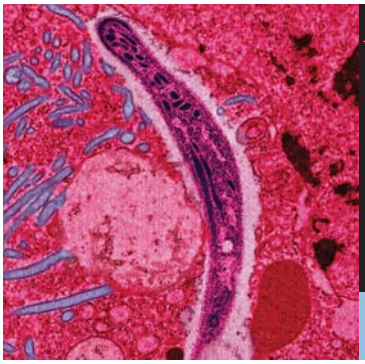


P. falciparum sporozoite in a mosquito midgut

Infectious Diseases

Washington University in St. Louis
School of Medicine

DIVISION NEWSLETTER December 31, 2015 • Volume 10, Issue 4

IN THIS ISSUE

Calendar Highlights

Global Health Center
Jose Hagan, M.D., M.S.
Epidemic Intelligence Service Officer
Centers for Disease Control and Prevention
From Mongolia to Liberia in 60 Minutes
Thursday, February 11, 2016
3:00 p.m. - 4:00 p.m.
McDonnell Building, Erlanger Auditorium

Infectious Diseases Society of St. Louis
Challenging Infectious Diseases
Clinical Case Presentations
Thursday, March 31,2016
Engineers' Club of St. Louis
CME Dinner Event
Information coming soon.

Annual Global Health and Infectious Disease Conference
April 15, 2016 8:30 a.m. - 5:30 p.m.
Eric P. Newman Education Center
more information

We are interested in your achievements, clinical and/or research activities, and other personal news since leaving Washington University School of Medicine. Please contact Dr. Gerald Medoff at *gmedoff@dom.wustl.edu* with any information you would like to share.
All division newsletters can be found at:
ID Division Newsletters

$7 million Grant Aids Efforts to Eliminate Neglected Tropical Diseases

Funding from the Bill & Melinda Gates Foundation is aiding efforts by Washington University researchers to eliminate river blindness and elephantiasis, parasitic worm diseases common in parts of Africa and the Asia-Pacific. Joshua Bogus (lower left), global health research project manager for the university's team, meets with residents of a study site in Ivory Coast.

Researchers at Washington University School of Medicine in St. Louis have received a $7 million grant from the Bill & Melinda Gates Foundation aimed at eliminating river blindness and elephantiasis, two neglected tropical diseases that annually sicken millions.

The grant supports a team, led by Gary Weil, MD, that is conducting 12 field projects in eight countries in Africa and in the Asia-Pacific region. The new funding is timely because it allows a research project to resume in Lofa County in the West African country of Liberia. The project was suspended in March 2014 because of the Ebola epidemic.

"While our Liberian colleagues were not infected with Ebola, the disease sickened and killed some of their extended family members and friends," said Weil, an infectious disease specialist at Washington University School of Medicine, who also helped organize an effort to send gloves, gowns, masks, goggles and no-touch thermometers to Liberia for health-care workers. "People told us that Ebola was worse than civil war in Liberia. They didn't know where to go or where to hide to escape the epidemic."

In Liberia, more than 10,000 people were infected with Ebola during the recent epidemic, and 4,400 died. Lofa County – where one of the field projects is centered – was one of the first and hardest hit regions in the country, with more than 600 Ebola cases from March to November 2014.

Weil's research in Liberia and other parts of Africa and Asia has been supported by the Gates Foundation since 2010. With the addition of the latest grant, the foundation has contributed a total of $20 million to Weil and his team's efforts to develop and evaluate new treatments for river blindness, elephantiasis and intestinal worm infections, all of which are common in tropical countries.

"These diseases collectively affect 2 billion people in the developing world," Weil said. "They cause disability, blindness, developmental delays and stunting in millions. We already have made great strides, and if we can further reduce the impact of elephantiasis and lymphatic filariasis through

continued page 2

Featured Colleague

Lisa Mahnke, M.D., Ph.D., with son, Cole, and husband, Kyle Nelson, M.D.

Leaving Wash U in 2006 was a big moment, jumping from academics to industry and moving half way across the country. In the years since, I think I've found meaningful ways to bring therapies to patients. I started with Bristol-Myers Squibb in New Jersey. My teams introduced BMS-791325 into the clinic, an HCV NS5B inhibitor. We planned combination studies with protease and NS5A inhibitors. I designed biomarkers, contributed to HIV programs, and worked on an anti-tumor/-viral immune checkpoint inhibitor. At Merck & Co, in Pennsylvania, I switched to clinical pharmacology, working on an antiarrhythmic with a complex metabolic pathway that was briefly available in Europe for chemo-cardioversion of atrial fibrillation.

In 2010, Kyle (former Wash U Peds ER fellow) and I made the move from Philadelphia to Boston so that I could work for Vertex. Telaprevir was approved in 2011 as a landmark drug that changed the treatment paradigm for many HCV patients. My role was to adapt it to pediatrics, the transplant setting and HIV co-infection. Since it had a lot of drug interactions, I was glad for my clin pharm experience. Within a couple of years, more powerful drug combinations with better safety were introduced, which is tremendous for patients. I became head of the Department of Clinical Pharmacology in 2012, helping to get ivacaftor (for G551D cystic fibrosis patients) over the finish line. This drug, too, is a landmark, showing that a small molecule that alters the ion channel can result in clinical improvements. I facilitated the combination regimen of lumacaftor/ivacaftor

continued next column

neglected tropical diseases continued

mass treatment programs, we stand a much better chance of improving the health of individuals and families and making a big difference in communities."

Recently, two representatives from Weil's team – Joshua Bogus and Kerstin Fischer – traveled to Liberia to meet with research partners at the Liberian Institute for Biomedical Research and visit communities to assess residents' interest in resuming the research and participating in the project. In all, they visited 32 villages in Lofa County.
Peter Fischer, Ph.D., associate professor of medicine, is the project leader in Liberia.

"Everyone was very eager and willing to resume participation in the research," said Bogus, who manages the research project. "The trip highlighted the importance of strong community engagement to foster trust between researchers and the communities they serve."

River blindness, also known as onchocerciasis, afflicts some 37 million people in more than 30 countries, mostly in sub-Saharan Africa. The illness is spread by black flies that breed in fast-flowing rivers, hence the name river blindness. While the disease can lead to blindness if left untreated, it more commonly causes less severe visual impairment, disfiguring skin lesions and severe itching.

Elephantiasis – also known as lymphatic filariasis – can lead to severe enlargement and deformities of the legs and genitals. The mosquito-borne illness affects 120 million people, mostly in Africa and Asia, leaving some 40 million profoundly disfigured and incapacitated.

Weil's research project is known by the acronym DOLF, or Death to Onchocerciasis and Lymphatic Filariasis. He has been active for years in efforts to eliminate lymphatic filariasis and onchocerciasis via mass drug administration in endemic areas, which involves giving medication to everyone in areas with high infection rates, regardless of whether particular individuals have the illness. This approach works to halt transmission by reducing infection rates below the level needed for transmission of new cases.

As part of the research, the Washington University researchers are evaluating whether twice-yearly mass drug administration is more effective and less costly in the long run than annual treatment, the current gold standard. They're also testing whether different doses and combinations of existing drugs can more quickly and effectively cure the infections compared with current treatment regimens.

As for the DOLF research site in Lofa, Liberia, Weil said: "We recently restarted mass drug administration and are very excited to have our team back on the ground in Liberia to carry out this important research, which has the potential to benefit many people in developing countries."

Reprinted with permission, Caroline Arbanas, "Washington University Record", August 13, 2015

Lisa Mahnke, M.D., Ph.D. continued

for deltaF508/deltaF508 CF patients which has also gained approval recently. I'm currently at EMD-Serono just outside of Boston, working again on immune checkpoint inhibitors. My program is avelumab, an anti-PD-L1 antibody, for Merkel cell carcinoma (a viral tumor!). An exciting field at the moment!

Kyle and I welcomed Cole William in 2012. He's a funny, happy, gregarious boy who loves to meet everybody! Kyle is now Assistant Professor in Emergency Medicine at Boston Children's Hospital at Harvard. Looking back, years as a medicine resident, ID fellow (with Turner Overton and Erik Dubberke) and post-doc (with Lee Ratner) were very special. I'm extremely grateful for all of the mentoring, training, support and ongoing friendships. I visit now and then to see the Cardinals and run an occasional half marathon. My best regards to everyone in the Division for continued success! I hope to see you on your next trip to Boston!

awards & announcements

RECENT AWARDS		
PRINCIPAL INVESTIGATOR(S)	**AWARD**	**PROJECT TITLE**
Jennie Kwon, D.O.	KL2 Career Development Award	The Fecal Microbiome and Effect of Fecal Transplant for Multidrug Resistant UTIs
Kevin Hsueh, M.D. Mike Lane, M.D.	CDC Safety and Healthcare Epidemiology Prevention Research Development (SHEPheRD) Program	Accelerating hospital reporting NHSN's Antibiotic Use and Resistance Module
Victoria Fraser, M.D.	Doris Duke Charitable Foundation	Doris Duke Fund to Retain Clinical Scientists at Washington University School of Medicine

special recognition

Steve Lawrence, M.D., M.Sc. was selected to serve a three-year term to the IDSA public health committee. The committee is charged with making recommendations to the IDSA Board of Directors regarding public health and emergency preparedness issues such as emerging infections, pandemic influenza, and immunization policies. It is also tasked with serving as IDSA's primary point of contact with relevant federal agencies involved with making public health and emergency preparedness policy.

Nigar Kirmani, M.D. was selected by the Class of 2017 as Lecturer of the Year.

Steven Lawrence, M.D., M.Sc. received the Class of 2017 Distinguished Service Teaching Award.

congratulations.....

Keith Woeltje, M.D., Ph.D., has been promoted to Vice President and Chief Medical Information Officer for BJC HealthCare beginning January 1, 2016. Following an extended national search, Keith emerged as the top choice for this important new role. As BJC's inaugural CMIO, Keith will provide organizational leadership for clinical informatics, including a central role in the implementation of Epic as BJC and Washington University's unified electronic health record, as well as physician leadership for other clinical information systems. He will also extend his previous responsibilities for clinical decision support, data governance, and clinical analytics and performance reporting.

Robyn Klein, M.D., Ph. D., has been promoted to Professor of Medicine. Research in the Klein laboratory focuses on the pathogenesis of neuroinflammatory diseases of the central nervous system (CNS). In particular, she has been interested in the cellular and molecular mechanisms that orchestrate inflammation during both viral and autoimmune encephalitides via endothelial-immune cell interactions.

George Kyei, M.B., C.H.B., Ph.D., has been promoted to Assistant Professor of Medicine. Dr. Kyei will continue his research interests in the area of HIV latency and reservoir maintenance.

fellows' corner

next steps for 2016 graduates...

Jennie H. Kwon, D. O.

Congratulations to Jennie H. Kwon, D. O. and Ige George, M.D. on completing their ID fellowships and joining the Washington University School of Medicine Infectious Diseases faculty. Both have been appointed Instructors in Medicine.

Jennie's research interests include hospital epidemiology, patient safety and healthcare quality improvement. She conducts clinical and translational research focusing on multidrug-resistant organism transmission dynamics and Clostridium difficile infections. Jennie will also serve as a BJH Associate Hospital Epidemiologist.

Ige George, M.D.

Ige's research interests include epidemiology of infections in solid organ transplant recipients. He is working with large administrative data sets to better characterize the outcomes of infectious complications in these hosts. He also has a special interest in global health and tropical diseases.

welcome STD fellow...

Surachai Amornsawadwattana, M.D.

I am originally from Bangkok, Thailand. I graduated from Siriraj Hospital, Mahidol University, Thailand. Then I moved to St. Louis to start my residency at Barnes-Jewish Hospital/ Washington University School of Medicine in June 2012. My lovely wife, Maleewan, is a pediatrician at St. Louis Children's Hospital. Currently, I am a sexually transmitted diseases (STD) fellow at Washington University School of Medicine through the STD Prevention and Training Center under the leadership of Bradley P. Stoner, M.D., Ph.D. I chose the Wash U program for fellowship training because I am very impressed with the residency training program as well as the mentorship, opportunities for research, education, and career development that our ID division has offered. My research interests include quality improvement in STD treatment as well as STD related viral hepatitis.

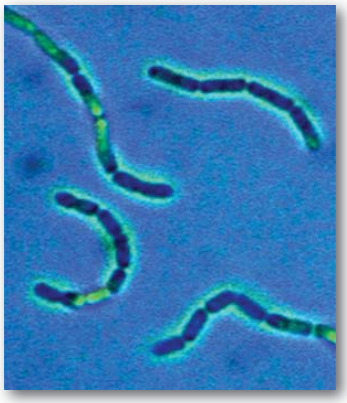
announcements...

First year fellow, Mati Hlatshwayo, M.D., recently married Dr. Jesse Davis, pediatric resident, on September 25, 2015 in Delray Beach Florida.
"By far the best day of life! Yay!" exclaimed Mati.

Third year fellow, now instructor in medicine, Ige George, MD, & Preeta George, MD welcomed a baby girl, Diya Ann, on November 11, 2015, 6 lbs. 12oz. and 20 in long.

ICU Patients Receive No Benefit or Harm from Probiotic Use

Dr. Jennie Kwon, lead author of a study presented at SHEA and subsequently publish in Infection Control & Hospital Epidemiology, the journal of the Society for Healthcare Epidemiology of America (SHEA), reported on that probiotics show no benefit for preventing or eliminating gastrointestinal colonization with drug-resistant organisms in patients in the intensive care unit compared to standard care.



The probiotic Lactobacillus rhamnosus GG (above) was no more effective than regular medical care in preventing the colonization of superbugs in the gastrointestinal tracts of critically ill patients, according to a pilot study by Washington University researchers.

"Our research suggests that probiotics do not help prevent gastrointestinal colonization with multidrug-resistant organisms in critically ill patients," said Jennie H. Kwon, DO, lead author of the study.

This prospective, randomized controlled pilot study, conducted over a 21-month period, followed 70 patients admitted to intensive care units at Barnes-Jewish Hospital in St. Louis. The research team from Washington University School of Medicine in St. Louis sought to determine if the probiotic Lactobacillus rhamnosus GG could prevent gastrointestinal colonization of multi-drug resistant organisms (MDROs), such as *Clostridium difficile*, vancomycin-resistant Enterococcus (VRE), and Pseudomonas aeruginosa. Each patient was followed for 14 days or until they left the unit.

There was no significant difference in overall acquisition of any MRDOs between the two groups. A safety assessment of the use of probiotics in this patient population found that there were no significant differences in mortality rates between the two groups and no adverse events related to use of the probiotic. Limitations of the study included the small sample size of patients, duration of follow-up, and inclusion of a single type of dose of probiotic.

"Further research is needed on this emerging intervention to evaluate the effectiveness in preventing intestinal colonization of drug-resistant organisms," said Dr. Kwon. "Probiotic use is an intriguing topic. With fewer therapies available to treat multidrug resistant organisms, innovative methods to prevent or eliminate gastrointestinal colonization are necessary."

Dr. Kwon recently completed her ID fellowship at Washington University and joined the ID Division as a faculty member January 1, 2016.

farewell...

Kerry Bommarito, Ph.D., MPH, accepted the position of performance analyst in the Performance Solutions Center of Excellence at Mercy Corporate. She will be involved in ongoing quality and performance analytics for the Pharmacies and Laboratories in all Mercy hospitals.

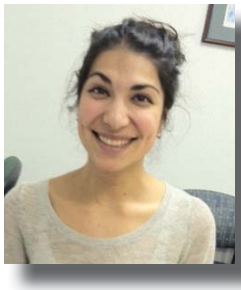
Center for Administrative Data Research Team (l to r): Mohammed Saeed, Margie Olsen, Matthew Keller, Kerry Bommarito, Molly Rater, Dustin Swalley, Cherie Hill

Carlos Santos, M.D.

Carlos Santos, M.D. Assistant Professor of Medicine and Director, Infectious Diseases Clinic, has accepted an appointment as Assistant Professor of Medicine with Rush University Medical Center in Chicago and will serve as a Transplant Infectious Disease Physician and Population Health Scientist.

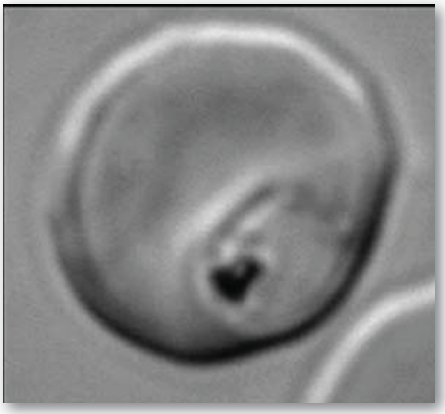
Shadi Parsaei, D.O., Instructor of Medicine, will be joining the Norton Infectious Disease Specialists in Louisville KY.

Both Carlos and Shadi completed their ID fellowships at Washington University Infectious Diseases Division.



Shadi Parsaei, D. O.

crime-scene compound *may be the newset tool in fight against malaria*



This human red blood cell is infected with a malaria parasite. Scientists have identified a new and unusual way to kill the parasite that involves the crime-scene compound called luminol.

The compound that detectives spray at crime scenes to find trace amounts of blood may be used one day to kill the malaria parasite.

Luminol glows blue when it encounters the hemoglobin in red blood cells. And now, researchers at Washington University School of Medicine in St. Louis have shown that they can trick malaria-infected red blood cells into building up a volatile chemical stockpile that can be set off by luminol's glow. To achieve this, the scientists gave infected red blood cells an unusual amino acid and used luminol's glow to trigger the chemical, killing the parasite.

"The light that luminol emits is enhanced by the antimalarial drug artemisinin," said senior author Daniel Goldberg, M.D., Ph.D., Professor of Medicine and Molecular Microbiology. "We think these agents could be combined to form an innovative treatment for malaria."

The results are available online in the journal eLife.

The World Health Organization (WHO) estimated that in 2013, malaria infected 198 million people and killed 584,000, the majority of whom were African children.

The new therapy would have an advantage over current malaria treatments, which have become less effective as the parasite mutates. WHO recommends that artemisinin — the most commonly used antimalarial drug — only be used in combination with other treatments because the parasite is becoming resistant to it.

The new approach targets proteins made by human red blood cells, which the parasite can't mutate.

In the study, researchers led by first author Paul Sigala, Ph.D., a scientist in Goldberg's laboratory, worked with human red blood cells infected with the malaria parasite. They wanted to better understand how the parasite gets hold of heme, the deep red, nonprotein part of hemoglobin that carries oxygen. Heme is essential to the parasite's survival.

The malaria parasite opens an unnatural channel on the surface of red blood cells. When scientists put an ingredient of heme - an amino acid - into the solution containing the cells, the amino acid entered the cells through the channel and started the heme-making process.

The process led to a buildup of a molecule called protoporphyrin IX. When exposed to light, this molecule emits dangerous, chemically reactive compounds known as free radicals, killing the parasites.

The research team plans to test the approach in animal studies.

"All of these agents — the amino acid, the luminol and artemisinin — have been cleared for use in humans individually, so we are optimistic that they won't present any safety problems together," said Goldberg, who is co-director of the Division of Infectious Diseases. "This could be a promising new treatment for a devastating disease."

Reprinted with permission, Michael Purdy, "Washington University Record", August 6, 2015

LEADING *Together*

Our mission is to provide outstanding clinical care, conduct ground-breaking research, and train the next generation of leaders in academic medicine and infectious diseases. Dr. Gerald Medoff has been among the most influential leaders in the School of Medicine in the past half century, and the contributions of Dr. Medoff to the field of medicine are clearly reflected in the quality of the School and in the extraordinary individuals he has mentored. It is therefore only appropriate that we honor him by creating a fund that will provide support for young trainees and junior faculty in the Division, helping them transition their independent careers. Additionally, we rely heavily on outside donations to continue to recruit, train, and retain high quality staff to support the research, education, and clinical mission of the division.

Gerald Medoff, M.D.
Emeritus Professor of Medicine

We believe that you share our sense of pride in what we have been able to build, much of which is due to the leadership of Dr. Medoff. To make a gift online please visit our "LEADING *Together*" page to direct your gift to honor Dr. Medoff to the Division of Infectious Disease Fund (90991) and to review other funding opportunities.

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