

Dublin Hosts Second Meeting of the GVN



GVN delegates and invited guests.

Dr. William Hall, Director of the Center for Research in Infectious Diseases at University College Dublin (UCD), hosted the second bi-annual meeting of the Global Virus Network (GVN) on October 7-9, 2011. More than 60 GVN delegates and invited guests met to review progress since the first meeting in March, obtain updates on new GVN Centers, learn the latest on viruses affecting human health, and network with each other.

With nearly all of the Centers represented, as well as a number of invited guests, the group was warmly greeted in the new Charles Institute by UCD President Dr. Hugh Brady and GVN advisor Kathleen Kennedy Townsend. GVN co-founders, Dr. Hall of UCD, Dr. Robert Gallo of the Institute of Human Virology (IHV) and Dr. Reinhard Kurth of the Ernst Schering Foundation led the meeting.

This followed a Friday evening cocktail reception in central Dublin at the Department of Foreign Affairs, sponsored by Irish Aid. The Director General of Irish Aid, Brendan Rogers, addressed the GVN

delegates and delivered a compelling speech on the importance of global health efforts and the vital role that medical virologists, like those of the GVN, play in these efforts.

A long day of scientific sessions and informational updates at UCD was followed by a spectacular Saturday evening gala dinner in the leafy Dublin suburbs at the home of Dr. Tom Lynch, UCD advisor and IHV board member, and his wife, Deidra.

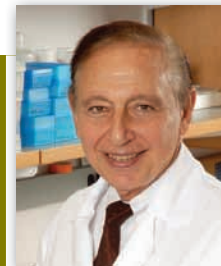
The group is scheduled to convene again next year in Italy.



GVN co-founders, Drs. Hall, Gallo, and Kurth.

Director's Message:

Highlights of the 13th International Annual Meeting of the Institute of Human Virology (IHV)



Our 13th Annual International Meeting was held in Baltimore between October 30 and November 2, 2011. Again this year, the international nature of HIV research and the global reach of the IHV were on display as meeting participants came from 7 African countries, all regions of Europe, several Asian countries and the Middle East.

We opened the meeting on Sunday afternoon with an exciting session entitled "New Agents for Treatment of Viral Diseases." Combining clinical and basic science, the session highlighted advances in the treatment of hepatitis C virus infection (David Thomas, Johns Hopkins) and discussed the latest strategies for treating HIV disease (John Bartlett of Johns Hopkins and the IHV's Anthony Amoroso). Robert Siliciano (Johns Hopkins) described the methods for understanding interactions among 25 approved drugs for treating HIV and showed the exciting possibilities for new combinations. The session also described work on the basic biology (Leonid Margolis, NIH) and prevention of male to female HIV transmission

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(John Moore, Cornell), new efforts to employ interleukin-7 for immune reconstitution (Paolo Lusso, NIH) and novel interactions of HIV with integrin receptors on T cells (James Arthos, NIH).

Monday was designated for HIV vaccine research and began with a special lecture by Paul Offit from the Children's Hospital of Philadelphia. Dr. Offit is a pediatric infectious disease expert in addition to being a published author and renowned spokesperson for the safety and necessity of childhood vaccination. Dr. Offit urged all of us to be advocates, even in the face of emotional resistance, for full implementation of pediatric vaccines. Following his talk we moved into the general session "Mechanisms for Vaccine Protection Against HIV." Framed by a discussion of the modestly successful human vaccine trial conducted in Thailand by the United States Army in collaboration with local colleagues from Thailand and Sanofi-Aventis, several speakers emphasized the important lessons from that study. Nelson Michael (U.S. Army) described strategies for uncovering correlates of protection which will be broadly useful for future vaccine studies, and Susan Zolla-Pazner (New York University) described unique antibody responses against the HIV gp120 region known as V2. Dan Barouch (Massachusetts General Hospital) showed similar data from the nonhuman primate model suggesting that V2 antibodies may be important in protection. Bart Haynes (Duke University), the Institute's own George Lewis, David Montefiori (Duke University) and Leo Stamatatos (University of Washington, Seattle) talked about critical steps between immunization and protective antibody responses against HIV which are highlighting the complex obstacles to a successful vaccine. Monday's morning



Susan Zolla-Pazner (New York University) and Michel Nussenzweig (Rockefeller University)

session ended with a special lecture by Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases (NIAID), who described the merging of approaches for combating HIV and how they are enhancing our ability to control and potentially eradicate this virus.

The afternoon session on Monday kicked off with a special lecture by Michel Nussenzweig (Rockefeller University) who summarized his work on antibody structures and the development of HIV-specific response. This session continued with talks on the nature of antibody epitopes discovered by synthetic approaches (Jon Gershoni, Tel Aviv University) or through elegant x-ray crystallography studies which showed antibody binding to mixed carbohydrate/protein structures on HIV gp120 (Peter Kwong, NIH). Subsequent speakers stressed the important roles for cytokine adjuvants in eliciting durable immune responses (George Pavlakis, NCI, NIH), other viral vectors for delivering HIV antigens (Marjorie Robert-Guroff, NCI, NIH) and the progress in human clinical trials of a prime/boost vaccine approach (Harriet Robinson, GeoVax, Inc). James Mullins (University of Washington, Seattle) described the constraints on viral evolution during acute infection and Gary Nabel (NIAID) described his group's work on vaccine design; the session closed with brief remarks from John Moore on results from passive immunity studies in monkeys. Before adjourning to the evening's poster session, we were treated to a special lecture by Nicoli Nattrass from South Africa who is an expert on the psychology of denialism. She spoke quite forcefully about the motivations and goals for highly organized groups which seek to undermine the connection between HIV and AIDS, pointing out that venal motives unrelated to the plight of infected persons are often at the root of these outrageous and destructive campaigns.

On Tuesday, Peter Palese of Mt. Sinai Medical School in NY began with a special lecture on the development of universal influenza



NIAID Director Tony Fauci, Nelson Michael (U.S. Army) and Dan Barouch (Massachusetts General Hospital)

vaccines. Palese is also one of the leaders in the Global Virus Network. The regular session moved into basic science of HIV. Ashley Haase (University of Miami) and Thomas Hope (Northwestern University) showed how viruses cross epithelial cell layers to establish infection emphasizing the role of inflammatory responses and the natural barriers including mucus. Eric Hunter (Emory University) defined the outcome of epithelial transmission events by showing that only a few viruses of the viruses present initially can penetrate and establish infection. A cautionary note that vaccine-induced antibodies might help to transport viruses was raised by Donald Forthal (UC Irvine). Mario Stevenson (University of Miami) discussed the details of virus penetration and establishment of infection in macrophages. Rick Bushman (University of Pennsylvania) followed with new studies on the mechanisms for retrovirus integration and the possibility for new drugs which target this early step in the virus life cycle; Paul Bieniasz (Rockefeller University) described his work on tetherin, a protein that controls virus release from infected cells. Andrea Cerutti (Mount Sinai Hospital) presented novel findings on the unexpected role for neutrophils in controlling B cell response



Peter Palese (Mount Sinai Medical School)



Jose Esparza (Bill & Melinda Gates Foundation) and William Hall (University College Dublin)

to virus, while Alain Lafeuillade (Toulon) and Irvin Chen (UCLA) described new approaches to HIV therapy.

The afternoon of Tuesday began with a special lecture by Diane Griffin (Johns Hopkins), another leader in the Global Virology Network, who discussed the problem of developing immune responses capable of clearing virus infections from the brain. We then continued with a session entitled "Immune Mechanisms Controlling Viral Disease." Ed Berger (NIH) described the complex properties of HIV envelope glycoprotein in mixed trimers and Mario Roederer (NIH) presented his work on T memory stem cells and their involvement in HIV pathogenesis and vaccine responses. Dave Pauza (IHV) and Warner Green (Gladstone Institute) followed with details of unique mechanisms for indirect killing of CD4-negative (D.P.) or CD4+ (W.G.) T cells by HIV, and Judy Lieberman (Harvard University) presented work on how HIV evades interferon-based cellular defense mechanisms. Paolo Rossi (University of Rome) discussed unique features of pediatric HIV disease and the session closed with a talk by Samuel Broder on the history and future potential for therapy against HIV/AIDS.

Tuesday evening was the banquet and presentation of Lifetime Achievement Awards from the Institute of Human Virology. Jose Esparza (Bill & Melinda Gates Foundation), serving as master of ceremonies, started the evening by introducing Samuel Broder who presented a moving eulogy for this year's posthumous winner of the Lifetime Achievement Award for Public Service, Dr. Bernadine Healy. We were graced by the presence of Dr. Healy's family who attended the dinner. Afterwards, I added a few personal remarks about Dr. Healy and introduced Phyllis Kanki (Harvard University) who spoke on behalf of this year's Lifetime Achievement Award winner for Scientific Contributions, Professor Max Essex of Harvard University. Max was presented with a baseball bat signed by all members of the 2004 World Champion Boston Red Sox team, and forlorn Orioles fans in the audience forgave his obvious pleasure, not that the 2011 Red Sox did as well.

The final session of this year's meeting was on Wednesday and focused on "Virally-associated Malignant Diseases." Bassam Badran, one of 2 speakers in this session from Lebanon, described microRNA regulation of T cells which

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Robert Gallo (Institute of Human Virology)

are critical to cancer control. Clement Adebamowo (IHV-Nigeria) profiled the Institute's role in cancer research in west Africa, and Sam Mbulaiteye (NCI, NIH) extended these remarks by describing his own studies of HIV and cancer in that region which revealed high rates of disease and the need for substantial improvements in diagnosis and treatment capacity. Jim Goedert (NCI, NIH) discussed the current state of knowledge about malignant diseases in persons with AIDS and Robert Yarchoan (NCI, NIH) described cancers associated with KSHV infection. Anna Linda Zignego from Florence, Italy discussed an important role for hepatitis C virus in promoting lymphoma and Patrick Moore (University of Pittsburgh) spoke about the discovery of new cancer-promoting polyoma viruses and the value for new virus discovery programs. The session

was completed by talks from the 2nd of our Lebanese speakers, Ali Bazarbachi (American University of Beirut), and K. T. Jeang (NIH), who discussed the mechanisms and treatment for HTLV-1 associated with leukemia. This day and the meeting concluded with a special lecture from Jay Berzofsky (NCI, NIH) who discussed recent progress in cancer immunotherapy.

In addition to these important scientific sessions, we also hosted a Special Symposium on "HIV Prevention, Care and Treatment from the U.S. President's Emergency Fund For AIDS Relief (PEPFAR) program in Africa." This symposium occurred on Sunday morning and provided an opportunity to display the fantastic progress of treatment implementation and physician training programs in Nigeria, Tanzania, Rwanda and Kenya. The Institute is justifiably proud of its work in these areas and was pleased to give a forum for African investigators to describe their own studies on treatment strategies and research outcomes. The special symposium ended with poignant and moving comments from Joseph O'Neill (University of Maryland, Baltimore), an important cog in the wheel of formation of the PEPFAR programs during the presidency of George W. Bush. Reminding us to continue our efforts to embrace all of our colleagues in the fight against disease, O'Neill framed the intention of this session and indeed, the hoped-for outcome of all of our work on HIV/AIDS.

We are grateful to the National Institutes of Health Office of AIDS Research, and in particular to Dr. Jack Whitescarver, the Henry M. Jackson Foundation, Merck, Advanced Bioscience Laboratories, Inc., NIH Division of AIDS, Partec, Profectus BioSciences, Inc., Sanyo and Sanofi Pasteur for generous support. The Annual International Meeting for the Institute of Human Virology continues to provide a forum for outstanding research on HIV/AIDS and cancer. We are grateful to our speakers, chairpersons and attendees who helped ensure that the 13th Annual Meeting did not disappoint in bringing forward diverse and thought-provoking opinions.

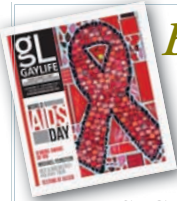
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Baltimore Gay Life Op-Ed

by Robert C. Gallo, MD

June 5, 2011

marked the 30th Year since the

U.S. Centers for Disease Control (CDC) reported the first cases of what we now know as acquired immunodeficiency syndrome (AIDS). Baltimore Gay Life asked IHV's Director Dr. Robert Gallo to share his experience and expertise after thirty years of AIDS. We have reprinted the op-ed that appeared in the publication.

Reflections on AIDS After 30 Years

By Dr. Robert C. Gallo

It is both rare and almost impossible to think of any good that could come out of the horror and tragedy of the HIV/AIDS epidemic. We must never become complacent about the devastation HIV/AIDS continues to wreak here in Baltimore and around the world. Nonetheless, it is important that we recognize some of the enormous positive impacts that the epidemic had in the midst of all the misery.

After the release of our four publications in "Science" magazine (May 4, 1984, Vol 224 #4648) demonstrating HIV as the cause of AIDS, and our detailed article published a month later in "Lancet" magazine describing the world's HIV/AIDS blood test (June 30, 1984, 1438-1440), my colleagues and I then at the National Cancer Institute (NCI) believed the general public would be relieved and, more or less, proud of us. After all, we had solved the problem of the cause of AIDS and developed the HIV/AIDS blood test. The blood test protected the blood supply and therefore helped blood recipients, especially hemophiliacs. It also allowed the epidemic to be followed for the first time and provided systems for the study of the virus in great detail, which contributed to the future study of drug therapy for HIV.

However, in those early days following the publication of the five papers mentioned above, before scientists and activists joined forces to effect change, these two groups were at odds. You see, scientists such as myself, didn't understand the mental anguish the gay community was living every second of every day in those early years. It wasn't until we were forced to come together through the AIDS epidemic—particularly through gay activists, in patient advocacy and subsequent cooperation with scientists on important experiments—that, together, we began to move scientific, social, and political change. The outcome of the gay community's rallying together in the early days, pioneered patient advocacy in other areas, for example, among cancer patients

today. I would also say that HIV/AIDS causes a far greater understanding of women's rights, of differences in sexuality and, finally, contributed to a far greater involvement of America with still-developing countries.

Another unprecedented outcome from HIV/AIDS includes not only increased social tolerance, but pioneering biomedical breakthroughs. Novel medical advancements that came out of HIV/AIDS research clearly and greatly impacted the whole field of immunology, especially what we might refer to as clinical immunology. That might be obvious, but what may not be expected is the great impact HIV/AIDS research has on cancer research. As many know, there is an increased incidence of some cancers with HIV/AIDS infection, and we have learned how and why this occurs. One might say that we can draw certain refuge in these positive effects that make the morbidity and loss of lives by people suffering from AIDS infection a catastrophe that is not lost in vain.

Nothing is more important however than the impact HIV has had on treating viral diseases. In an unbelievably short time we did develop drug therapy against HIV. Some of the work that was carried out in my own laboratory, principally by the man who would soon become director of NCI for a short time, was advanced by Dr. Sam Broder. Sam and a few of his co-workers, including Dr. Bob Yarchoan, in collaboration with Burroughs Wellcome, brought AZT to the clinic in record time.

Now the whole pharmaceutical industry understands the importance scientists play early on in an epidemic because if we know enough about a virus, how it reproduces, and what molecules it uses, we may be able to treat other persisting viral infections, such as hepatitis C and influenza. HIV/AIDS research has also moved forward entire scientific fields including basic virology, for example, in finding novel ways that HIV strategized for producing more virus which has already produced spin-offs into other areas of virology.

A view of the future landscape includes scientists finding better ways for drug therapy and finding ways to develop an HIV preventative vaccine. We are working on both of these quests here in Baltimore at our Institute of Human Virology at the University of Maryland School of Medicine. We look forward to working together toward these ends.

Robert C. Gallo, MD is Director of the Institute of Human Virology at the University of Maryland School of Medicine and is widely known for his discovery of the first human retroviruses (including one which causes a specific kind of leukemia), co-discovery of HIV, and the development of the HIV blood test.



PROJECT SHALEM

Testing More Than 900 Baltimoreans for HIV on June 28

Project SHALEM has tested 3,556 Baltimoreans for HIV since 2009, and by the end of June 28th, Project SHALEM increased this number by 906. Comprised of hundreds of volunteers and medical staff, Project SHALEM brings free HIV testing to the public through many community organizations, including the faith-based community. By coordinating periodic large-scale efforts to encourage HIV testing hosted through respected neighborhood organizations, Project SHALEM seeks to reach at-risk community members who might otherwise not be tested or receive appropriate medical care.



Volunteers provide registration and HIV/AIDS education.

"I tested positive for HIV in 1991," said Kathy Bennett, 51 years old, and a treatment coach for the JACQUES Initiative, a program of the Institute of Human Virology at the University of Maryland School of Medicine. "It is so important for people to learn HIV/AIDS prevention and understand that if they are positive, they could live a happy, healthy life with proper intervention and medication. When I was first diagnosed, I promised to live to see my granddaughter graduate from High School – which I did just this past month. There is hope."

"It is imperative as leaders of our churches that we energize congregations to take action against



City Uprising community volunteers canvass city streets and urge citizens to take a free HIV/AIDS test.

Baltimore's HIV/AIDS epidemic," said Pastor Eric King of St. Mathews United Methodist Church. "SHALEM means peace or safe haven in the Christian, Judaic and Islamic faiths. Collectively, we are a familiar and safe place for the public to receive free HIV/AIDS testing, peer-to-peer counseling and ultimately linkage to healthcare."

The group of volunteers was led by the JACQUES Initiative, in partnership with the Maryland Department of Infectious Diseases and Environmental Health Administration (IDEHA), The Baltimore City Health Department (BCHD), and numerous local faith-based and community organizations.

"This year marked a thirty year commemoration of the first chronicled cases of an illness that would later become known as HIV and AIDS," stated Derek Spencer, Executive Director of the JACQUES Initiative. "As we look to the next thirty years in treating, preventing and engaging our communities in this crisis, we believe the June 28th event was an opportunity to show a positive story of partnership and collaboration between an academic center, state and city regulatory agencies and concerned citizens giving their time to make a difference in our city."

Hundreds of volunteers including housewives, business people, grandmothers, students and many others participated in the large testing event held across the city in community organizations ranging from churches to transitional houses, including food kitchens in areas with a high prevalence of HIV infection.

"We believe there are 6000-9000 thousand citizens in our state who are living with HIV and unaware of their status," said Heather Hauck, Director of the Maryland Infectious Disease and Environmental Health Administration. "Events such as the June 28th Project SHALEM event assist us to share a message of prevention and also provide hope and linkage to care to receive effective treatment for those who are HIV infected."

Various services at the seven sites not only offered free HIV testing and linkage to care, but free lunches, case management and substance abuse counseling, syphilis screenings and HIV and AIDS education.



A community volunteer offers pre-test counseling services.

The testing event was held within an annual community service project called "City Uprising Baltimore" led by the Gallery Church and its members from across the nation.

"We believe if you propel the church you prosper the city," said Pastor Ellis Prince, Gallery Church of Baltimore. "We did light construction & renewal projects in several Baltimore City Public Schools and city parks, and were happy to join the JACQUES Initiative and its partners to promote HIV testing, treatment and prevention"

"The church has ignored the HIV/AIDS pandemic for far too long, and we, as a faith-based organization, are here to awaken, equip, and engage the church in restoring hope and healing to those affected by HIV/AIDS," said Erin Donovan, Executive Director of HopeSprings and a partner of the JACQUES Initiative in this effort. "We seek the eradication of HIV and its stigma, which can only be done through partnerships with faith-based and community organizations, medical community, and the government."



JACQUES Initiative Treatment Coach Cynthia Richardson.

The Institute of Human Virology (IHV) Announces

2011 Lifetime Achievement Award Honorees

Dr. Max Essex and Dr. Bernadine Healy Honored



Dr. Gallo presented Dr. Floyd Loop, Dr. Healy's husband, the *IHV Lifetime Achievement Award for Public Service* and a \$2,000 donation to the Bernadine P. Healy Scholarship at the Cleveland Clinic Lerner College of Medicine, Case Western Reserve University.

The Institute of Human Virology (IHV) at the University of Maryland School of Medicine presented the IHV 2011 prestigious Lifetime Achievement Awards during its 13th Annual International Meeting held Sunday, October 30 through Wednesday, November 2. Since its founding in 1996, IHV has been a world leader in HIV/AIDS research and treatment, with a proven track record of bringing medical benefits to people living with HIV/AIDS in the United States and around the world.



Dr. Gallo, Dr. Loop and Dr. Healy's daughters, Marie Loop and Bartlett A.H. Russell and son-in-law, Adam Russell.



Dr. Gallo presented Dr. Essex the *IHV Lifetime Achievement Award for Scientific Contributions*

This year, the Institute's faculty voted to bestow a Lifetime Achievement Award for Public Service to the late Dr. Bernadine Healy, who was the first female director of the National Institutes of Health and past president of the American Heart Association and the American Red Cross. She was honored for her honest and courageous leadership and innovative policymaking, particularly in effecting medical policy and research programs pertaining to women's health. IHV also honored Dr. Healy with a special lecture given by former Director of the National Cancer Institute, Dr. Sam Broder. Additionally, IHV faculty voted to honor Dr. Myron (Max) Essex, the Mary Woodward Lasker Professor of Health Sciences and Chairman of the Harvard School of Public Health AIDS Initiative, with IHV's Lifetime Achievement Award for Scientific Contributions for his work on animal and human retrovirus research and his leadership and great impact in the public health of Botswana.

The Awards were presented during IHV's 13th Annual International Gala Awards Banquet Tuesday, November 1, 2011 at the Baltimore Marriott Waterfront.



IHV's Dr. Robert Redfield and Harvard's Dr. Phyllis Kanki admire Dr. Essex's 2004 Boston Red Sox World Champions Autographed/Hand Signed Bat.



Robert R. Redfield, MD, Director, Professor of Microbiology and Immunology, Department of Medicine, Institute of Human Virology, received a five year \$499,636 grant from the Centers for Disease Control GPACE program. Dr. Redfield will work with the CDC, University of Guyana (UG), Georgetown Public Hospital Corporation (GPHC), and the

government of Guyana to strengthen human resources for health and clinical capacity in HIV care and treatment. Dr. Redfield will develop and optimize undergraduate medical curricula and education, institute post-graduate training and enhance faculty knowledge in HIV and infectious disease, and increase the capacity of the government to coordinate the development of human resources for managing HIV and infectious disease in Guyana.

Robert R. Redfield, MD, Director, Professor of Microbiology and Immunology, Department of Medicine, Institute of Human Virology, received a five year \$6 million grant award from the Centers for Disease Control to work with the Haitian Alliance for Institutional Strengthening (HAIS) to transfer clinical and technical capacity to the Université Notre Dame d'Haïti. This program will provide quality post-graduate specialization in HIV clinical care, treatment and laboratory services to Haitian health professionals. The project will also develop a Center of Excellence at Hospital St. Francois de Sales as a teaching hospital within a network of hospitals preparing faculty and their post-graduate students as specialists. UMB partners with subcontractors Catholic Relief Services and UNDH as part of HAIS.

Robert R. Redfield, MD, Director, Professor of Microbiology and Immunology, Department of Medicine, Institute of Human Virology, received a one year \$2 Million award from the Centers for Disease Control for his work to support the government of Rwanda in developing key competencies for public health program oversight and grants management within the Ministry of Health through providing focused technical assistance. The program will also augment the capacity of Rwandan health training institutions to provide such assistance themselves.

Robert R. Redfield, MD, Director, Professor of Microbiology and Immunology, Department of Medicine, Institute of Human Virology, received a five year award for \$929,837 for his work entitled "Strengthening Human Resources for Health (HRH) in the Republic of Guyana through support for a Public University Medical Education and Post-Graduate Training Program under the President's Emergency Plan for AIDS Relief (PEPFAR)". The work is to evaluate and operationalize a point of service and clinical tool that is designed to meet three critical public health needs: 1) to improve treatment outcomes to the initial antiretroviral treatment regimens; 2) to provide a clinical tool, with the appropriate specificity, to select patients for targeted viral load testing where limited viral load testing is available; and 3) to provide a clinical tool with the appropriate sensitivity to accurately identify patients failing their initial treatment regimen earlier than overt clinical failure for use in an environment that lacks viral load capacity.

Robert R. Redfield, MD, Director, Professor of Microbiology and Immunology, Department of Medicine, Institute of Human Virology, received a one year award for \$1,612,225 from the Henry M. Jackson Foundation for the Advancement of Military Medicine. Dr. Redfield's work is entitled "HIV Continuous Quality Improvement Program Development." Dr. Redfield will be responsible for various activities associated with developing a clinical HIV Continuous Quality Improvement (CQI) activity. The activity will evolve in a phase approach, beginning with Phase 1 through execution of a patient level outcome exercise and the commencement of the CQI activities. Phase 2 will serve to incrementally build components of the training center, leveraging PEPFAR and NMOD resources to establish a fully functional, sustainable training center supporting high quality HIV training and mentorship program in Nigeria.

Robert R. Redfield, MD, Director, Professor of Microbiology and Immunology, Department of Medicine, Institute of Human Virology, received a one year \$157,355.00 award from Catholic Relief Services Integrated Support for ART and PMTCT (ISAP). Dr. Redfield will be the technical lead in Prevention of Mother-to-Child Transmission (PMTCT) activities and will ensure quality care and services through training for care providers at the nurse, midwife, medical officer, clinical officer, and Traditional Birthing Attendant (TBA) levels in Zambia.



Erik DeLeeuw, PhD, Assistant Professor, Biochemistry and Molecular Biology, Institute of Human Virology, was awarded \$412,500.00 from the National Institutes of Health to identify Lipid II, an essential precursor in bacterial membrane biogenesis, as a potential target of defensin antibacterial activity for the first time. The overall objective of this study is to define functional and

structural interactions between defensins and Lipid II. In the long term, the project aims to apply the knowledge gained in research toward the development of defensin-based antibiotic compounds targeting Lipid II to combat Gram-positive pathogenic infections.



Fabio Romero, PhD, Assistant Professor, Department of Medicine, Institute of Human Virology, received a two year subrecipient agreement in the amount of \$40,000 from George Mason University for his work entitled "BTK Induction by HIV: Implications for Therapeutics". Dr. Romero's laboratory has developed an in vitro model of HIV-1 latency, which will be utilized to analyze and compare BTK expression on latently

infected versus uninfected cells. In addition, this model will be utilized to assess the ability of anti-BTK antibodies to specifically kill latent cells and to test combinations of antibody/inhibitor treatments.



Lai-Xi Wang, PhD, Professor, Biochemistry and Molecular Biology, Institute of Human Virology, was awarded a four-year grant in the amount of \$1,200,000 from the National Institute of General Medical Sciences for his work entitled "Synthesis and Function of Antibody Fc Domain Glycoforms. The main goal of this research is to decipher the functional roles of Fc glycosylation through glycosylation engineering and

Fc receptor binding studies, which may lead to the discovery of novel antibody glycoforms with potent therapeutic efficacy.



George K. Lewis, PhD, Professor, Biochemistry and Molecular Biology, Institute of Human Virology, was awarded a three -year project in the amount of \$6,965,308 from the Bill & Melinda Gates Foundation for his work entitled "Antibody Specificity, Fc-Mediated Effector Function, and HIV-1 Vaccines". The main goal of this project is to define the relationship between anti-HIV-1 Env antibody specificity and Fc-mediated effector function. Accordingly, the project will test the hypothesis that specificity and Fc-mediated effector function are co-selected in the anti-HIV-1 Env antibody response during infection.

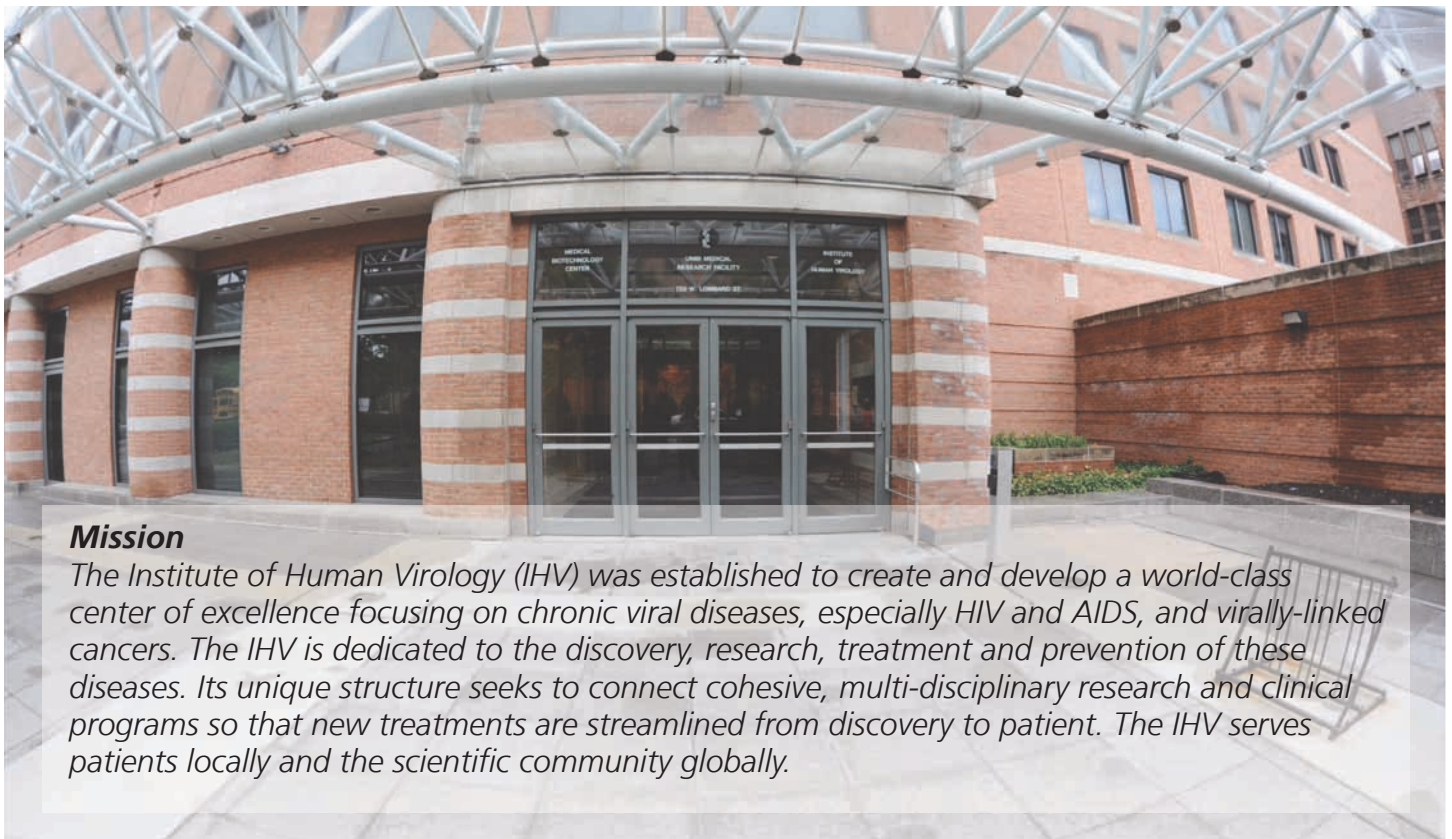


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The Institute of Human Virology is a center of the University of Maryland School of Medicine and is affiliated with the University of Maryland Medical Center.

For more information call 410.706.8614 or visit www.ihv.org



Mission

The Institute of Human Virology (IHV) was established to create and develop a world-class center of excellence focusing on chronic viral diseases, especially HIV and AIDS, and virally-linked cancers. The IHV is dedicated to the discovery, research, treatment and prevention of these diseases. Its unique structure seeks to connect cohesive, multi-disciplinary research and clinical programs so that new treatments are streamlined from discovery to patient. The IHV serves patients locally and the scientific community globally.