from Weill Cornell Medical College in 2012.

Dr. Jerz’s paper is titled “Detection of Malignancy in Body Fluids: A Comparison of the Hematology and Cytology Laboratories” and was co-authored by several clinicians from the Houston Methodist Hospital and The University of Texas Medical School at Houston. This study examined the ability of the hematology laboratory to detect malignancy in body fluid samples and explored potential avenues to improve this technique. Study results showed that pre-intervention analysis of body fluids only detected malignancy with 23% sensitivity. By providing additional educational sessions to the medical technologists, this number improved to 60% in subsequent months. The authors concluded that while the concentrated preparations used for cell counts in the hematology laboratory are not optimized to detect malignancy, providing concurrent cytologic examination and enhancing staff education greatly improved the rate at which malignancies are identified.

Dr. Jaclyn Jerz is a third-year resident in the Department of Pathology and Genomic Medicine. She received her MD degree from The University of Texas Southwestern Medical School in 2011.

Members of the Department Recognized for Their Service

Drs. David Alrahwan (Houston Methodist St. John) and Philip Cagle (Houston Methodist Hospital) were named in the H Texas Magazine’s Top Docs of 2014 list. Congratulations!
Pathology Automation: New Equipment Added to Houston Methodist Laboratories

The Houston Methodist Clinical Laboratory automated its hematology processing line by adding a modular Sysmex XN-series analyzer, which is built on a breakthrough platform known as Silent Design. The new technology offers an automated analysis of body fluid cell counts, slide making and staining, cell image analysis, and tube cell sorting. Moreover, Sysmex XN provides a standardized platform that significantly improves testing consistency.

For more information about the Sysmex technology, please contact Dr. Arthur Zieske at awzieske@houstonmethodist.org

The Houston Methodist Rapid Response Laboratory added a highly sophisticated Cobas 8000 analyzer by Roche/Hitachi. This instrument is designed for high-throughput laboratories and is capable of processing 3-15 million clinical chemistry and immunochemistry tests per year. For example, the new analyzer can complete an immunoassay in less than 9 minutes and averages about 1,000 samples per hour, thereby ensuring rapid availability of all patient test results.

For more information about the Cobas technology, please contact Dr. Ping Wang at pwang@houstonmethodist.org

Department Awards Internal Grants

The Department of Pathology and Genomic Medicine has recently invited its faculty to submit research proposals for small, internal research grants. These microgrants are designed to foster innovation and expansion of clinical service. Each selected project receives a budget, and the work must be started and completed within 3-4 months. The Department’s microgrant review committee is pleased to announce that two proposals have been chosen for funding:

“Association of histologic and immunophenotypic features of cervical dysplasia with infection by various HPV genotypes,” submitted by Drs. Yimin Ge, Steven Zhou, Christi Perez, Dina Mody, and Michael Deavers

“Prognostic and predictive biomarkers in metastatic rectal adenocarcinoma,” submitted by Drs. Suzanne Crumley, Mary Schwartz, Alexandria Phan, Randall Olsen, and Bryce Portier

While the proposal submission deadline expired on July 15th, it is anticipated that the next call for proposals will be announced in mid-to-late August.
The Department Shows Strong Presence at the XXX International Congress of the International Academy of Pathology

The Department of Pathology and Genomic Medicine will be well represented at the upcoming XXX International Congress of the International Academy of Pathology (IAP) in Bangkok, Thailand. "Our Department will be one of the best overall represented U.S. pathology departments and is the best represented in pulmonary pathology," said Dr. Philip Cagle. Additionally, Drs. Philip Cagle and Luan Truong will serve as scientific conveners for the IAP Congress – Congratulations!

The Congress will be held from October 5th to October 10th at Bangkok Convention Centre and the registration deadline is September 15, 2014. Additional information can be found on www.iap2014.com

Two Department Faculty Have Rewarding Volunteer Experience in Peru

Two pathologists from the Department of Pathology and Genomic Medicine recently spent a week in Peru. Drs. Blythe Gorman and Susan Haley volunteered their time reading Pap tests for the CerviCusco clinic in Cusco, Peru. The clinic is a non-profit organization affiliated with the International Cervical Cancer Foundation and the Medical College of Georgia. It provides modern liquid-based Pap test analysis, and other women’s health services, to residents of underserved and impoverished regions of Peru.

“We learned about this volunteer opportunity through the American Society for Cytopathology. Although we were unsure of exactly what to expect, we had a great time, and it was extremely rewarding,” said Dr. Haley. She explained that there are several opportunities throughout the year to volunteer at the clinic. In addition to Drs. Gorman and Haley, there were three other pathologists and two cytotechnologists from across the United States working at the clinic. Dr. Gorman elaborated that there are also opportunities for non-medical volunteers to serve the clinic by performing clerical tasks or facility maintenance-type work.

Cervical cancer is the leading cause of cancer-related death in Peruvian women. In addition, most rural Peruvian women are diagnosed with cervical cancer when the disease is already in its late stages, which further reduces treatment options and survival. "CerviCusco is the first clinic of its kind in Peru. The clinic’s staff is dedicated to reducing cervical cancer incidence through early detection, and working towards implementing quality control measures," explained Dr. Gorman. “The clinic has also established a collaborative agreement with the Massachusetts General Hospital, where cases are discussed during weekly telecytopathology conferences,” she continued.

When asked if they planned to return to Peru, Drs. Gorman and Haley enthusiastically confirmed. “We felt extremely valuable during this trip because we provided essential services that are otherwise unavailable to many women.”

For more information about this opportunity, please contact Dr. Blythe Gorman (bkgorman@houstonmethodist.org) or Dr. Susan Haley (slhaley@houstonmethodist.org). For more information on the CerviCusco clinic, please visit www.cervicusco.org
I CARE in Action: Members of the Department Provide Dinners at Nora’s Home

In keeping with the Methodist I CARE values, members of the Department of Pathology and Genomic Medicine regularly provide dinners for the families residing at Nora’s Home. Nora’s Home provides alternative, affordable housing for transplant patients and their families during their stay in the Texas Medical Center, and is supported by the Nora’s Gift Foundation.

Nora’s Gift Foundation was established in 1998 by Drs. Osama and Lillian Gaber in memory of their daughter Nora, who was killed in an automobile accident at the age of 7. Despite their grief, Nora’s parents chose to donate her organs to several critically ill children. The Gaber family subsequently established the Nora’s Gift Foundation, which provides support to patients suffering from end-stage organ failure and those in need of an organ transplant. The Foundation opened Nora’s Home on February 11, 2014. It not only provides lodging, but also serves to bring together families experiencing the stress associated with a transplant procedure.

Nora’s father, Dr. Osama Gaber, is the director of transplantation at the Houston Methodist J.C. Walter Jr. Transplant Center. Nora’s mother, Dr. Lillian Gaber, is a transplant pathologist in the Department of Pathology and Genomic Medicine at the Houston Methodist Hospital.

For more information on Nora’s Home, please visit www.norashome.org. If you are a department member and are interested in this volunteer opportunity, please contact Pat Cernoch (pcernoch@houstonmethodist.org or 713-441-0333).

The Office of Academic Development Adds New Resources Pages

The Office of Academic Development (OAD) announces the addition of the new Academic Services Resources page, where the Department’s faculty and trainees can find information about upcoming conferences and symposia, tips on scientific writing, and available funding opportunities in the following scientific areas:

- General Cancer Research
- Breast Cancer Research
- Pediatric Cancer Research
- Hematology & Oncology
- Heart & Cardiovascular Diseases
- Brain & Neurodegenerative Diseases
- Kidney & Urinary System Diseases
- Gastrointestinal Diseases
- Lung & Pulmonary System Diseases
- Gynecologic Diseases
- Microbiology & Infectious Diseases
- Transplant Biology

The Resources page can be found through the main OAD page or by following a direct link: www.houstonmethodist.org/academic-services-resources
### The Department of Pathology and Genomic Medicine Welcomes 10 New Fellows

<table>
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<tr>
<th>Name</th>
<th>Education Details</th>
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| Clifford Blieden | - Residency at the University of Miami  
- MD from The University of Texas Medical Branch at Galveston in 2009 |
| Jonathan Boyd  | - Residency at the Eastern Carolina University Brody School of Medicine  
- MD from The University of Texas Southwestern Medical School in 2010 |
| Crystal Cordell | - Residency at the University of South Alabama  
- MD from the University of South Alabama College of Medicine in 2010 |
| Bettye Cox     | - Residency at Baylor College of Medicine  
- MD from The University of Texas Medical Branch at Galveston in 2009 |
| Bernadette Harris | - Residency at the University of Florida  
- MD from Louisiana State University School of Medicine in New Orleans in 2009 |
| Ross Miller    | - Residency at the University of South Dakota  
- MD from the University of South Dakota Sanford School of Medicine in 2010 |
| Tara Miller    | - Residency at the University of South Dakota  
- MD from the University of South Dakota Sanford School of Medicine in 2009 |
| Mauricio Salicru | - Residency at The University of Texas Health Science Center  
- MD from The University of Texas Medical School at Houston in 2010 |
| Dawn Williams  | - Residency at Houston Methodist Hospital  
- MD from The University of Texas Medical School at San Antonio in 2009 |
| Ya Xu          | - Residency at The University of Texas Medical Branch at Galveston  
- MD from West China University of Medical Sciences in 1990 |
RECENT PUBLICATIONS


Cagle PT, Glassy EF. Whole slide images add value to journal article figures. Arch Pathol Lab Med. 2014 May;138(5):592.


