

# Discovery

Laboratory • Clinic • Community • World

Winter/Spring 2012



More than 400 attended the day's events. Photo by Antonio D. Paterniti.

On April 16, the University of Maryland Baltimore, led by its world-renowned Institute of Human Virology (IHV), brought together faculty and students from all six of the University's professional schools for a campus-wide initiative aimed at addressing the crisis of HIV. The initiative positions the University and Baltimore at the forefront of achieving the goals of the President's National HIV and AIDS Strategy (NHAS).

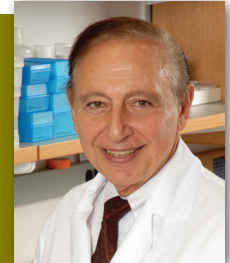
The day-long event—the University of Maryland Leadership in HIV Summit: Preparing the Future—included student displays reflecting how being better informed about HIV has impacted their lives, a campus-wide plenary, breakout sessions and a community partnership town hall that is open to the public. The summit also utilized interactive discussion to address how each professional school can mobilize to achieve national goals in a multi-disciplinary format.

"This is an example of how interprofessional education adds value to the education of our students and improves the quality of care for our patients by enhancing respect for the contributions of all professions," said Jay A. Perman, MD, president of the University of Maryland. "We are excited by the opportunity to see how each of our schools can contribute to meeting the goals of the national HIV and AIDS Strategy."

The initiative builds on a coordinated educational effort that began last year with a partnership led by the IHV's JACQUES Initiative and coordinated in partnership with the University of Maryland School of Medicine, the University of Maryland School of Nursing and Maryland's Department of Health and Mental Hygiene's Infectious Disease and Environmental Health Administration with funding from Gilead Science's HIV

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## **Director's Message:** *Infection and Lymphoma: Research at IHV*



Lymphomas are of course cancers of the lymphatic system. They can involve the various types of lymphocytes. Thus, we have two great divisions - T cell lymphomas and B cell lymphomas, and then there are many subdivisions of these depending upon the particular type of T or B cell and/or the state of differentiation of those cells. In other words sometimes the malignant cell population derives from a clone of relatively poorly differentiated lymphocytes and sometimes they involve the more mature cells. There is another type of division of lymphomas; that between Hodgkin's disease and others called non-Hodgkin's lymphoma. Hodgkin's of course gets a special categorization because of its relative frequency and because it often involves younger people, but also and most importantly because it has a special histological pattern with a peculiar cell (Reed Sternberg) with its particular characteristics.

But why speak of lymphomas in our Discovery newsletter? Of course it is because it is a common malignancy in HIV infected people and has been since the start of the epidemic. Along with Kaposi Sarcoma (KS) it was one of

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## IHV's JACQUES Initiative Leads Campus-Wide Summit Aimed at Combating HIV/AIDS *(continued from cover)*

FOCUS program, to foster a multi-disciplinary HIV-focused curriculum, "Preparing for the Future" (PTF). The goal of PTF is to train emerging leaders through a hands-on curriculum to integrate HIV into their future practice. IHV's JACQUES Initiative is a program that provides a comprehensive spectrum of HIV services to include diagnosis, outreach, treatment and supportive services to people living with HIV/AIDS at the Institute of Human Virology (IHV), located on the University of Maryland Baltimore campus and directed and co-founded by Robert C. Gallo, MD who co-discovered HIV as the cause of AIDS and developed the HIV blood test.

"Today my colleagues and I have an important strategic meeting with IHV's collaborators on our promising HIV preventive vaccine candidate," said Dr. Gallo. "It is no coincidence this summit is taking place on the same day as such an important meeting. From cutting edge science to novel education curriculums, IHV is a leader in the field in every regard. Congratulations to the JACQUES Initiative and University collaborators on the success of Preparing the Future."

"The Preparing the Future Program represents an incredible opportunity for academic campuses like the University of Maryland to train emerging professionals to address the crisis of HIV through disciplines such as social work, nursing, law, dentistry, pharmacy and medicine," said Derek Spencer, MS, CRNP executive director of IHV's JACQUES Initiative. "Students receive a creative



(left to right) Dean Richard Barth, PhD, MSW, School of Social Work; Dean Christian Stohler, DMD, DrMedDent, School of Dentistry; Dean Janet Allan, PhD, RN, FAAN Dean of Nursing; Jay Perman, MD, President of the University of Maryland; Derek Spencer, CRNP, Executive Director of IHV's JACQUES Initiative; and, Heather Hauck, MSW, LICSW, Director of the Maryland Department of Health & Mental Hygiene. Photo by Antonio D. Paterniti.

curriculum that includes training to perform rapid HIV testing, didactic and multidisciplinary lectures and conferences on HIV with a service learning approach that allows students to engage directly with the community. Students experiences have been transformative and increase our capacity to fulfill the goals of the NHAS."

The goals of the National HIV and AIDS strategy that the summit addressed included reducing new HIV infections, increasing access to care and improving health outcomes for people living with HIV, reducing HIV-related health disparities and inequities and achieving a more coordinated response to the national HIV epidemic. Mirroring the national strategy, Baltimore's HIV Strategy calls for reducing HIV/AIDS by 25 percent locally by 2015. The Summit highlighted each of the University of Maryland's professional schools, their role in the fight against HIV and provided opportunities for students and faculty to come together to adopt new approaches that magnify the impacts of both their personal and collective efforts to advance the goals of the national HIV and AIDS strategy through a campus-wide HIV strategy.

"The Institute of Human Virology at the University of Maryland School of Medicine is an international leader in HIV research, patient care and education," said E. Albert Reece, MD, PhD, MA, vice president for medical affairs at the University of Maryland and John Z. and Akiko K. Bowers Distinguished professor and dean, University of Maryland School of Medicine. "Our physician scientists are working diligently around the world and in our



Town hall discussion with (left to right) Jamal Hailey, Manager, HIV Prevention Services and Sexual Minority Programs, STAR TRACK, University of Maryland Medical Center; Patrick Chaulk, MD, MPH Assistant Commissioner, Baltimore City Health Department; and Vicki Stovall, BA, Field Operations Manager, Center for Sexually Transmitted Infection Prevention, Infectious Disease and Environmental Health Administration, Maryland Department of Health and Mental Hygiene. The group was discussing strategies needed to meet the goals of Baltimore's HIV Strategy, specifically Goal #1 which includes reducing new infections. Jamal was discussing strategies to reduce infections in young men who have sex with men. Photo by Antonio D. Paterniti.

## ***Director's Message: (continued)*** ***Infection and Lymphoma: Research at IHV***

the two top cancers found in infected people. So some of us who were at the National Cancer Institute (NCI) felt we had somewhat of an obligation to study these particular cancers if we're going to be deeply involved in the study of AIDS. So we did, and in the early years particularly KS. Unlike other viruses that cause cancer (such as HTLV and HPV in particular) HIV does not infect and convert a normal cell into a cancer cell (neoplastic transformation a characteristic of a true tumor virus). Thus HIV is increasing the risk of cancer by a mechanism we refer to as promotion of milieu in which the cancer can occur far more frequently than it would otherwise, even if the prime etiology is elsewhere -- exactly so in the case of KS. It is known that the sine qua non is a herpes virus called HHV-8 discovered by our colleagues and friends Drs. Patrick Moore and Yuan Chang then at Columbia University and now at the University of Pittsburgh. Though this virus is not able to cause cancer with any significant number, in the normal state when certain other factors enter the equation the cancer can be converted from very rare to common as is the case with KS.

The origin of the lymphomas has been a bit more mysterious. Except to note, that after HIV infection HHV-8 can also be involved in the origin of certain rare lymphomas. More commonly, the Epstein Barr Virus (EBV) another DNA virus and another virus that belongs in the herpes virus category but of a different kind than HHV-8 and the known cause of infectious mononucleosis, has been known to also be involved in the cause of lymphomas long before HIV and AIDS. But this is still a rare phenomenon except in the African Burkitt lymphoma belt which generally requires malaria as a major factor that pushes B cell proliferation. In the case of the HIV associated lymphomas, EBV appears to play a prominent role in about 40% of the cases. What role does HIV have in all of these cases with or without EBV or HHV-8, i.e., the majority of HIV associated lymphomas? And what of T cell lymphomas which can be slightly increased in HIV infected people as well?

Let's discuss the T cell lymphomas first. We know that HTLV-1 causes a T cell leukemia lymphoma but HTLV isn't involved in most HIV infected people who develop T cell lymphomas.

As we have described before in columns of Discovery, research at IHV encompasses basic cancer research and epidemiology of cancers through collaboration with The Marlene & Stewart Greenebaum Cancer Center. In fact IHV is one of the five programs Greenebaum Cancer Center Director Kevin Cullen has organized into the Cancer Center at the University of Maryland. This includes many different kinds of studies, not limited to just the studies related to lymphoma. But here I want to address significant collaborations taking part in the

Institute related to the development of both the B and T cell lymphoma in HIV infected people and some summary of the progress.

I am personally involved in work that also critically involves my colleagues Davide Zella and Sabrina Curelli of the IHV Basic Science and Vaccine Research Division, as well as, Joseph Bryant (IHV Animal Models Division) and sometimes involves Fabio Romerio and Olga Latinovic also of the IHV Basic Science and Vaccine Research Division. This work involves collaboration with Claire Fraser's Institute for Genome Sciences here on campus and in particular Hervé Tettelin for some genome sequence work. In these studies Zella made a critical observation that a mycoplasma studied in the IHV for over a year and shown to be frequently associated with HIV infection can produce lymphomas in certain strains of mice. This strain of mycoplasma has also been reported to be associated with lymphomas by Ainsworth and colleagues in Oxford. Already the mechanism is being clarified and shown to involve a particular protein of the mycoplasma. How that protein enters cells that will become converted to lymphoma is not yet understood but appears to be somewhat similar to the case of *Helicobacter pylori* in the origin of gastric cancer. In other words, the organism does not infect the cell that will be the origin of the cancer but rather the organism indirectly influences the cell by some inflammatory changes or by direct insertion of a protein from the organism into the cell that favors the development of a lymphoma. Much more clarification of this will be forthcoming in future scientific publications.

A much larger collaboration within and outside of the IHV is on B cell lymphomas. This collaboration involves Arnaldo Caruso of the University of Brescia, Italy, Ricardo Dolcetti of the National Cancer Institute in Aviano, Friuli, Italy (an EBV and lymphomas expert), Jacques Ravel of the Institute for Genome Sciences on campus and a few of his colleagues. At IHV, this project is mainly driven by Alfredo Garzino-Demo of the IHV Basic Science and Vaccine Research Division, again Joe Bryant, and is soon to involve Bill Blattner, Director of the IHV Epidemiology and Prevention Division. In many respects this project is of greater interest than the mycoplasma T cell lymphoma study. Once again, though HIV is not a tumor virus in the sense that it can transform the cells that it infects, the role of HIV can be considered to be indirect. That means we don't find HIV genomes in the tumor cells. However, in this case, an HIV protein itself may very well be involved.

One of HIV's structural proteins is known as p17. It is also known as the matrix protein. It lies just under the viral

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## *Director's Message: Infection and Lymphoma: Research at IHV (continued)*

membrane. It is also known to be important in the HIV replication cycle. Some years ago, Caruso showed that p17 is not only a structural protein and not only one that also involves HIV replication but it is also released from infected cells into the extra-cellular space and binds to lymphocytes particularly when they are activated. Subsequently, my longtime colleague Mika Popovic and I noted that neoplastic B cells bound p17 as well. A bit later Popovic and I collaborated with Paul and Clara Racz from the University of Hamburg, Germany and demonstrated that the p17 protein (along with the envelope protein gp120) stay trapped within the germinal centers of lymph nodes long after successful anti-HIV drug therapy and even in the absence of any detectable virus or viral RNA. Thus, one can conjecture that the p17 molecule could be playing a role, even post therapy and long after the HIV is controlled. It is important to note, that though KS has virtually vanished in the U.S. after successful drug therapy against HIV the incidence of lymphoma though declining still remains elevated. Obviously, this leads us to hypothesize that the p17 protein may be part of the story.

Furthermore, Caruso and his colleagues have recently shown that there is a specific receptor on cell surfaces that the p17 molecule binds to. It is particularly exciting that some variants of p17 can transform B cells in vitro again as shown by Caruso and colleagues. We will be submitting a grant to NCI to bridge this collaboration of the groups at IHV with the groups in Brescia and Aviano, Italy and to prove the in vivo relevance of this molecule. By gene sequencing, Ravel and co-workers at University of Maryland's Institute for Genome Sciences will determine whether the variants of p17 which transform B cells are associated with lymphoma development following preliminary suggestions by Dolcetti that this may be the case. Blattner will pursue the epidemiological analyses and will play a pivotal role in our final determination of the importance of p17 in HIV associated lymphomas. This will take place over the coming months, and we will look forward to reporting on further developments.

## *Grant*

**Robert C. Gallo, M.D., Director, Institute of Human Virology, was awarded a \$30,000 grant from the National Institutes of Health/Office of AIDS Research for support of the 2012 Naples Bi-Annual Meeting of the Global Virus Network.**



## IHV Announces Three New Board Members

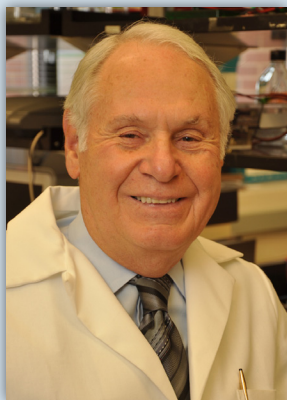
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### **Reinhard Kurth, MD**

is Chairman of the Foundation Council of the Ernst Schering Foundation, Berlin. Previously, he was Director of the Paul Ehrlich Institute, the Robert Koch Institute and the German Federal Institute for Drugs and Medical Devices. His scientific work is focused on retroviruses and their interactions with animals and humans. He has been the recipient of many

scientific awards and is, for example, a member of the Berlin-Brandenburg Academy of Sciences, the Leopoldina and the American Philosophical Society. In 2005, he was awarded the Commander's Cross of the Order of Merit of the Federal Republic of Germany by the German President.



**Joseph S. Pagano, MD** is Lineberger Professor of Cancer Research and Professor of Medicine and Microbiology and Immunology, The University of North Carolina at Chapel Hill. He is Founder and Director Emeritus of The Lineberger Comprehensive Cancer Center and Director of the UNC-LCCC Postdoctoral Training Program. He is Member of the Science Advisory Board of the US Food

and Drug Administration, the Institute of Medicine of the National Academy of Science, the College of Reviewers of the National Institutes of Health, and Fellow of the American Association for Advancement of Science. He is past member of the Board of Directors of the Burroughs Wellcome Fund and the Awards Assembly of the General Motors Cancer Research Foundation and past president of the Association of American Cancer Institutes and the International Association for Research on Epstein-Barr Virus and Associated Diseases. He is the recipient of The North Carolina Award in Science. He is Chairman of the Board of Global Vaccines, Inc., a not-for-profit company, and external advisor to cancer centers at Wake Forest, Miami, Georgetown, Pittsburgh and Pennsylvania Universities, as well as the Wistar Institute, and chairs the Science Advisory Board of the Institute of Human Virology. He is member of the Board of Directors of the Hamner Institutes. His research interests are molecular

virology and pathogenesis of diseases caused by viruses associated with human malignancies and mechanisms of antiviral drugs. He is discoverer of the EBV episome and Interferon Regulatory Factor-7 and is currently working on the ubiquitin-editing enzyme, UCH L1, and the EBV protein kinase and deubiquitinating enzymes. His research is funded by the National Institutes of Health and the National Cancer Institute. He is author of 356 publications.



**Peter Palese, PhD** is Professor of Microbiology and Chair of the Department of Microbiology at the Mount Sinai School of Medicine in New York. His research includes work on the replication of RNA-containing viruses with a special emphasis on influenza viruses, which are negative-strand RNA viruses. Specifically, he established the first genetic maps for influenza A, B and C viruses, identified the

function of several viral genes, and defined the mechanism of neuraminidase inhibitors (which are now FDA-approved antivirals). Dr. Palese also pioneered the field of reverse genetics for negative strand RNA viruses, which allows the introduction of site-specific mutations into the genomes of these viruses. This technique is crucial for the study of the structure/function relationships of viral genes, for investigation of viral pathogenicity and for development and manufacture of novel vaccines. In addition, an improvement of the technique has been effectively used by him and his colleagues to reconstruct and study the pathogenicity of the highly virulent but extinct 1918 pandemic influenza virus. His recent work in collaboration with Garcia-Sastre has revealed that most negative strand RNA viruses possess proteins with interferon antagonist activity, enabling them to counteract the antiviral response of the infected host. Dr. Palese was elected to the National Academy of Sciences in 2000 for his seminal studies on influenza viruses. At present he serves on the editorial board for the Proceedings of the National Academy of Sciences. He has been a Corresponding Member of the Austrian Academy of Sciences since 2002 and a Member of the German Academy of Sciences Leopoldina since 2006. Dr. Palese was president of the Harvey Society in 2004/2005 and president of the American Society for Virology in 2005/2006. He was the recipient of the Robert Koch Prize in 2006, of the Charles C. Shepard Science Award in 2008 and of the European Virology Award (EVA) in 2010.

# IHV's William Blattner Leads City's Commission and



Baltimore City HIV/AIDS commissioners presenting the Baltimore City HIV/AIDS Strategy to Mayor Stephanie Rawlings-Blake and Dr. Oxiris Barbot, Baltimore's Commissioner of Health.

On the eve of World AIDS Day 2011, Mayor Stephanie Rawlings-Blake received from the Baltimore City Commission on HIV/AIDS an aggressive plan to dramatically reduce new HIV infections, expand treatment, coordinate services and make a significant improvement to the status of the HIV/AIDS crisis in Baltimore by 2015. The plan adopted specific, measurable goals in four key areas and outlines a variety of strategic initiatives to achieve those goals in an accelerated timeframe.

"This is a comprehensive roadmap for HIV/AIDS coordination, treatment, and reduction in Baltimore," said Mayor Rawlings-Blake. "It is a call to action that can change lives and change our city with a coordinated set of strategies, which can help those who are not infected stay HIV-free, improve the lives of those who are HIV-positive, and improve that provision of health care to the most at-risk populations."

The four key goals of the plan include reducing new HIV infections by 25% in Baltimore City by 2015; increasing access and improving health outcomes by facilitating earlier, more continuous, and more comprehensive care; reducing HIV-related health disparities by focusing resources and coordinated services on the most at-risk populations; and achieving a more collaborative City response by creating effective linkages between services providers, advocacy organizations, and community-based models. The measurable goals and specific strategic initiatives outlined for each of the key goals are designed to drive aggressive and fundamental changes, yet are calibrated to be realistically achievable by 2015.

According to the Chairman of the Commission, William A. Blattner, M.D., associate director of the Institute of Human Virology (IHV) at the University of Maryland School of Medicine, the report was based on up-to-the-minute results of international scientific research into HIV/AIDS, and the majority of the recommendations are based in the emerging scientific consensus that early and comprehensive treatment is the most effective preventive measure currently available. The report was also deliberately aligned with the U.S. national goals for HIV/AIDS established in 2010 in an effort to maximize the City of Baltimore's ability to access and effectively implement all resources available.

"I thank the commission for focusing on the science of what is possible, and for making recommendations that are consistent with the very best public health practices," added Dr. Blattner. "If we follow the recommendations, community models, and individual behaviors that are outlined in this report, we will make an extraordinary difference for Baltimore and for thousands of Baltimore residents by 2015. These plans are realistic and achievable—and it is now incumbent on everyone to work together to put them into action."

The Commission worked closely with the Baltimore City Health Department to ensure that the targets and strategies are also consistent with the Healthy Baltimore 2015 initiative that was launched by the City Commissioner of Health, Dr. Oxiris Barbot. That template included a specific section devoted to reducing the impact of HIV/AIDS in the city.



Baltimore Mayor Stephanie Rawlings-Blake and IHV JAQCUES Initiative's Kathy Bennett.

# Strategy on HIV/AIDS

"I'm pleased with the work of the Commission," said Barbot. "This plan helps to further cement the work that needs to be done to quell the ongoing HIV epidemic. It clearly lays out a plan that we will use to hold ourselves and each other accountable to achieving measurable results."

City Council President Bernard "Jack" Young applauded the report and long-term plan, adding: "Baltimore City has been in a declared HIV/AIDS crisis since 2002. The City Council is looking forward to working with the Mayor and the citizens of Baltimore to make a real difference in that status by 2015."

Members of the Commission stressed that the report provides critical guidelines for dramatically reducing HIV/AIDS in Baltimore, but reaching the target goals that have been established cannot be achieved unless communities and individuals also make effective prevention and treatment of HIV/AIDS a priority.



Dr. William Blattner presents the Mayor the Commission's Strategy on HIV/AIDS during a press conference at City Hall.



The Mayor with Dr. Blattner, Dr. Barbot, Fran Phillips (Deputy Secretary of Public Health Services), and Dr. Patrick Chaulk (Assistant Commissioner for HIV and STD Services in the Baltimore Health Department).

# Award Announcements

## Gallo Honored with Mino Damato Award



Dr. Robert Gallo, Director of IHV, received this year's Mino Damato Award in Rome Italy. Damato, known as the "Italian Walter Cronkite," passed away in 2010. He previously interviewed Gallo on Italian National TV in the early days of the AIDS epidemic. Damato was so deeply touched by the devastating effects of AIDS on orphaned children in Romania that over the following 25 years he dedicated his life to helping them. He has saved the lives of thousands and established an infrastructure that continues to support the plight of disadvantaged children in the darkest and poorest corners of Europe through his charitable Foundation, "Bambini in Emergenza." Gallo was presented the Award last December during a major ceremony, where he was honored for his "extraordinary role in unraveling the mysteries of AIDS and the development of therapeutic modalities for it." Gallo was also recognized for his personal acquaintance with Damato, whose "life was truly dedicated to the cause of the littlest sufferers of AIDS."

## Sundberg Receives von Humboldt Fellowship

Dr. Eric Sundberg, Head of the Laboratory of Structural Immunology & Oncology at IHV, was awarded an "Alexander von Humboldt Fellowship for Experienced Researchers." The Fellowship will fund travel, living and research costs for Sundberg to conduct research in the laboratory of his German host, Dr. Wolfgang Fischer of the Max von Pettenkofer Institute for Hygiene and Medical Microbiology at the University of Munich. Fischer is an internationally-recognized expert in *Helicobacter pylori* pathogenesis. Sundberg will spend approximately three months per year in Fischer's lab for the next three years (2012-2015) collaborating on a project focusing on elucidating key steps in the process by which *Helicobacter pylori* causes gastric cancer.



## Gallo Lauded by the University of Connecticut

Dr. Robert Gallo, Director of IHV, returned to his home state of Connecticut to receive his 30<sup>th</sup> honorary doctorate degree and to deliver the Commencement address at the University of Connecticut's Graduate Commencement ceremony May 5. Gallo was awarded the Doctor of Science, *honoris causa*, for his work in "advancing science and public health so profoundly that, in a very meaningful way, he belongs to the entire the world. Nonetheless, the people of Connecticut are proud to claim him as a native son."





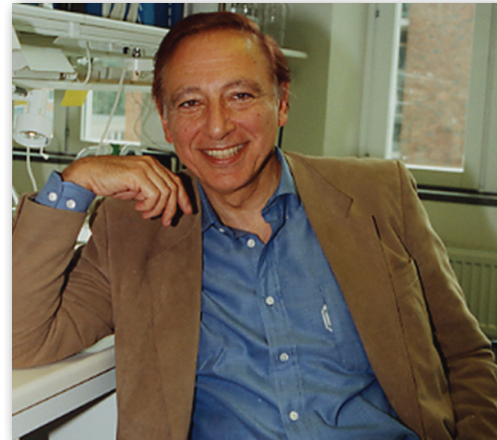


### **Blattner Receives Distinguished Alumnus Award**

Dr. William Blattner, Associate Director of IHV, received the Distinguished Alumnus Award from his alma mater The Kinkaid School: A PreK-12<sup>th</sup> Grade Independent School in Houston, Texas. Blattner, a 1962 graduate of the school, joins honorees including President & Mrs. George H. W. Bush. Blattner was honored for his notable and lengthy career in research at the National Cancer Institute, alongside his friend and colleague Dr. Robert Gallo, and for his work at IHV, including his leadership on the President's Emergency Plan for AIDS Relief (PEPFAR) implementation.

### **Gallo Joins Chinese University of Hong Kong's Faculty**

In May, Dr. Robert Gallo, Director of IHV, was appointed Honorary Professor of Medicine at The Chinese University of Hong Kong.



### **Esparza Named Adjunct Professor**



José Esparza MD, PhD, Senior Advisor of Vaccines at the Bill & Melinda Gates Foundation has been named Adjunct Professor of Medicine at the Institute of Human Virology's (IHV) Division of Basic Science and Vaccine Research effective July 1. Dr. Esparza received his MD degree in his native country of Venezuela (1968), and a PhD in Virology (1974) from Baylor College of Medicine in Houston. He then returned to Venezuela to work at the Venezuelan Institute of Scientific Research (Instituto Venezolano de Investigaciones Científicas, IVIC), one of the most important research institutions in Latin America. There he eventually became Professor and Chair of the Center for Microbiology and Cell Biology. He published seminal work in the then new field of Rotaviruses associated with gastroenteritis, combining basic science with epidemiology and clinical work. From 1986 to 2004 Dr. Esparza worked with the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS), in Geneva, Switzerland, where he became an internationally recognized leader in the field of HIV vaccines. Since 2004 he has been with the Bill & Melinda Gates Foundation, first as Senior Advisor on HIV Vaccines and now as Senior Advisor, Vaccines. Dr. Esparza is a long-time friend of IHV's and supremely and highly regarded by his colleagues around the world.



laboratories in Baltimore to learn more about the virus, how to prevent and treat it. It makes sense that we share this expertise with our colleagues here at the university to foster new ideas and impact this chronic disease from every angle that we can."

"Through this interdisciplinary initiative, more than 80 nursing students have been prepared for roles as HIV testers and counselors," said Janet D. Allan, PhD, RN, FAAN, dean of the School of Nursing. "They have helped develop HIV testing clinics in some of Baltimore's most vulnerable neighborhoods and integrated HIV testing into nursing clinics, health fairs, and other disease prevention efforts in the City, thus increasing the number of people who know their HIV status. This is a win-win situation: our students are learning and then passing their knowledge on to some of our most at risk citizens."

Since 2011, more than 100 medical and nursing students and faculty have participated in the "Preparing the Future" program's curriculum. Several hundred students and faculty participated in the campus-wide Leadership in HIV Summit whose goals included reaching out to the University's community partners to involve other professionals and members of the public activities that advance the strategies against HIV. The PTF program also aims to extend to other universities across the country through its sustainable and transformative model.



(left to right) Dean Reece, of the School of Medicine, Dean Allan of the School of Nursing, and IHV Director Gallo.

**SHAPING THE FUTURE...**

## LEADERS Magazine Features

Dr. Gallo is featured in the newest issue of LEADERS Magazine, which is reprinted here.

LEADERS Magazine is a 35 year old quarterly publication with a limited, elite circulation.

Subscribers comprise leaders of nations, international companies, world religions, international institutes of learning, or international labor organizations; and, additionally, chief financial officers, major investors on behalf of labor or corporate pension funds, chief information officers, Nobel laureates, and leaders in science or the arts.



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### Questions/Comments?

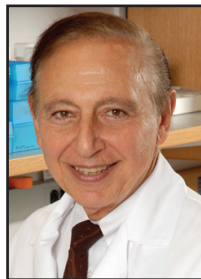
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# Gallo's Goal

An Interview with Robert C. Gallo, M.D.,  
 Director, Institute of Human Virology at the University of Maryland School of Medicine  
 and Co-Founder and Director of the Global Virus Network

**EDITORS' NOTE** In 1984, Dr. Robert Gallo became world famous when the U.S. government announced his co-discovery of the human immunodeficiency virus (HIV) as the cause of AIDS. Concurrently, Gallo and his team pioneered the development of the HIV blood test. His research additionally helped physicians develop HIV therapies to prolong the lives of those infected with HIV. Before the AIDS epidemic, Gallo was the first to identify a human retrovirus and the only known human leukemia virus – HTLV – one of few known viruses shown to cause a human cancer. Prior to assuming his current post in 1996, Gallo spent 30 years at the National Institutes of Health's (NIH) National Cancer Institute (NCI). His interest in science and medicine was first stirred by the loss of his six-year-old sister to leukemia when he was 13 years old. Dr. Gallo's research interests currently focus on the development of an effective HIV preventive vaccine, the development of innovative HIV therapies, and malignancies associated with HIV.



Robert C. Gallo

testing, and public health and epidemiology. Two colleagues, one my collaborator at NCI and the other a clinician from Walter Reed's AIDS center, wanted to do the same thing so we discussed getting everything under one roof with research from the lab to the clinic.

I didn't know that we would make it financially, but after a few years and with some fundamental state support, we did. Today, the institute is thriving.

**What is your primary goal at IHV at this time?**

The number one goal for me is trying to get an HIV preventive vaccine. Another key goal is to focus on research designed to cure infected people and a third is to help bring therapy to people all over the world. We either have to get a cure or a preventive vaccine, but preferably both. But a vaccine would eventually solve the problem.

We would not have made it to where we are today in our efforts to find a vaccine without the help of NIH in the beginning, but even more importantly, without help from the Gates Foundation. With that support, our vaccine candidate will move forward within the next year.

**How are you positioned today with regard to the vaccine and what is your hope for it going forward?**

Like HTLV, HIV is another retrovirus. And both present special difficulties. Yet, we believe it can be done.

IHV's vaccine candidate is designed to elicit strongly protective antibody responses across the spectrum of HIV-1 strains – we have seen it work in monkeys, but have a problem sustaining the antibodies for more than three months. It simply is not possible to boost individuals three or four times annually, so we must solve this antibody sustainability problem.

**You created the GVN (Global Virus Network) to rapidly respond to new or re-emerging viruses that threaten mankind, to bring together and achieve collaboration among the world's leading virologists, and to support training of the next generation of medical virologists. How has it been received?**

I knew there was a critical need for an organization like the GVN, but didn't know how far this would go or how enthusiastically it would be received at the onset. I haven't met

a virus expert who wasn't overwhelmingly enthusiastic when learning about GVN, because medical virologists worldwide understand the reality and the magnitude of the deadly threat posed by existing, emerging, and reemerging viruses and consider the GVN to be an absolute and long overdue necessity.

The GVN was established to be the most uniquely qualified, knowledgeable, and experienced organization capable of identifying, responding to, and safeguarding the world from viruses that threaten civilization. Another mandate of the GVN is to develop comprehensive education programming, as well as to provide the financial and scientific resources required, to train the nearly 14,000 medical virologists desperately needed over the next decade. The GVN will also undertake a wide-ranging program to inform and consult with governments and the medical community throughout the world, as well as to make the public-at-large aware of emerging virus threats.

Thus far, the GVN has brought together the foremost medical virologists, including experts in every kind of virus, from 21 countries throughout the world. The GVN is in the process of finalizing its funding initiatives for the next five years and our goal is to raise a minimum of \$50 million in order to address and mitigate emerging virus threats, a problem that is growing and getting worse each year.

Throughout history, millions died and millions more were infected by pandemic viruses because governments and health authorities throughout the world were insufficiently prepared and unable to join forces in order to harness the collective knowledge, expertise, resources, and technologies necessary to effectively battle such viruses. We cannot permit this to happen again, either in our lifetime or in future generations, which is why my colleagues and I formed the GVN. An article in *TIME* said it best: "Forget economic depression, nuclear war or an errant asteroid – nothing poses a bigger threat to human civilization over the long term than the right virus in the wrong place."

**Do you ever take the time to celebrate "victories" in your research?**

No. There is always something else to focus on. For example, showing the cause of AIDS was slow and steady, not a one moment event. And really, what was there to celebrate? We knew it was only the beginning of the beginning. ●

**INSTITUTION BRIEF** Founded in 1996 by Dr. Gallo and two colleagues, the Institute of Human Virology ([www.ihv.org](http://www.ihv.org); IHV) is the first center in the United States to combine the disciplines of basic science, epidemiology, and clinical research in a concerted effort to speed the discovery of diagnostics and therapeutics for a wide variety of chronic and deadly viral and immune disorders. An institute of the University of Maryland School of Medicine, it houses more than 300 employees, including more than 100 faculty, whose research efforts are focused on chronic human viral infections and disease. More than 75 percent of the institute's clinical and research effort is currently targeted at HIV infection, but also includes the Hepatitis C virus, herpes viruses, and cancer research.

**What purpose did you believe the Institute of Human Virology would fill and how has it evolved to where it is today?**

At NCI, I had observations that made it into the clinic, but not as I would have liked them to. I felt it was time for me to be in a position where I determined the priorities.

I really wanted it all in one building: basic science, the experimental clinic for new drug



725 West Lombard Street  
Baltimore, Maryland 21201-1009  
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The Institute of Human Virology is a center of the University of Maryland School of Medicine and is affiliated with the University of Maryland Medical Center.

For more information call 410.706.8614 or visit [www.ihv.org](http://www.ihv.org)

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