



Discovery

Laboratory • Clinic • Community • World • Fall 2018

Institute of Human Virology (IHV) Awarded \$12M to Combat Opioid Epidemic Through Clinical Research Trials

In partnership with the National Institutes of Health and Amygdala Neurosciences, IHV will test a therapeutic that may prevent craving and relapse for patients with opioid use disorder

The Institute of Human Virology (IHV) at the University of Maryland School of Medicine announced on September 18 that it will lead a \$12 million dollar project to improve the morbidity and mortality of people with opioid use disorder (OUD). Utilizing a novel compound, IHV researches will implement a series of investigations, entitled SEARCH, to evaluate the underlying mechanisms of craving reduction as a strategy to prevent opioid misuse, dependence, and relapse. The grant is awarded through the National Institutes of Health's (NIH) Helping to End Addiction Long-term (HEAL) Initiative, made possible through groundbreaking funding from the U.S. Congress.

"We are pleased to have the opportunity through Dr. Shyam Kottlil's terrific team here at the Institute to meaningfully address the critical issue of addiction," said **Robert Gallo, MD**, The Homer and Martha Gudelsky Distinguished Professor in Medicine, co-founder and director, Institute of Human Virology at the University of Maryland School of Medicine and co-founder and director, Global Virus Network. "Dr. Kottlil and I recently published an op-ed in *The Baltimore Sun* outlining the importance of better equipping infectious disease specialists to concomitantly treat substance use disorders. This grant is an important step in doing just that."

"My colleague, Senator Elizabeth Warren and I, introduced legislation this past spring to significantly boost federal funding to combat the rising opioid crisis in the U.S., which leads to tens of thousands of deaths each year," said **U.S. Representative Elijah Cummings (D-Md.)**. "Baltimore City, one of the hardest hit communities in this national crisis, is a prime location for these clinical trials. I am pleased that the NIH recognizes that the IHV, with its vast expertise, is well-positioned to lead these trials and begin to address the opioid epidemic devastating cities and towns across the nation."

Nationally, 64,000 Americans died from opioid overdose in 2016, surpassing peak HIV-related deaths at the height of the HIV epidemic. Maryland has one of

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Director's Message:

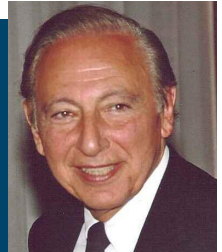
For this issue, I am sharing an op-ed printed in

The Baltimore Sun on August 16 entitled,

"Dr. Robert Gallo: Use HIV lessons to stem opioid epidemic," by my colleague **Shyam Kottlil, MBBS, PhD**, who is a Professor of Medicine and Director of the Division of Clinical Care & Research at the IHV, and me.

While HIV transmission has been significantly reduced over the past decades—especially among people who inject drugs, who now represent less than 10 percent of new HIV diagnoses per year—the recent national surge in opioid misuse threatens to reverse some of these gains.

In 2016, over 42,000 people died from overdose of an opioid, and Maryland had one of the highest per capita rates of overdose, at 36



Robert C. Gallo, MD



continued on page 3



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Shyam Kottilil, MBBS, PhD

the fastest rising rates of opioid overdose death in the nation, from 17.7 deaths per 100,000 individuals in 2015, to 30 deaths per 100,000 individuals in 2016. In Baltimore, it is estimated that 11% of Baltimore City residents have a substance use disorder, which underscores the staggering drug overdose death rate of 112.9 deaths per 100,000 individuals in 2016. In 2016, 454 people died as a result of heroin overdose, outpacing the number of homicide-related deaths in the same year.

The investigational agent, ANS-6637, developed by Amygdala Neurosciences, is a selective ALDH2 Inhibitor that may prevent pathophysiologic dopamine surge and associated craving, without changes to basal dopamine. Given the role of craving in the cycle of addiction and relapse, this drug has the potential to be used as pharmacotherapy for any substance and behavior-based addiction.

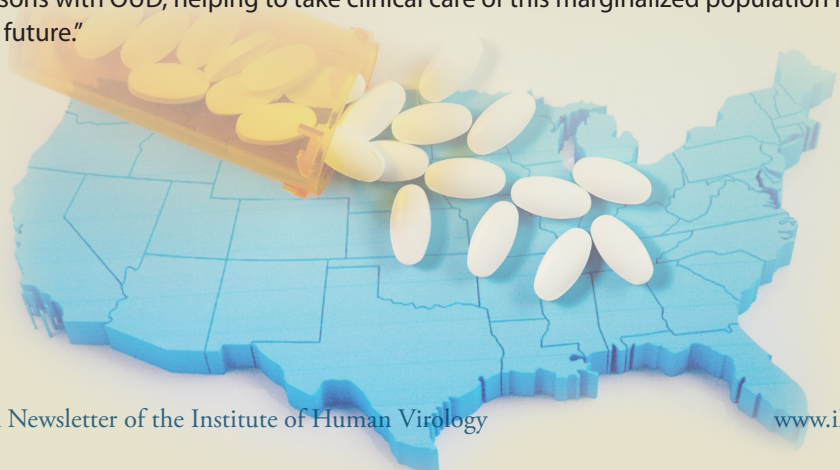
“We are pleased to partner with the NIH to test this novel therapeutic in our research clinics, with the hope that we can help people living with substance use disorder better manage their disease,” said **Shyam Kottilil, MBBS, PhD**, professor of medicine, director, Division of Clinical Care & Research, Institute of Human Virology at the University of Maryland School of Medicine.

The six-year project comprises a comprehensive series of investigations led by IHV faculty. The initial investigation, a pre-clinical study of pharmacokinetics, will be conducted at the NIH in collaboration with NIH investigators. Subsequently, the IHV will lead a series of phase II investigations at research sites spanning Washington, DC and Baltimore, to evaluate the safety and efficacy of ANS-6637 to reduce craving, drug use, and the risk of comorbid conditions including hepatitis C and HIV.

“While there are evidence-based strategies to reduce harm in individuals with OUD, including medication assisted treatment and syringe exchange, craving remains a major impediment to sobriety,” said **Sarah Kattakuzhy, MD**, assistant professor of medicine, Institute of Human Virology at the University of Maryland School of Medicine. “The SEARCH investigations will evaluate a new therapeutic mechanism of action, which if successful, could be part of a comprehensive therapeutic strategy that addresses both the physical and psychological symptoms of addiction. The SEARCH program will build upon our research expertise in high throughput phase II investigations, and our experience in hepatitis C treatment and harm reduction in persons with OUD, helping to take clinical care of this marginalized population into the future.”



Sarah Kattakuzhy, MD



Director's Message *(continued)*

per 100,000 residents. In addition, there have been notable outbreaks of HIV in small rural communities where HIV previously was scarce, such as Austin, Ind., and northern Kentucky.

Further, regions with previously well-controlled HIV epidemics, such as Massachusetts, may be seeing rises in new cases associated with injecting drug use.

Therefore, not only are deaths due to opioid overdose eclipsing the death rates at the peak of the HIV epidemic, injecting drug use has exacerbated the spread of HIV and other infections, including hepatitis C. It is critical that we utilize lessons learned from HIV to address this epidemic of opioid use disorder and in turn prevent further HIV outbreaks.

Let's start with community engagement to change policy—we must focus on managing opioid use disorder as a medical illness rather than a crime. This means expanding access to evidence-based medical treatments, such as methadone and buprenorphine (suboxone), and supporting programs to divert individuals with substance use disorder from incarceration. At present, only 47 percent of counties have a physician who can prescribe buprenorphine, and the majority of publicly funded drug treatment programs do not prescribe medication assisted treatment.

In order to adequately manage all affected individuals, we must dramatically build capacity for this evidence-based treatment of opioid use disorder. This will require all members of the medical community to aid in management of this patient population, addressing addiction at all points of medical engagement.

A first step will be to operate models of care aimed at task-shifting addiction treatment with buprenorphine to non-specialist providers in community-based settings. This model was successfully employed in the Institute of Human Virology (IHV) at the University of Maryland School of Medicine ASCEND study to treat hepatitis C. It can also expand access to individuals in rural or underserved communities.

We must also engage specialist providers, such as infectious disease physicians, to take on aspects of addiction treatment



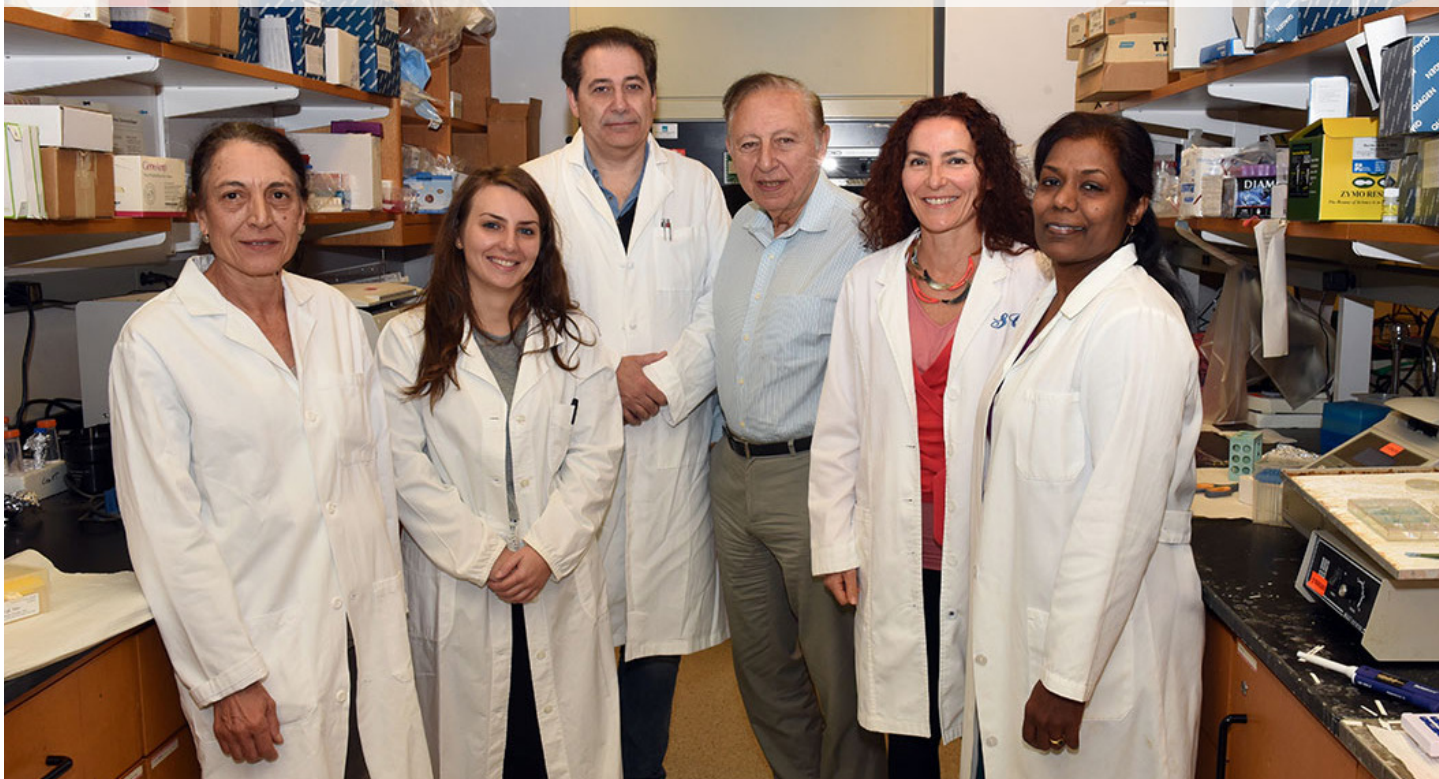
care. If a patient is being seen for HIV or hepatitis C related to opioid use disorder, attempts to reduce harm associated with addiction and injecting drug use should be incorporated into the treatment plan.

The co-location of medication assisted treatment for opioid use disorder with HIV treatment has been proven to improve HIV related outcomes. Furthermore, we are currently studying the impact of co-location of buprenorphine with hepatitis C treatment in marginalized people who inject drugs in the IHV ANCHOR study. We propose a significant increase in such small clinic models that reach the targeted communities.

Finally, there are too few medications that can be effectively employed to treat opioid use disorder. Significant research funding is needed to stimulate the development of novel therapeutics to successfully manage this chronic illness. As HIV infection in the United States now threatens people with health disparities living in communities impacted by substance use disorder, we as a nation need to seek out innovative strategies to address opioid use disorder in conjunction with HIV care and prevention.

Only by utilizing lessons learned from the HIV epidemic, and by acknowledging the parallel and synergistic epidemics of opioid use disorder and HIV, can we prevent another generation of young people from being decimated by these diseases.

Institute of Human Virology Researchers Discover Bacterial Protein That Promotes Cancer



Members of this research team include those pictured here: Fiorenza Cocchi, MD, Francesca Benedetti, PhD, Davide Zella, PhD, Robert Gallo, MD, Sabrina Curreli, PhD, and Selvi Krishnan, PhD

The Institute of Human Virology (IHV) at the University of Maryland School of Medicine recently announced the discovery that DnaK, a protein of the bacterium mycoplasma, interferes with the mycoplasma-infected cell's ability to respond to and repair DNA damage, a known origin of cancer. Little or no mycoplasma DnaK DNA sequences were found associated with the tumor, which was fully developed, suggesting a hit-and-run or hide mechanism of transformation, indicating that the damage is done early but the protein may not be needed once the cancer cells are formed. The study was published December 3, 2018 in the Proceedings of the *National Academy of Sciences* and suggests that bacterial infections may contribute to far more cancers than previously thought. The announcement was made by **Robert Gallo, MD**, The Homer & Martha Gudelsky Distinguished Professor in Medicine and Co-Founder and Director, Institute of Human Virology, University of Maryland School of Medicine and **Davide Zella, PhD**, Assistant Professor of Biochemistry and Molecular Biology, Institute of Human Virology, University

of Maryland School of Medicine. Drs. Gallo and Zella collaborated with Hervé Tettelin, PhD, Associate Professor of Microbiology and Immunology, Institute for Genome Sciences, University of Maryland School of Medicine.

"Currently, approximately 20% of cancers are thought to be caused by infection, most are known to be due to viruses," said Dr. Gallo. "Mycoplasmas are a family of bacteria that are associated with cancers, especially in people with HIV. Our work provides an explanation for how a bacterial infection can trigger a series of events that lead to cancer. Of particular importance, the infection did not need to persist and the protein did not need to be continuously present in all cancer cells. The study also provides a mechanism for how some bacterial infections can interfere with specific cancer drugs."

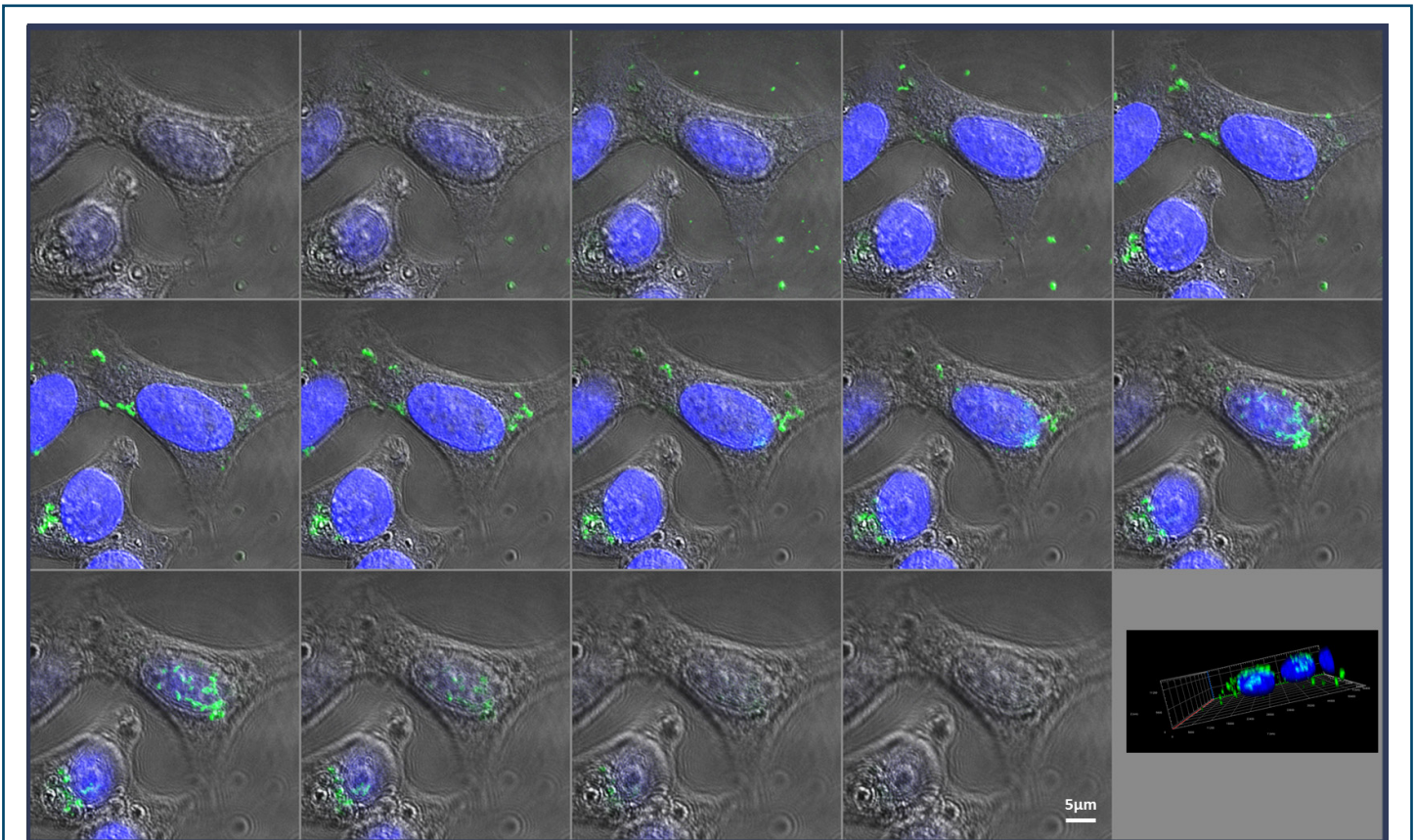
Researchers utilized an immune-compromised mice as a model for analyzing the effect of mycoplasma infection on the development of lymphoma. They compared how quickly non-infected immune-compromised mice

developed lymphoma compared to mycoplasma-infected immune-compromised mice. The mice were infected with a strain of mycoplasma from an HIV patient. The researchers found that mycoplasma infection caused the mice to develop lymphoma earlier in life than noninfected immune-compromised mice and that some, but not all, of the cancer cells had bacterial DNA. Finding only a small amount of bacterial DNA in the cancer cells suggested that the infection did not have to persist to trigger cancer.

“We focused on a protein called DnaK, which is part of a family of proteins that function as a ‘chaperone’ for other proteins protecting them from damage or helping them to fold,” said Dr. Zella. “However, in this case, DnaK reduces the activity of important cellular proteins involved in DNA repair and anti-cancer-activities, such as p53. Thus, cells infected with mycoplasma would not be able to properly repair damaged DNA, thus, potentially increasing the risk for cancer development.”

The scientists noted that the bacteria can release DnaK and the DnaK enters nearby uninfected cells. The study also demonstrates that by reducing p53, DnaK can also reduce the efficacy of anti-cancer drugs. Thus, mycoplasma infection could not only trigger events leading to the accumulation of DNA damage and oncogenesis in infected cells, but also trigger cancer-causing events in nearby uninfected cells that took up DnaK released from infected neighboring cells.

“We analyzed the amino acid sequences of DnaK from many bacteria and found that the DnaK proteins from bacteria associated with cancer grouped together were different DnaK sequences from bacteria that are not associated with cancer,” said Dr. Tettelin. “This raises the possibility that other bacteria have the same cancer-promoting ability.”



Intracellular uptake of exogenous DnaK-V5 by Mycoplasma-free HCT116 cells. A confocal image of exogenous DnaK-V5 protein of *M. fermentans* in HCT116 cell lines treated with DnaK-V5 protein. The figure shows nuclear localization and perinuclear localization of DnaK. The figure is composed by collected Z- stacks of corresponding gallery of images, each presenting 0.5 µm thick slide. Insert figure in the lower right corner is a corresponding constructed 3D presentation of the protein uptake.



Robert Gallo, MD

The Institute of Human Virology (IHV) at the University of Maryland School of Medicine commenced IHV's 20th Annual International Meeting held Monday, October 22 through Thursday, October, 25 at the Four Seasons Hotel in Baltimore, Maryland. This year, among other viral and cancer related topics, the meeting held special sessions on the 40th anniversary of the first human retrovirus, Human T cell Leukemia Virus (HTLV), and the 15th anniversary of the President's Emergency Plan for AIDS Relief (PEPFAR). IHV's Annual International Meeting attracts hundreds of elite scientists who descend upon Baltimore to share ideas and inspire medical virus research collaborations.

"Our meeting is designed to highlight cutting-edge science and provide a platform for provocative discussion," said **Robert C. Gallo, MD**, The Homer & Martha Gudelsky Distinguished Professor in Medicine, Co-founder and Director of the Institute of Human Virology at the University of Maryland School of Medicine and Co-founder and Director of the Global Virus Network (GVN). "It is clear from this year's HTLV-1 session that there is still much research needed forty years since announcing our discovery of HTLV-1 at a Cold Spring Harbor meeting. It is my hope that governments far and wide will recognize this need and provide the resources needed. I enjoyed hearing about the enormous success of PEPFAR during our special session, and about

Institute of Human Virology Hosts 20th Annual International Meeting of Top Medical Virus Researchers in Baltimore, MD

the lessons learned which could potentially be applicable to the HTLV pandemic today."

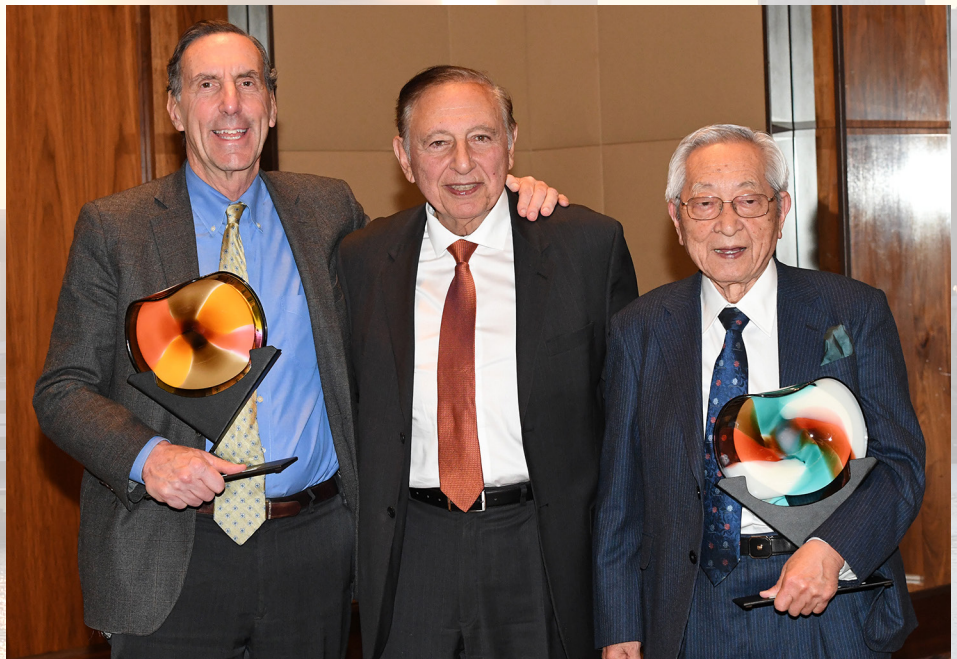
The meeting program's organization was led by **Man Charurat, PhD**, Professor of Medicine and the Director of the Division of Epidemiology and Prevention of the Institute of Human Virology at the University of Maryland School of Medicine. In addition to the Institute's special sessions on HTLV and PEPFAR this year, the meeting comprised of interesting sessions on HIV, cancer research, particularly immune therapy of various cancers, and emerging global health challenges.

During a gala held Wednesday, October 24, the 2018 IHV Lifetime Achievement Awardees, who are nominated and voted upon by IHV faculty, were honored.

The 2018 IHV Lifetime Achievement for Excellence in Medical Education, Clinical Care and Clinical Research was awarded to **Henry Masur, MD**, Chief of Critical Care Medicine, Department at the National Institutes of Health (NIH) Clinical Center.

"Dr. Masur was already a leader in the early 1980s and helped the medical field confront the then new epidemic called AIDS," said Dr. Gallo. "Currently, Dr. Masur is tackling the ongoing AIDS epidemic disproportionately affecting marginalized people with health disparities in Washington, DC, which has been highly successful in controlling HIV transmission, and for the early, rapid development of hepatitis C therapeutics. Dr. Masur is also a terrific role model and mentor for several HIV and infectious disease physicians, qualities not seen enough

Renowned Clinical Researchers Henry Masur and Kiyoshi Takatsuki to receive prominent Lifetime Achievement Awards



Henry Masur, MD, Robert Gallo, MD, and Kiyoshi Takatsuki, MD, PhD



Terry Lierman, Caroline Paff, William Blattner, MD The Honorable Nancy Kopp, and Jay Perman, MD

these days. We are pleased to honor Dr. Masur with this year's Lifetime Achievement Award."

The 2018 IHV Lifetime Achievement for Excellence in Clinical Research was awarded to **Kiyoshi Takatsuki, MD, PhD**, Professor Emeritus at Kumamoto University in Japan.

"Dr. Takatsuki was the first to recognize an epidemiological disease occurrence of a specific kind of human leukemia, called Adult T cell Leukemia (ATL)," said Dr. Gallo. "He and his colleagues also discovered very specific features of the leukemic cells that are a virtual diagnostic marker of this leukemia. They defined particular presence of ATL in epidemic form in the south-western part of Japan. Later, my colleagues and I discovered the cause of this disease, HTLV-1. Dr. Takatsuki's milestone observation contributed to our ability to open a whole new field of human retroviruses. We are very pleased to honor Kiyoshi Dr. Takatsuki with IHV's top award."

Since IHV's founding, the Baltimore-based Institute faculty and staff have grown from 50 to more than 300, and the Institute's patient base has grown from just 200 patients to currently nearly 6,000 in Baltimore and Washington, DC, and more than 1.5 million in 10 African and 2 Caribbean nations since 2004. IHV is also internationally renowned for its basic science research, which includes a promising preventive HIV vaccine funded largely by the Bill & Melinda Gates Foundation and, in part, by others including National Institute of Allergy and Infectious Diseases.



Alash'le Abimiku, MSc, PhD



The Honorable Kathleen Kennedy Townsend



John Martin, MD



Masao Matsuoka, MD, PhD, Isaac Witz, PhD, Smadar Fischer, and Junji Yodoi, MD, PhD



The Honorable Mark Dybul, MD and Salim S. Abdoool Karim, MBChB, PhD moderate a panel discussion on PEPFAR—Towards HIV Epidemic Control

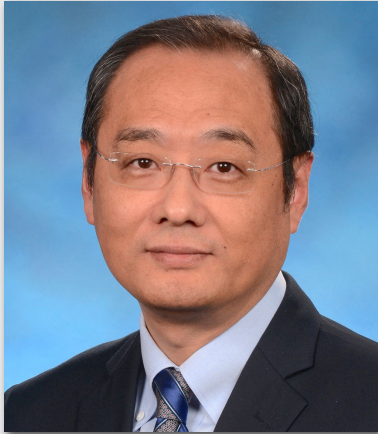


Lloyd Mulenga, BSChB, MBChB, MScID, MMED



Anne Van den Broeke, PhD, DVM, asks a question during the HTLV session





Wuyuan Lu, PhD

A Question and Answer with the New Assistant Director of the IHV, Dr. Wuyuan Lu

Dr. Wuyuan Lu received his PhD in 1994 from the Department of Chemistry, Purdue University, and trained as a postdoctoral fellow in the Department of Cell Biology at the Scripps Research Institute. After spending two years in the biotech industry and a brief tenure at the University of Chicago as a research associate (assistant professor) in the Department of Biochemistry and Molecular Biology, he joined the University of Maryland faculty in 2000 as a tenure-track assistant professor and achieved the rank of full professor with tenure in 2009. Currently, he is Professor of Biochemistry and Molecular Biology and serves as Co-Director of IHV's Division Basic Science as well as Head of the Laboratory of Chemical Protein Engineering. As an author of 160 peer-reviewed publications with over 6000 citations and an H-index of 43 (Thomson Reuters), he's elected Vice Chair for the 2015 and Chair for the 2017 Gordon Research Conferences on Antimicrobial Peptides.

Q What will you accomplish in your new role as IHV's Assistant Director?

A First and foremost, I will serve as Assistant Director at the pleasure of Dr. Gallo, Director of the IHV. In my new role, I expect to provide assistance to Dr. Gallo by carrying out academic administrative tasks as directed, including, but not limited to:

1. Helping to coordinate IHV's relationships with other academic partners on campus
2. Helping to organize IHV's annual scientific meetings and retreats as well as IHV's Board of Advisors and Scientific Advisory Board meetings
3. Helping to facilitate communications between the Director's Office and IHV's Divisional Directors, and
4. Helping to implement IHV's strategic plans and Dr. Gallo's directives

Q What is your vision for IHV?

A Built initially upon a world-class research program in basic science of HIV/AIDS, the IHV has continually outgrown its peers in the nation through multiphasic programmatic expansions into HIV vaccine development, domestic and international HIV/AIDS prevention and treatment, clinical research on hepatitis viruses, and, more recently, immunotherapy. The central theme of these added programs is "Translation," reflecting the grand vision of IHV's three Co-Founders, Dr. Robert Gallo, Dr. William Blattner and Dr. Robert Redfield, from more than 22 years ago, which encompasses their "Bench-to-bedside research under one roof" vision.

My vision for the IHV, which is on a fast-growing trajectory, is no different from theirs, except that bench-to-bedside research can and, probably should be, accelerated through more strategic partnerships with business and industry. As Assistant Director, I will strive to explore such partnerships to help speed up IHV's drug discovery efforts in cancer, infectious diseases and immunological disorders.

Q Can you tell us more about your scientific collaborations in China?

A My IHV colleagues and I have helped foster institutional collaborations with several Chinese universities including Fudan University (Shanghai), Xi'an Jiaotong University (Xi'an) and China Pharmaceutical University (Nanjing). With our help, a research center for translational medicine was established in 2012 at Xi'an Jiaotong University and, more recently, we launched a structural biology program at China Pharmaceutical University. Over the past ten years, we have hosted more than 20 visiting scientists from China, most of whom were on various types of scholarships. These exchange programs and scientific collaborations have directly contributed to our research productivity at the IHV. Going forward, we would like to continue to explore new opportunities for mutually beneficial scientific collaboration with Chinese institutions, wherever and whenever appropriate, to further enhance our research portfolio and advance our research agenda in a way that conforms to the scientific mission of the IHV.

Q What does your current work comprise?

A My own research lies at the interface of chemistry and biology with a strong focus on developing biochemical tools to elucidate the molecular basis of protein function and to aid drug discovery for cancer and infectious diseases. Currently, there are three major research projects in my laboratory. The 1st project is aimed at delineating the structure and function relationships for, and mechanisms of, action of human defensins in innate immunity. The 2nd project revolves around using combinatorial library screening and structure-based rational design approaches to the discovery of inhibitors of protein-protein interactions for therapeutic use. The 3rd project centers on developing contemporary synthetic peptide/protein chemistry tools to decipher how posttranslational modifications regulate at the structural level protein function. Our work has been continually supported for the past 15 years by the NIH.

Institute of Human Virology Names Dr. Man Charurat as Director of the Center for International Health, Education, and Biosecurity (CIHEB)



Dr. Charurat brings decades of expertise to head University of Maryland School of Medicine Institute's vast international programs



Man Charurat, PhD, MHS

On December 3, 2018, the Institute of Human Virology (IHV) at the University of Maryland School of Medicine announced the appointment of **Man E. Charurat, PhD, MHS**, Professor of Medicine and Director of the Division of Epidemiology and Prevention at the IHV as the Director of IHV's Center for International Health, Education, and Biosecurity (CIHEB). Dr. Charurat will replace Deus Bazira, DrPH, MPH, MBA. The announcement was made by **Robert C. Gallo, MD**, The Homer & Martha Gudelsky Distinguished Professor in Medicine, Co-Founder and Director of the IHV, and Co-Founder and Director of the Global Virus Network (GVN).

"Dr. Charurat is a renowned global health leader and researcher, who is recognized internationally for his groundbreaking epidemiological studies in sub-Saharan Africa with populations affected, and infected, by HIV," said Dr. Gallo. "With Dr. Charurat's leadership, I have no doubt that CIHEB's mission will grow its existing footprint in Botswana, Kenya, Rwanda, Zambia, Tanzania, and Nigeria by strengthening local capacities for quality services and research."

CIHEB comprises nearly fifteen years of IHV's international public health initiatives and programs that have

positively impacted millions of patients in resource-constrained countries. CIHEB's success is based upon its extensive connections with clinical and public health institutions and networks of foreign-born and foreign-based experts and personnel, which enhances effective, evidence-based interventions that are sustainable in project countries. CIHEB's work also includes significant roles in the development of foreign countries' national healthcare systems, thereby serving as an agent of change for millions of people living in need of quality healthcare around the world.

"Dr. Charurat's team at the IHV has a history of establishing patient-centered programs where the populations they serve are at the center of the program design," said Dr. Gallo. "Through collaboration and a vibrant learning environment, Dr. Charurat will certainly enhance CIHEB's initiatives, particularly in research and publications."

Dr. Charurat has nearly 20 years with partners in Africa, where he helped establish credible HIV service delivery and research that guides the development, implementation, and evaluation of health programs.

Additionally, he established a robust field research site in Nigeria that currently executes nearly a dozen National Institutes of Health (NIH) research grants.

"Dr. Charurat's vision for CIHEB, to achieve higher visibility locally, nationally and globally through innovative population science and evidenced-based services to improve the quality of services for HIV, co-infections, and non-communicable diseases, will serve not just the IHV, but the University and international community broadly," said Dr. Gallo.

Dr. Charurat received his Bachelor of Science from the University of Washington, Seattle, Masters of Health Science in Infectious Disease Epidemiology from Johns Hopkins University and PhD in International Health from Johns Hopkins Bloomberg School of Public Health. He was named the Director of the Division of Epidemiology and Prevention at the Institute of Human Virology, University of Maryland School of Medicine in 2015 and has grown the Division into a vibrant, dynamic program with the Centers for Disease Control and Prevention (CDC) and NIH awards totaling \$121 million annually.



Man Charurat, PhD, MHS meets with Nigerian officials

Officials Gather for the Grand Opening of the JACQUES Initiative Journey Center



L to R: Robert Gallo, MD, Mary Beth Haller, Esq, Danny Wong, Curt Civin, MD, The Honorable Elijah Cummings, Jamie Mignano, PhD, MSN, MPH, RN, Alison Brown, MPH, Terry Lierman and Rhonda Carr

On October 18, 2018, U.S. Representative Elijah Cummings (D-MD) and other top officials highlighted the importance of supporting the Baltimore community at the Grand Opening of the JACQUES Initiative Journey Center. The center is part of the JACQUES Initiative, a program of the Institute of Human Virology (IHV) at the University of Maryland School of Medicine (UMSOM).

The new 7,300 square foot headquarters of the JACQUES Initiative Journey Center is located at 880 Park Avenue in Baltimore. The Center offers a wide range of free services to the Baltimore community, including walk-in HIV and Hepatitis-C testing; peer support and navigation to HIV and Hepatitis-C prevention services, health education, support groups, LGBTQ+ community events, youth-friendly programming, computer and financial literacy courses, and community work space.

Officials speaking at the grand opening included **The Honorable Elijah Cummings**, U.S. House of Representatives; **Jamie Mignano, PhD, MSN, MPH, RN**, Executive Director, The JACQUES Initiative, **Bruce Jarrell, MD, FACS**, Executive Vice President, Provost and Dean of the Graduate School, University of Maryland, Baltimore; **Alison Brown, MPH**, President of the University of Maryland Medical Center Midtown Campus, and Senior Vice President, University of Maryland Medical System; **Curt Civin, MD**, Associate Dean for Research, Director, Center for Stem Cell Biology & Regenerative Medicine at UMSOM; **Robert Gallo, MD**, the Homer and Martha Gudelsky Distinguished Professor in Medicine and Director of the IHV; **Mary Beth Haller, Esq**, Interim Baltimore City Health Commissioner; and **Rhonda Carr**, IHV JACQUES Initiative Journey Center Peer Navigator.

— A Community Program to Help those in Need with HIV and Hepatitis-C



Granville Garnett, Amber Braswell, Monique Shelton, Sierra Carey-Brown of the JACQUES Initiative



Nikki Akparewa, MSN, MPH, RN, educates The Honorable Elijah Cummings on JACQUES Initiative programs



IHV's JACQUES Initiative Participates in World AIDS Day Outreach

On Friday November 30th, in commemoration of World AIDS Day, the IHV's JACQUES Initiative (JI) hit the ground running with the University of Maryland Medical System's (UMMS) Community Health Outreach van. JI, with the assistance of 10 University of Maryland, Baltimore volunteer students, had a successful day, testing more than 24 community members for HIV. Community members were gifted red scarves in commemoration of World AIDS Day and offered hot coffee, donuts and muffins, compliments of the UMMS Community Health program.



Publications



Jibreel Jumare, MBBS, PhD

Jibreel Jumare, MBBS, PhD, Research Associate of Epidemiology and Public Health, Division of Epidemiology and Prevention, **Alash'le Abimiku, MSc, PhD**, Professor of Medicine, Division of Epidemiology and Prevention, and **Man Charurat, PhD, MHS**, Professor of Medicine, Director, Division of Epidemiology and Prevention, Director, Center of International Health, Education, and Biosecurity (CIHEB) published, "Body mass index and cognitive function among HIV-1 infected individuals in China, India, and Nigeria," in the *Journal of Acquired Immune Deficiency Syndrome* in November 2018.



Jamie L. Mignano, PhD, MSN, MPH, RN

Jamie L. Mignano, PhD, MSN, MPH, RN, Executive Director of the JACQUES Initiative, published "Results and Implications of Routine HIV Testing in the Inpatient Setting: A Descriptive Analysis" in *Population Health Management* on February 21, 2018 with co-authors Lucy Miner, BSN, RN, PCCN, Division of Medicine, Surgery and Cardiovascular Medicine, University of Maryland Medical Center, Kristin Siedl, PhD, RN, Department of Quality and Safety, University of Maryland Medical Center, University of Maryland School of Nursing, Christina Cafeo, DNP, RN, CENP, University of Maryland Medical Center, Lisa Rowen, DNSc, RN, FAAN, University of Maryland Medical Center, Mangla Gulati, MD, FACP, SFHM, University of Maryland Medical Center, University of Maryland School of Medicine, **Travis Brown, MS, MBA**, JACQUES Initiative, Institute of Human Virology and **Robert Redfield, MD**, formerly The Robert C. Gallo, MD Endowed Professorship in Translational Medicine, Director, Division of Clinical Care and Research, Institute of Human Virology.

Rebecca Nowak, PhD, Assistant Professor of Epidemiology and Public Health, Division of Epidemiology & Prevention and **Man Charurat, PhD, MHS**, Professor of Medicine, Director, Division of Epidemiology and Prevention, Director, Center of International Health, Education, and Biosecurity (CIHEB), published "Anal microbial patterns and oncogenic human papillomavirus in a pilot study of Nigerian men who have sex with men at risk for or living with HIV" in *AIDS Research and Human Retroviruses* online October 17, 2018.



Rebecca Nowak, PhD

Rebecca Nowak, PhD, Assistant Professor of Epidemiology and Public Health, Division of Epidemiology & Prevention and **Man Charurat, PhD, MHS**, Professor of Medicine, Director, Division of Epidemiology and Prevention, Director, Center of International Health, Education, and Biosecurity (CIHEB) published "Molecular screening for *Neisseria gonorrhoeae* antimicrobial resistance markers in Nigerian men who have sex with men and transgender women," in the *International Journal of STD & AIDS* in November 2018.



Manhattan Charurat, PhD

Rebecca Nowak, PhD, Assistant Professor of Epidemiology and Public Health, Division of Epidemiology & Prevention and **Man Charurat, PhD, MHS**, Professor of Medicine, Director, Division of Epidemiology and Prevention, Director, Center of International Health, Education, and Biosecurity (CIHEB) published, "The Synergistic Impact of Sexual Stigma and Psychosocial Well-Being on HIV Testing: A Mixed-Methods Study Among Nigerian Men who have Sex with Men," in *AIDS and Behavior* in December 2018.

Habib Ramadhani, MD, PhD, Research Associate, Division of Epidemiology and Prevention, **Rebecca Nowak, PhD** Assistant Professor of Epidemiology and Public Health, Division of Epidemiology and Prevention, and **Man Charurat, PhD, MHS**, Professor of Medicine, Director, Division of Epidemiology and Prevention, Director, Center of International Health, Education, and Biosecurity (CIHEB) published "Individual and Network Factors Associated With HIV Care Continuum Outcomes Among Nigerian MSM Accessing Health Care Services," in the *Journal of Acquired Immune Deficiency Syndrome* in September 2018



Chozha Rathinam MSc, PhD

Chozha Rathinam MSc, PhD, Assistant Professor of Medicine, Division of Basic Science, Published “Constitutive activation of the canonical NF- κ B pathway leads to progressive Bone Marrow Failure and induction of Erythroid Transcriptional Program in Hematopoietic Stem Cells” in *Cell Reports* on November 20, 2018.

Chozha Rathinam MSc, PhD, Assistant Professor of Medicine, Division of Basic Science, Published “A20 deficiency in Multipotent Progenitors perturbs quiescence of Hematopoietic Stem Cells” in *Stem Cell Research* on October 31, 2018.

Chozha Rathinam MSc, PhD, Assistant Professor of Medicine, Division of Basic Science, Published “Constitutive activation of NF- κ B pathway in hematopoietic stem cells causes loss of quiescence and deregulated transcription factor networks” in *Frontiers in Cell and Developmental Biology* on October 30, 2018.



Davide Zella, PhD

Davide Zella, PhD, Assistant Professor of Biochemistry and Molecular Biology, co-Head of the Laboratory of Tumor cell Biology, Division of Basic Science and **Robert C. Gallo, MD**, the Homer & Martha Gudelsky Distinguished Professor in Medicine, co-Head of the Laboratory of Tumor cell Biology, Division of Basic Science and Division of Vaccine Research, Director, Institute of Human Virology, published

“Mycoplasma promotes malignant transformation in vivo, and its DnaK, a bacterial chaperone protein, has broad oncogenic properties” in the *Proceedings of the National Academy of Sciences of the United States of America* on December 3, 2018. Others co-authors are **Sabrina Curreli, PhD**, Research Associate of Medicine, Division of Basic Science, **Francesca Benedetti, PhD**, Research Associate of Biochemistry and Molecular Biology, Division of Basic Science, **Selvi Krishnan, PhD**, Research



Robert C. Gallo, MD

Assistant, Basic Science, **Fiorenza Cocchi, MD**, Assistant Professor of Medicine, Division of Basic Science, **Olga Latinovic, PhD, MSc**, Assistant Professor of Microbiology and Immunology, Division of Basic Science, Frank Denaro, PhD, Associate Professor of Biology, Morgan State University, **Fabio Romerio, PhD**, Assistant Professor of Medicine, Division of Basic Science, **Mahmoud Djavani, PhD**, Division of Basic Science, **Man Charurat, PhD, MHS**, Professor of Medicine, Director, Division Epidemiology and Prevention, Director, Center of International Health, Education, and Biosecurity (CIHEB), **Joseph L. Bryant, DVM**, formerly Professor of Pathology, Director, Division of Animal Models and **Hervé Tettelin**, Associate Professor of Microbiology and Immunology, Institute of Genome Sciences.

Grants



Clement Adebamowo, BM, ChB, ScD, FWACS, FACS

Clement A. Adebamowo, BM, ChB, ScD, FWACS, FACS, Professor of Epidemiology and Public Health, Division of Epidemiology and Prevention, Associate Director of Population Science, the Marlene and Stewart Greenebaum Comprehensive Cancer Center, was recently awarded \$351,386.24 to support efforts for "Framing HPV Vaccination Messages for African American Parents". This award is will

provide input on all relevant aspects of the project with particular focus on developing scientifically accurate messages, and developing and optimizing recruitment strategies and study procedures in clinic-based settings. Dr. Adebamowo will actively participate in the preparation of scientific reports and dissemination of the results.

Cassidy Claassen MD, MPH, Assistant Professor of Medicine,



Cassidy Claassen, MD, MPH

Technical Director, Center for International Health, Education, and Biosecurity (CIHEB), has been awarded a five-year, \$17.5 million grant entitled "Community Impact to Reach Key and Underserved Individuals for Treatment and Support" (CIRKUIITS) from the Centers for Disease Control and Prevention (CDC) to work closely with facilities and treatment partners to address the gaps in HIV treatment among

priority populations in Zambia.

Jennifer Husson, MD, MPH, Assistant Professor of Medicine, Division of Clinical Care and Research, was awarded \$727,760.00 for four years to support the efforts of "Merck Sharp & Dohme Corp" to assist with the clinical trials that will Evaluate the Efficacy and Safety of MK-8228 (Letemovir) Versus Valganciclovir for the Prevention of Human Cytomegalovirus (CMV) Disease in Adult Kidney Transplant Recipients

Jennifer Husson, MD, MPH, Assistant Professor of Medicine, Division of Clinical Care and Research, was awarded \$185,770 for 3 years to support the efforts of "Intercept Pharmaceuticals, Inc" to assist with clinical trials that will Evaluate the Efficacy and Safety of Obeticholic Acid in Subjects with Compensated Cirrhosis due to Nonalcoholic Steatohepatitis.



Sarah Kattakuzhy, MD

Sarah M. Kattakuzhy, MD, Assistant Professor of Medicine, Clinical and Administrative Director, DC Partnership for HIV/AIDS Progress, Division of Clinical Care and Research, and **Shyam Kottlil, MBBS, PhD**, Professor of Medicine, Division of Clinical Care and Research, were awarded \$12,068,042 to support the efforts for "NIH/NIAID" to assist with the Evaluation of Treatment Strategies to reduce drug cravings and harm in people with OPIOID use disorder.



Yang Liu, PhD

Yang Liu, PhD, Professor of Surgery, Director of the Division of Immunotherapy, was awarded an R01 from the National Institute of Allergy and Infectious Diseases in the amount of \$854,038 over 2 years to support efforts for "Checkpoints in the cellular response to tissue injury." This study aims to reveal the molecular mechanism by which CD24-Siglec G interaction suppresses rheumatoid arthritis.



Rebecca Nowak, PhD

Rebecca Nowak, PhD, Assistant Professor of Epidemiology and Public Health, Division of Epidemiology and Prevention, was recently awarded a K07, \$677,160 for five years entitled, "Role of Anal Microbiota, Local Cytokines and HIV in Persistence of High-Risk Human Papillomavirus." This award will assess anal cancer risk increasing in men who have sex with men, dually infected with HIV and high-risk human papillomavirus (HR-HPV). Given their history of sexual intercourse, many of these men are ineligible for the HPV vaccines. The proposed study assesses the role of microbiota and cytokines in the anal mucosa on persistence of HR-HPV to identify immune pathways that may increase regression of precancerous lesions to prevent anal cancer.



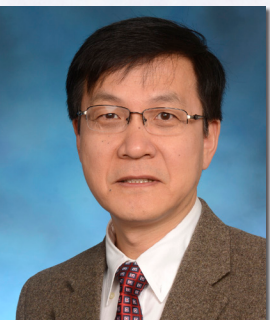
Eric Sundberg, PhD

Eric Sundberg, PhD, Professor of Medicine, Co-Director, Basic Science Division, received a seed grant in the amount of \$28,260 as part of a UMCP-UMB collaborative project with Brian Pierce, Ph.D. Assistant Professor, Department of Cell Biology and Molecular Genetics, Institute for Bioscience and Biotechnology Research (IBBR). The seed grant was awarded by the IBBR. Several recent major studies have revealed

that there are specific key sites and epitope conformations targeted by protective antibodies that bind *Plasmodium falciparum* circumsporozoite protein (PfCSP), while non-protective antibodies engage these sites or adjacent sites in a distinct manner. The team will use the structures of these antibody-bound epitopes to design immunogens that will form these structures and will drive the immune response to elicit protective antibodies in the context of a vaccine.

Lydia S.Y. Tang, MB, BCh, Assistant Professor of Medicine, Division of Clinical Care and Research, was awarded \$44,850.00 for two years to support the efforts for "Roche Diagnostic," to assist with the clinical trials for FDA approved medication for individuals with Hepatitis B and C.

Lydia S.Y. Tang, MB, BCh, Assistant Professor of Medicine, Division of Clinical Care and Research, was awarded \$885,239.00 for one year to support the efforts for "Gilead Sciences, Inc," to assist with their clinical trials Multi-center Study to Evaluate the Safety, Tolerability and Antiviral Activity of GS-9688 in Virally-Suppressed Adult Subjects with Chronic Hepatitis B.



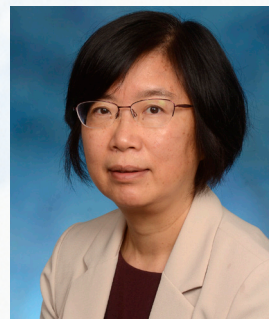
Yin Wang, PhD

Yin Wang, PhD, Assistant Professor of Surgery, Division of Immunotherapy, was recently awarded \$30,000 for one year by the Childhood Brain Tumor Foundation to support efforts for "testing the efficacy of liposomal Echinomycin in the Group 3 medulloblastoma mouse model and determine if treatment regimens can be tailored to achieve complete remission and prevent relapse of cancer."



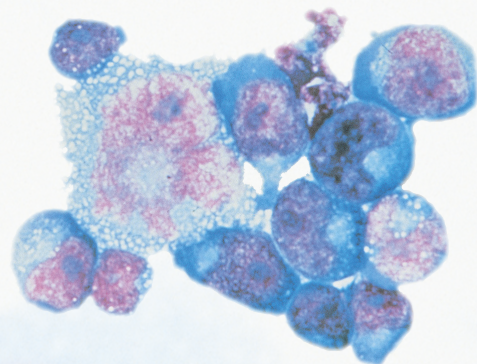
Davide Zella, PhD

Davide Zella, PhD, Assistant Professor of Biochemistry and Molecular Biology, Division of Basic Science, has been awarded a one-year, 30,000 Euro award to investigate "Hydrogen Sulfide in COPD." In this study, the effect of hydrogen sulfide on lung function in Chronic Obstructive Pulmonary Disease (COPD) patients will be evaluated.



Pan Zheng, MD, PhD

Pan Zheng, MD, PhD, Professor of Surgery, Division of Immunotherapy and Yang Liu, PhD, Professor of Surgery, Director of the Division of Immunotherapy, received a new R01 from National Cancer Institute for \$2,090,925 over five years to support the study titled "A Mouse Model to Assess Long Term Immunotherapy-related Adverse Effects in Children." Cancer immunotherapy has emerged as the most potent and durable treatment. CAR-T cellular therapy and checkpoint inhibitors immunotherapy are being tested in clinical trials for pediatric cancers.



Lectures



Clement Adebamowo, BM,
ChB, ScD, FWACS, FACS

Clement Adebamowo, BM, ChB, ScD, FWACS, FACS, Professor of Epidemiology and Public Health, Division of Epidemiology and Prevention and Associate Director of Population Science, the Marlene and Stewart Greenebaum Comprehensive Cancer Center, gave the keynote lecture, entitled “Engaging the Whole Society for Cancer Control,” at the 50th anniversary of the **Nigerian Cancer Society on October 12, 2018** in Abuja, Nigeria.



Robert C. Gallo, MD

Robert C. Gallo, MD, the Homer & Martha Gudelsky Distinguished Professor in Medicine, Co-Founder and Director, Institute of Human Virology, presented the keynote lecture entitled “HIV Today and Beyond: Perspectives from the past and prospects for the future” at the 2018 National Conference on HIV/AIDS hosted by the **Chinese Association of STD/AIDS Prevention and Control (CASAPC)**. The meeting was held in **Kunming, China on September 27-29, 2018**.

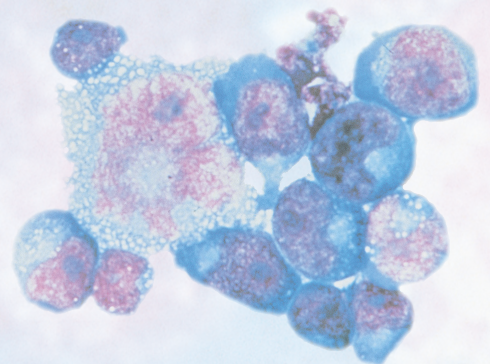
Robert C. Gallo, MD, the Homer & Martha Gudelsky Distinguished Professor in Medicine, Co-Founder and Director, Institute of Human Virology, will present the keynote lecture on **January 28, 2019**, entitled “HIV/AIDS: Lessons from the Past; Prospects for the Future,” at the Feodor Lynen Lecture and receive the Feodor Lynen Medal during the **Miami Winter Symposium 2019 Evolving Concepts in HIV and Emerging Viral Infections** hosted by the University of Miami. The prestigious lecture has been given by 28 then or future Nobel Laureates.

Tenure



Clement Adebamowo, BM,
ChB, ScD, FWACS, FACS

Clement Adebamowo, BM, ChB, ScD, FWACS, FACS, Professor of Epidemiology and Public Health, Division of Epidemiology and Prevention and Associate Director of Population Science, the Marlene and Stewart Greenebaum Comprehensive Cancer Center, was awarded tenure in the Department of Epidemiology and Public Health, effective July 1, 2018.



Awards



Shyam Kottlil, MBBS, PhD

Institute of Human Virology's Dr. Shyam Kottlil to Receive National Award from American College of Physicians

Dr. Kottlil is Recognized for His Research in Viral Infections

The American College of Physicians announced that **Shyam Kottlil, MBBS, PhD, FACP**, Professor of Medicine and Director of the Division of Clinical Care and Research at the Institute of Human Virology (IHV) of the University of Maryland School of Medicine (UMSOM) and Chief of the Division of Infectious Diseases, was awarded the American College of Physicians (ACP) Richard and Hinda Rosenthal Award #1 from the Rosenthal Family Foundation.

The award will be presented at ACP's Convocation Ceremony on Thursday, April 11, 2019, at the Pennsylvania Convention Center in Philadelphia.

"Dr. Kottlil has been a leader in identifying effective anti-HCV drugs, and in demonstrating how they should be used in patients with different stages of liver diseases," said **Robert Gallo, MD**, The Homer & Martha Gudelsky Distinguished Professor in Medicine and Co-Founder and

Director, Institute of Human Virology, University of Maryland School of Medicine. "He has led to the advancement of the field by expanding treatment of hepatitis C in much needed marginalized patient populations that others were reluctant to focus on. Dr. Kottlil's effort in escalating care in resource-limited settings aimed at global elimination of HCV is commendable, and he is a terrific candidate to receive this award."

The award is given to "that physician-scientist, clinician, or scientific group whose recent innovative work is making a notable contribution to improve clinical care in the field of internal medicine."

Dr. Kottlil is also the Scientific Director for the clinical arm of the District of Columbia Partnership for AIDS Progress, a collaboration with IHV, now in its eighth year as a collaboration between the U.S. National Institutes of Health (NIH) and the District of Columbia Department of Health.

"Dr. Kottlil is an innovative and accomplished physician-scientist that is so deserving of this prestigious award. His groundbreaking clinical research has improved the lives of so many people both here in the United States and internationally. We are delighted that Dr. Kottlil has received this well-earned recognition," said **Stephen Davis, MBBS**, the Dr. Theodore E. Woodward Chair and Professor in the Department of Medicine, University of Maryland School of Medicine, Vice President of Clinical Translational Science, University of Maryland, Baltimore.

Dr. Kottlil's specific interests include pathogenesis of chronic viral infections and translational research to eradicating infections through immune modulation or directly acting antiviral agents. Dr. Kottlil has conducted investigator initiated studies that contributed to the licensing and the widespread adoption of directly acting agents for hepatitis C. He was the principal investigator for studies he designed that demonstrated the success of these drugs in inner-city populations that were highly affected. Dr. Kottlil also studied the optimal duration of therapy in different clinical settings, and he recently published a landmark study demonstrating that HCV treatment with the new agents could be effectively administered by non-specialists. Dr. Kottlil was a member of the initial IDSA/AASLD HCV Guideline Committee. He has authored more than 200 peer-reviewed publications and he is a member of the American Society for Clinical Investigation.

"Dr. Kottlil's research is critical in helping to eradicate viral infections such as hepatitis C. This award appropriately recognizes his path-breaking and important research that will change so many lives," said **E. Albert Reece, MD, PhD, MBA**, Executive Vice President for Medical Affairs, UM Baltimore, and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine.

IHV Hosts Bi-Annual Board of Advisors Meeting

Beginning with dinner at Artifact Coffee, a Woodberry Kitchen Facility on November 13th, and ending at the IHV on November 14th, the IHV Board of Advisors met for their bi-annual meeting. The Board received updates from IHV's Division heads, which included among other things, details of the JACQUES Initiative Journey Center grand opening, recent grants for the Clinical Care and Research Division and Epidemiology and Prevention Division, in addition to a presentation about the partnership between the IHV Division of Immunotherapy and the new University of Maryland Medical Center Transplant Center.



Dr. Mario Stevenson Becomes New Chair of IHV's Scientific Advisory Board



Mario Stevenson, PhD

Mario Stevenson, PhD, Chair
University of Miami

Mario Stevenson, Ph.D., is Chief of the Division of Infectious Diseases within the Miller School of Medicine at the University of Miami. Dr. Stevenson comes to the Miller School of Medicine from the University of Massachusetts. He spent twelve years as their Director of their Center for AIDS Research and building that program to the international status it now enjoys. In addition to his academic responsibilities, Stevenson finds time to contribute to many scientific societies and research boards. Most notably, he has been Adjunct Trustee for the American Foundation for AIDS Research (amfAR) as well as Chair of their Scientific Advisory Board for over five years. In the year 2000, he was honored with the Merit Award from the National Institutes of Health for his significant research efforts. Dean Goldschmidt recently said of Dr. Stevenson, that "[he] is an extraordinary individual whose scientific accomplishments rank him within the top 1 percent of his peers, and whose contribution to our academic reputation will be substantial. Furthermore, he will provide invaluable help in accessing an NIH award, center for AIDS research, CFAR-P30 grant, and establish UM as a top tier AIDS research center." Dr. Stevenson will manage the division in collaboration with Michele Morris, M.D., Associate Professor Clinical Medicine, and Director of the Immunocompromised Host Section, who was recently promoted to the position of Clinical Chief of the Division of Infectious Diseases.

IHV Adds New Members to Scientific Advisory Board



Lieping Chen, MD, PhD

Lieping Chen, MD, PhD
Yale University School of Medicine

Lieping Chen, M.D., Ph.D. studies membrane proteins that control lymphocyte function and translates his laboratory findings to treat human disease. Dr. Chen performed the first proof-of-concept study in 1992 showing the B7-CD28 family molecules serve as targets for cancer immunotherapy by introducing B7-1 into tumor cells to enhance

therapeutic immunity. This study inspired subsequent studies targeting the B7-CD28/CTLA-4 family molecules to treat cancer. Dr. Chen discovered B7-H1 (PD-L1) in 1999 and demonstrated PD-L1's role in immune evasion in the tumor microenvironment. He singularly established the PD-1/PD-L1 pathway as a target for cancer immunotherapy in 1999-2002. He also initiated and organized the first-in-man anti-PD-1 clinical trial to treat human cancer in 2006 and developed PD-L1 staining as a biomarker to predict treatment outcomes. His discoveries directly led to the development of anti-PD-1/PD-L1 antibody therapy against a broad spectrum of human cancers (first approved 2014, with five anti-PD-1/PD-L1 antibodies being FDA-approved since). Dr. Chen's discoveries have revolutionized current oncology practices, treatments, and outcomes. Dr. Chen's laboratory has discovered numerous molecular pathways with immune modulatory functions, including 4-1BB (CD137), ICOS/B7-H2, B7-H3, B7-H4, B7-H5/CD28H, PD-1H (VISTA), LIGHT/HVEM, TROY, B7-H2/CD28/CTLA-4 (human), SALM5/HVEM. These discoveries have led to the development of therapeutic agents in various stages of clinical trials, treating various types of human cancer and autoimmune disease. He has published over 350 research articles, reviews, and book chapters. His discovery work on the PD-1/PD-L1 pathway was cited as the #1 breakthrough of the year by Science magazine in 2013. He has received several professional recognitions, including the William B. Coley Award (2014), AAI-Steinman Award (2016), Shizhang Bei International Award (2017), Warren Alpert Foundation Prize (2017), Luminary Award (2018) and Giants of Cancer Care (2018).



Diane E. Griffin, MD, PhD

Diane E. Griffin MD, PhD

Johns Hopkins Bloomberg School of Public Health

Diane E. Griffin M.D., Ph.D. is University Distinguished Service Professor and former chair of Molecular Microbiology and Immunology at Johns Hopkins Bloomberg School of Public Health and Vice President of the US National Academy of Sciences. She earned her MD and PhD from Stanford

University School of Medicine. Her research interests are in the area of pathogenesis of viral diseases with a focus on measles and alphavirus encephalitis. These studies address issues related to virulence and the role of immune responses in protection from infection and in clearance of infection and has included evaluation of licensed and experimental vaccines for measles. She is past president of the American Society for Virology and the American Society for Microbiology. Currently, she is US Chair of the US-Japan Cooperative Medical Sciences Program and Director of the Johns Hopkins Global Virus Network Center of Excellence.



David Thomas, MD, MPH

David Thomas, MD, MPH

Johns Hopkins Medicine

David Thomas, M.D., M.P.H. is Chief of Infectious Diseases and the Stanhope Bayne-Jones Professor of Medicine at the Johns Hopkins School of Medicine. His research is focused on hepatitis C virus (HCV). Dr. Thomas is a member of ASCI (2001), AAP (2011), and the Infectious Diseases Association of America from whom he was given the Society Citation Award in 2014.



Sten H. Vermund, MD, PhD

Sten H. Vermund, MD, PhD

Yale School of Public Health

Sten H. Vermund, MD, PhD, serves as Dean of the Yale School of Public Health, Anna M.R. Lauder Professor of Public Health (Epidemiology of Microbial Diseases) and Professor of Pediatrics, Yale School of Medicine. His work on HIV-HPV interactions among women in a methadone program in the Bronx stimulated a change in the 1993 CDC AIDS case

surveillance definition to include cervical cancer and helped motivate the launch of cervical cancer screening programs within HIV/AIDS programs around the world. His research has focused on health care access in low income nations, adolescent sexual and reproductive health, and prevention of mother-to-child HIV transmission. He is a member of the National Academy of Medicine and a Fellow of the American Association for the Advancement of Science.



“Curing Killer Diseases” World AIDS Day Weekend

Dear Friend of IHV,

Through their research, faculty members of the Institute of Human Virology (IHV) at the University of Maryland School of Medicine imagine a world in which they can effectively combat chronic and deadly viral and immune disorders—these scientists are catalysts for the future of medicine.

In recognition of World AIDS Day, December 1, I invite you to learn more about the IHV researchers who are in the laboratory and in the field combating and containing HIV, hepatitis C virus, human T-cell leukemia virus, and viruses that cause cancer. The many people at IHV who are advancing the field are pushing against the tide, much like I did when many of my colleagues criticized me years ago while I was searching for retroviruses in humans.



Chozha Rathinam MSc, PhD

Dr. Chozha Rathinam uses stem cells to explore the causes of various diseases and to offer hope to patients. His various research projects that focus on harnessing the power of stem cells to improve quality of life hold much potential.

As with all research, your support is essential to enhance this work and enable its growth. Please join us in going against the tide with your life-changing gift to the IHV Against the Tide Fund.

Dr. Rathinam works with specific genes, proteins, and enzymes for therapeutic clinical purposes, and recently published in the journals *Cell Reports*, *Stem Cell Research*, and *Frontiers in Cell & Developmental Biology*. His laboratory explores the relationships between normal and pathogenic stem cells in three different areas: the links between inflammatory disorders and aging; how stem cells can cause cancers such as leukemia; and how dendritic cells help regulate and protect the immune system.

“Stem cell biology not only gives the framework for regenerative medicine, but it is also crucial and vital for curing killer diseases like cancer, because if you understand stem cells properly, you can prevent cancer to a greater extent,” Dr. Rathinam says. Dr. Rathinam hopes that as stem cell research grows, their use will be more accepted, and “the Holy Grail of regenerative medicine” will be accessible to all patients.

“Because I’m a stem cell biologist, I have this passion—I want people to realize the potential of stem cells, and more and more people should utilize them,” Dr. Rathinam stresses. “And I want stem cells to be used by people to cure their diseases.”

Your philanthropic contribution to the IHV Against the Tide Fund this World AIDS Day supports the vibrant ideas of scientists like Dr. Rathinam, whose work opens new areas of discovery. Your gift is truly appreciated and supports this next generation of catalysts for the future of medicine.

With thanks, Dr. Robert C. “Bob” Gallo

The Homer & Martha Gudelsky Distinguished Professor in Medicine
Co-Founder and Director, Institute of Human Virology at the University of Maryland School of Medicine

P.S. Researchers like Dr. Rathinam are bringing prestige to the IHV with their internationally recognized discoveries and research. Your gift to support IHV can be made securely online at www.ihv.org/AgainstTheTide. Thank you!

P.P.S. If you prefer to mail in your gift, please make your check out to UMBF, Inc./IHV Against the Tide, and send it to:

University of Maryland School of Medicine | Office of Development
31 South Greene Street, Third Floor | Baltimore, MD 21201
Alternatively, you may call **410.706.8503** to discuss other ways to give.