Discovery
Laboratory • Clinic • Community • World
INSTITUTE OF HUMAN VIROLOGY
Winter/Spring 2011

During a press conference at IHV, Governor Martin O'Malley announced $23.4 million in grants for IHV's HIV preventative Vaccine Candidate.

Consortium Awards $23.4 Million for
Promising HIV/AIDS Preventive Vaccine Candidate Developed by Institute of Human Virology at the University of Maryland School of Medicine

Institute's Immunogen has Potential to Neutralize a Wide Spectrum of HIV-1 Strains; Next Phases of Research to Advance Clinical Trials

On May 5, 2011 **Maryland Governor Martin O'Malley** announced that the **Institute of Human Virology (IHV) at the University of Maryland School of Medicine** received $23.4 million from a consortium of funding sources to support the next phase of research into a promising HIV/AIDS preventive vaccine candidate. The IHV vaccine program grants include $16.8 million from the **Bill & Melinda Gates Foundation**, $2.2 million from the **U.S. Army's Military HIV Research Program (MHRP)**, and other research funding from a variety of sources including the **U.S. National Institutes of Health (NIH)**.

The funding is to support further preclinical development and Phase I/II clinical trials of a novel HIV vaccine candidate developed by the research team at the Institute of Human Virology. The candidate immunogen, denoted as FLSC (Full-Length Single Chain), is

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Director's Message:
Two Major IHV Developments at Once!

There were two novel and important developments at IHV during the Winter-Spring 2011 timeframe. The first of these comprises the successful formation of the Global Virus Network (GVN), fulfilling a long goal of mine. During the onset of the AIDS epidemic I realized that though there are many organizations, groups, and individuals responsible for observing new epidemics there have been no internationally designated, responsible medical virologists assigned to new, and for that matter, existing epidemics. In the past, and even to date, we tend to get involved quite whimsically.

The U.S. Centers for Disease Control (CDC) is an exception, though expert on all angles of epidemiology/public health/and surveillance, CDC can only be expert on some kinds of human viruses – not all. This seems to be analogous to having many people who can go and find lions but few or more who know how to protect against

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UNIVERSITY of MARYLAND
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lions. Upon reading the history of some other epidemics of the past, it is easy to see that the lack of organization amongst medical virologists has always been the case. Moreover, there are few standardized requirements and training programs in medical virology and a decline in young scientists coming into the field. Perhaps the latter is due to a decline in physicians entering research careers, or maybe due to the high percentage entering genomics. Or both? We think this must change with the formation of the GVN, and such a change is long overdue. Thus, Reinhard Kurth (Berlin), Billy Hall (Dublin) and I got together in the founding of the GVN.

A collection of the world's most-renowned virologists came together during the recent, formative meeting of the GVN at the Italian embassy in Washington, DC to discuss GVN's strategy. The planned network will seek to cover all kinds of human pathogenic viruses, attempt to define the greatest threats, form public and private collaborations, be available to the World Health Organization (WHO), the CDC and other organizations for consulting, offer to help in needed research, and train young virologists. We will need organizational/administrative help as well as funding for the GVN. Through the GVN, it will also be very useful to keep active some senior scientists with great and needed expertise. Thus, my thinking is that a base yearly funding is necessary for all GVN centers as well as some percentage of funding "stored for a rainy day," or when an unforeseen public health emergency arises and needs the attention of the world's top-medical virologists – much like HIV/AIDS did. The type of epidemic threat (e.g. respiratory, arthropod-borne, etc.) will determine which center obtains extra funding (and work!). Decisions will be made by a scientific executive committee reporting to an administrative board.

The second development at the IHV includes our consortium for a preventive HIV vaccine candidate led by IHV with major funding from the Bill & Melinda Gates Foundation, additional funding from the U.S. Army and other, smaller contributions (totaling $23.4 million). This consortium constitutes a true public-private partnership that will also include Sanofi-Aventis and Profectus Biosciences, Inc. We hope the IHV vaccine candidate will be in clinical trials in 2012. I thank my colleagues, especially George Lewis and Tony DeVico of IHV and Tim Fouts of Profectus for their persistent innovative work, and we are delighted that the primate work can also be carried out at IHV by Dave Pauza and Joe Bryant as well as the phase I clinical trials by Bob Redfield, and co-workers. We will couple the IHV candidate with the vaccine that Sanofi-Aventis used in the first-ever, partially successful HIV vaccine trial (results reported in September 2009), which was conducted in Thailand by the U.S. Army's Dr. Nelson Michael and his co-workers at the U.S. Military HIV Research Program (MHRP) and Dr. Jim Tartaglia of Sanofi-Aventis with Thai colleagues.

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designed to elicit strongly protective antibody responses across the spectrum of HIV-1 strains. Research will be conducted by IHV, led by **Dr. Robert C. Gallo**, and joined by investigators from **Sanofi Pasteur** and the Military HIV Research Program.

> *"As the national epicenter of science, health and healing, Maryland has been home to some of the key breakthroughs in the fight against HIV/AIDS," said Governor Martin O'Malley. "I'd like to commend Dr. Gallo, the Gates Foundation, the U.S. Army, NIH, and Sanofi Pasteur. We are proud to support the groundbreaking research being developed by Dr. Gallo and the entire IHV team – it is only by harnessing the skills, talents and education of our people that we can fight this epidemic."*

IHV Director Robert C. Gallo, MD commends IHV's public-private partnership featuring the Bill & Melinda Gates Foundation and the U.S. Army in their collective quest to advance IHV's vaccine candidate into clinical trials.

University System of Maryland Chancellor William E. Kirwan, PhD, lauds IHV for its world-renowned research. From left to right, participants in the press conference also included: Sanjay Gurunathan, M.D., Associate Vice President for Clinical Development in the U.S., Sanofi Pasteur; Colonel Peter Weina, PhD, MD, FACP, FIDSA, Deputy Commander, Walter Reed Army Institute of Research; Robert C. Gallo, MD, Director and Professor of IHV; Maryland Governor Martin O'Malley; Kirwan; Jay Perman, MD, President, University of Maryland, Baltimore; and emcee, E. Albert Reece, MD, PhD, MBA, Dean, University of Maryland School of Medicine.

"The Gates Foundation worked closely with Dr. Gallo's team in the design and review of this innovative approach to an HIV vaccine," said Dr. José Esparza, Senior Advisor on HIV Vaccines for the foundation's Collaboration for AIDS Vaccine Discovery project. "We are proud to support Dr. Gallo's continued, pioneering work in HIV and AIDS."

Grants provided by the consortium will allow for clinical testing of FLSC evaluating immune response and safety in humans, and optimization of the prime-boost vaccination strategy. The research is specifically designed to determine if the immune responses elicited by the vaccine candidate are sufficiently powerful and long-lasting in humans. The research will also assess prime-boost combinations of the HIV vaccine developed by Sanofi Pasteur (ALVAC) which recently demonstrated modest protection in an efficacy trial conducted by the MHRP in Thailand, coupled with the FLSC developed by the Institute. Both vaccine candidates involve use of a modified form of the outer protein envelope, allowing each to potentially complement the use of the other.

The Gates Foundation's assessment of the promising potential of IHV's preventive vaccine candidate was shared by the MHRP. "The US Military HIV Research Program, part of the Walter Reed Army Institute of Research (WRAIR) and working with the Henry M. Jackson Foundation for the Advancement of Military Medicine, is very pleased to be part of this exciting research effort to develop a globally effective HIV vaccine," said Colonel Peter Weina, Deputy Commander of WRAIR.

The novel prime-boost strategy using FLSC is distinguished by its potential ability to induce broad antibody responses to HIV-1. The antibodies induced by the experimental vaccine bind to common HIV regions that are exposed when the virus attaches to target cells, rather than to specific characteristics of the HIV envelope protein that may not be present in all virus strains. That strategy could potentially overcome limitations of previous vaccine candidates that responded to single strains or narrow ranges of HIV viruses.

"IHV's unique and promising HIV/AIDS vaccine candidate is designed to inhibit HIV infectivity at the moment of infection, when many of the different strains of HIV found around the world can be neutralized," said Robert C. Gallo, MD, Director of IHV and 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. "We believe this mechanism is a major prerequisite for an effective HIV preventive vaccine."

Dr. Gallo, the principal investigator in the research, acknowledged and expressed appreciation to the Institute's entire team, noting especially the original contributions of IHV's Tony DeVico, Ph.D. and co-principal investigator George Lewis, Ph.D. for their work on the development of FLSC. He also indicated that he was looking forward to advancing the next phases of research in conjunction with IHV Associate Director Robert Redfield, MD who is also Director of Clinical Care and Research and IHV Associate Director David Pauza, PhD and Division-leader Joseph Bryant, DVM for their work on animal models. Baltimore-based **Profectus Biosciences**, a spinoff company from IHV, will be leading the preclinical development of the vaccine construct, and Dr. Gallo noted the many contributions to the vaccine by Tim Fouts, PhD of Profectus Biosciences.

"This is an exceptional combination of research partners – IHV, Sanofi Pasteur, Profectus Biosciences, and the Military HIV Research Program – and we are grateful for the extraordinary support from all of our funding partners, including the Gates Foundation, the U.S. Army, and NIH," continued Dr. Gallo. "This team is truly dedicated to eradicating HIV and AIDS, and we are excited by the potential for accomplishing that goal with the use of our novel prime-boost immunization strategy."

IHV Introduces Kenyans to

University's Professional Schools for NIH Medical Education Initiative

University of Maryland, Baltimore President Dr. Jay Perman meets with Kenyan officials.

A wealth of educational resources to be shared between the University of Maryland and the University of Nairobi, interprofessionally and within professional disciplines

Professor George Magoha, vice chancellor of the University of Nairobi (UoN), understands that the key to improving the tenuous state of health care in sub-Saharan Africa is to train and retain more doctors and other medical professionals.

In mid-May, Magoha led a 12-member UoN delegation, including the deans of its schools of dental sciences, medicine, and pharmacy, and directors of its schools of nursing and public health, on a fact-finding trip to the University of Maryland's (UM) Baltimore campus. "We came to strengthen our partnerships with the University of Maryland by visiting firsthand to our contemporaries in each of your schools, because this is one of premier universities in the U.S.," said Magoha.

According to World Health Organization records, Africa has only 2.3 health care workers per 1,000 people, compared with the Americas, where there are 24.8 health care workers per 1,000 people. There is an estimated shortage of 817,992 health care workers in Africa.

The Kenyans' visit is part of a five-year, National Institutes of Health-funded Medical Education Partnership Initiative (MEPI) to the UoN in partnership with the Institute of Human Virology (IHV) at the UM School of Medicine and the University of Washington.

Robert Redfield, MD, director of clinical care and research at the Institute of Human Virology, School of Medicine, is the principal investigator for the UM under the MEPI award. He said that MEPI is the latest of several collaborations in Kenya, "As we move into the 21st century, if an academic institution wants to stand in the forefront of medical education, it needs a global perspective. This is best accomplished by strategic partnerships between the U.S. and partners in long-lasting relationships that enable both of those universities to meet their missions in health science and quality."

Jay A. Perman, MD, president of UM, said, "My meeting with Professor Magoha confirmed my belief that there are a wealth of educational resources to be shared between the University of Maryland and the University of Nairobi, interprofessionally and within our professional disciplines. University of Maryland deans are working with members of the Kenyan delegation to enhance models of medical education, which will surely increase the number of new health care workers, and thus reinforce clinical and research capacities in Africa. Also, our faculty looks forward to student and faculty exchanges, and to more research collaboration that will strengthen the University of Maryland."

After a greeting by IHV and UM officials, the Kenyan delegation spread out across the 65-acre university where they visited UM schools appropriate to their professions.

Professor Isaac Kibwage, principal of the UoN College of Health Sciences, described their purpose in coming to UM. "The vice chancellor expects each of us to see how the training is done here." Kibwage said the delegation is particularly interested in "the issue of e-training, or distance learning, which we are now developing in a few units of our School of Dental Sciences." The UM Dental School is a world leader in dental education online.

During the greeting session, Evelyn Wagaiyu, dean of the UoN School of Dental Sciences told Bernard Levy, DDS, MSD, professor at the UM Dental School, that most of her graduates practice in or near Nairobi, but that they also are needed in rural Kenya. The next day, Levy, who is the School's director of international operations and Dental School Dean Christian S. Stohler DMD, changed their plans for Wagaiyu's tour from mostly information technology to also include rural dentistry. They took Wagaiyu to the University of Maryland Dental Clinic, Perryville, in rural Cecil County, some 70 miles north of Baltimore. At the Perryville clinic, Wagaiyu met and talked with patients, students, and toured the facility.

The state-of-the-art dental clinic was completed last year and serves rural northeast Maryland where previously there had been a critical need for oral health care, especially for children. Levy said, "I think she left knowing that many of our students, after experiencing Perryville, want to work in rural areas." As far as IT

teaching, he said, "It lends itself to our site in Perryville. They aim the camera to the patient and I talk with the patient from [Baltimore]. Everything we are doing here is doable there. She was impressed."

Also at the greeting session, the dean of the UoN School of Pharmacy, Professor Grace Njeri Thoithi expressed particular interest in the UM School of Pharmacy's post-market research on drugs and how they are being used by different population groups. Ilene Zuckerman, PharmD, PhD, professor and chair of the School's Department of Pharmaceutical Health Services Research, said, "We discussed the state of health services research at [Thoithi's] school and in Kenya. It sounds like we could collaborate by providing technical support and training for their faculty on health services research methods. This would benefit both our schools by enriching our programs with cross cultural experiences."

At the UM School of Nursing, Grace Omoni, director of the UoN School of Nursing, said she was very impressed with the School's series of simulation laboratories where student technique is tested—from needle injection to birthing to rapid medical responses—on life-size dummies with simulated organs. "This is what we want to upgrade. The skills labs' use of cameras is very important." At the UM School of Nursing, instructors set up learning exercises for a student, then leave the simulation lab to observe them on video monitors in the next room. "This is good because I've seen half the time a student panics in the presence of the instructor," Omoni commented.

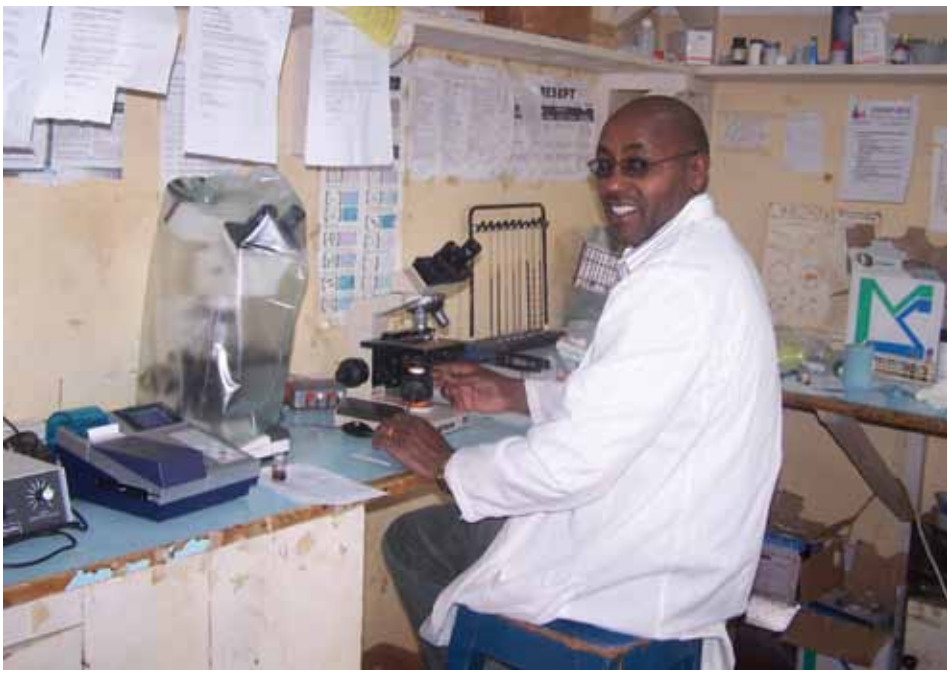
Earlier, Magoha and Kibwage met with Phoebe A. Haddon, JD, LLM, dean of the UM School of Law. They discussed supporting judicial training in Kenya, perhaps through a joint program supported by both universities. Haddon explained, "A number of our clinics address legal issues affecting families and others with HIV/AIDS. We could support opportunities to interact with the University's clinicians who are addressing similar issues in their work. Our law school has been developing an international law clinic that has offered students on-site and live-client projects in Namibia, China, and Mexico that is possible to replicate elsewhere. I think we could develop rich opportunities for faculty and student exchange."

In Magoha's meeting with Richard P. Barth, PhD, MSW, dean of the UM School of Social Work, he expressed interest in UoN's desire to strengthen Kenyan society with education and training opportunities for future Kenyan social workers. "During our discussion he framed the idea of bringing that area of concentration out of their Department of Sociology and into the College of Health Sciences. [Magoha] explained that this would strengthen students' commitment to service and encourage their participation in an interdisciplinary approach to helping mitigate the health and social service needs of so many Kenyan citizens.

Among Magoha's meetings with the UM School of Medicine faculty, was his special request concerning herbal medicine research. "We had an excellent meeting and agreed to explore collaborating on pharmacognosy [the study of medicines derived from natural sources] and herbal medicine research, as well as them attending our course next spring in research methodology in integrative medicine," said Brian Berman, MD, professor of family medicine and the founder and director of UM's Center for Integrative Medicine.

Article by: Steve Berberich of the University of Maryland, Baltimore

IHV's successful NIH-funded programs in Kenya opened the door for broader relationships across the University's campus.



Adebamowo Hosts Conference on HIV and Cancer in Nigeria

Clement A. Adebamowo MD, DrSc, Associate Professor, IHV

Clement Adebamowo, MD, DSc, Associate Professor, Institute of Human Virology (IHV) at the University of Maryland School of Medicine and President of The Society of Oncology and Cancer Research of Nigeria (SOCRON), led SOCRON's second biennial International Conference on Modern Cancer Management (ICMCM) themed "Infections and Cancer" February 21-25, 2011 at the Reiz Continental Hotel in Abuja, Nigeria. The conference brought together international leaders in cancer prevention, epidemiology, clinical trials and management to Nigeria to teach, network and present recent advances in focal areas of cancer. Participants included a multidisciplinary group of 134 healthcare professionals including doctors, pharmacists, nurses, laboratorians, basic scientists and allied health care workers who are interested in cancer care.

"Despite being at the epicenter of twin epidemics of cancers and infectious diseases, Nigeria currently has limited opportunity for capacity development in cancer prevention, care and research," said Dr. Adebamowo. "This conference is an important effort to fill this gap."

This year, the focus was on HIV and Cancer. Nigeria has 3.6 million people living with HIV and studies from other parts of the world suggest that the HIV positive population has a cancer prevalence of 10%. That is 360,000 cases of cancer due to HIV infection alone. This cancer epidemic is unique because of the characteristics of the population in which it is occurring. First, this population is well characterized and their main risk factor – HIV infection – is known. Secondly this population is treated in dedicated facilities – at least to the degree that they are known – with often better clinical care, follow up and tracking than the rest of the population. Third, the most common cancers in this population are well known and for some of them there is effective prevention. Fourth, health care in this population has been supported by significant international resources that may be leveraged to extend cancer care for people living with HIV.

"The SOCRON meeting is an important milestone in growing collaboration with IHV's Viral Oncology Program to advance research on HIV malignancy cause and treatment," said William Blattner, MD, IHV Associate Director and Director of Epidemiology and Prevention at the IHV.

The multidisciplinary nature of this conference served to benefit all areas of cancer care. Individuals trained in cancer palliative care and nursing oncology, for example, can apply these skills to any cancer patient, not only those with HIV associated cancers.

The sub-theme - HIV/AIDS Associated Malignancies – was chosen because of the large number of people living with HIV in Nigeria and the increased availability of anti-retroviral therapy through the President's Emergency Plan for AIDS Relief (PEPFAR) and similar programs that are providing free treatment for patients with HIV/AIDS in Nigeria. It is known that AIDS associated malignancies are under-diagnosed in Nigeria and there is a need to improve cancer case finding, cancer registration and cancer treatment among people living with HIV/AIDS. This section of the program was supported by the Institute of Human Virology (IHV) at the University of Maryland School of Medicine, a major PEPFAR program implementer in Nigeria, Sub-Saharan Africa Lymphoma Consortium (SSALC), the AIDS Malignancy Consortium (AMC) and the American Society of Clinical Oncology (ASCO).

"This meeting has already led to development of important collaborations mapping the pattern of lymphoma in Nigeria, implementing quality control for the nascent national cancer registration system, establishing a network of cervical cancer screening sites and energizing the clinical trials teams ready for implementation of AIDS Associated Cancers Clinical Trials," said Dr. Adebamowo. "A follow up workshop focused on Principles and Practice of Clinical Trials Skills is planned for July 2011."

Participants take notes during SOCRON's "Infections and Cancer" Conference.

Rising Global Threats and Need for Medical Virologists

Prompt Meeting of Top Virologists from Around the World

More than 35 of the world's top virologists gathered March 3 to ratify the Global Virus Network (GVN).

On March 3, 2011, top medical virologists representing more than a dozen countries ratified their participation in and support of the newly-formed Global Virus Network ("GVN"), a global authority and resource for the identification, investigation, and control of viral diseases posing threats to mankind. The inaugural meeting of the GVN was held March 1-3 at the Embassy of Italy in Washington, and each of the attendees signed a Declaration of Participation & Support.

The GVN fulfills a goal of Dr. Robert C. Gallo, co-founder of the GVN, Director of the Institute of Human Virology at the University of Maryland School of Medicine, and 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. Since the early 1980's and following the immediate HIV/AIDS outbreak, Dr. Gallo began promoting the need for global collaboration to overcome gaps in research during the earliest phases of viral epidemics and to ensure that sufficient numbers of medical virologists are trained to meet these challenges.

"Since HIV/AIDS first appeared," said Gallo, "I strongly have believed mankind will best be served if the world's leading virologists are organized and better equipped to deal with new and existing viral threats. The GVN fulfills this mission."

During the two-day meeting, the attendees affirmed and ratified the following goals and objectives for the GVN to:

1. create a network of experts on medically-important viruses in partnership with existing surveillance programs and public health organizations and to control viral threats by providing a rapid, coordinated approach and comprehensive medical research response for all classes of emerging viral threats to mankind; and
2. build collaborative research alliances within the network to undertake focused research on diseases with known and suspected viral causes which require specialized expertise from multiple members; and
3. mitigate the critical lack of current and future medical virologists through practical training programs; and
4. educate governments, public health organizations and the public at large on viral threats and advocate research and training to address those threats to mankind.

Comprised of representatives from more than a dozen countries and growing, the GVN will act as global responders to dangerous viruses and operate as an international clearinghouse to educate, inform and disseminate critical information to governments, health organizations, healthcare practitioners and the public-at-large. Of equal importance, the GVN will work to overcome the critical shortage of trained medical virologists world-wide.

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"There is a worldwide shortage of medically-trained virologists, and those of us leading the field must cultivate an environment of growth for future generations," said Dr. Reinhard Kurth, Chair of the Foundation Council of the Ernst Schering Foundation (Berlin) and a co-founder of the GVN. "My colleagues and I from Germany are thrilled to be a part of this historic initiative."

"The GVN will strengthen relationships with developed and developing countries," said Dr. William Hall of the University College Dublin, Ireland and a co-founder of the GVN. "Viruses don't discriminate. They affect all of us. No longer are the days when viruses infect only small populations, or a small geographical area – today they can rapidly travel the world. As such, the interaction and cooperation of all countries will be essential for effective responses."

GVN's Executive Board includes newly elected Chair, Timothy Moynahan of Moynahan & Minnella, Anthony Cernera, Former President of Sacred Heart University and Matthew Evins, Chair & CEO of Evins Communications. Additionally, the GVN recognizes other important supporters including Franco Nuschese, President of Georgetown Entertainment Group, Steve Wozencraft, CEO of John O'Donnell Associates, and The Honorable Robert Gray, The Honorable Kathleen Kennedy Townsend and Janet Langhart Cohen for their expertise in communications and public affairs.

Dr. Gallo in particular thanks his internal team at IHV who worked hard to create and launch the GVN. These colleagues include IHV-GVN co-director Maria Salvato, PhD and C. David Pauza, PhD for building the foundation of the GVN. For contributing knowledge from different regions around the world, Dr. Gallo acknowledges Igor Lukashevich, PhD, MD (Russia and surrounding regions), MG Sarangadharan, PhD (India) and Yongjun Guan, PhD (China). Additionally, Dr. Gallo would like to acknowledge Robert Redfield, MD for lending his broad expertise. From the IHV administrative end, Dr. Gallo acknowledges Dave Wilkins for his input on administration, Nora Grannell for her counsel on communications and public affairs surrounding the GVN, Marcus Gallo for his research reports on various virology centers and Robert Karrs on his grant research.

Global Virus Network (GVN) co-founders Dr. Reinhard Kurth (Berlin), Dr. Robert Gallo (Baltimore) and Dr. William Hall (Dublin).

Board Buzz

Jeffrey B. Trammell
Elected Rector of
William & Mary College

In April, the William & Mary Board of Visitors unanimously elected alumnus Jeffrey B. Trammell '73 as the College's next rector. Trammell is president and founder of Trammell and Company, an external communications and public affairs consulting firm in Washington, D.C., and a member of the Board of Advisors at the Institute of Human Virology, University of Maryland School of Medicine. The rector serves as chair of the College's Board of Visitors.

IHV New Recruits

Eric Sundberg, PhD

IHV recruited Dr. Eric Sundberg to form and lead the Structural Immunology & Oncology Laboratory in the Division of Basic Science and Vaccine Development. His research focuses on understanding protein-protein interactions, both to define the molecular bases of and to develop novel therapeutics against infectious diseases and cancer, as well as to define the fundamental driving forces that govern their specificity and affinity. Dr. Sundberg brought three R01 grants with him from his previous work at the Boston Biomedical Research Institute. Dr. Sundberg's grants were awarded in 2008 through 2010 from the National Institute of Allergy and Infectious Diseases of the National Institutes of Health and total more than $3.7 million.

Yutaka Tagaya, MD, PhD

IHV recruited Dr. Yutaka Tagaya to join the T cell biology section and form the laboratory of Cytokine Regulation of T-cells in HIV disease, in the Division of Basic Science and Vaccine Development. Dr. Tagaya led his own group at the National Cancer Institute and studied cytokine biology in the context of T cell activation and differentiation. In particular his group demonstrated a new paradigm (the IL-15 trans-presentation paradigm) to explain how interleukin-15 bridges T and NK cells and neighboring antigen presenting cells and for the activation of T/NK lymphocytes. In addition, Dr. Tagaya has been involved in the research of T cell malignancies. Recently he has developed a mouse model of T cell leukemia/lymphoma and will continue the study to delineate the mechanisms underlying the development of T/B lymphoma caused by HTLV-I and HIV. Dr. Tagaya will also take charge of the newly organized Flow Core Facility of the IHV, helping the IHV community with flow cytometry and cell sorting.

Grants Winter/Spring 2011

Robert Gallo, MD, Director, Institute of Human Virology, Division of Basic Science and Vaccine Development, received a six year $16,804,024 award from the Bill and Melinda Gates Foundation for his work entitled "Phase I Clinical Trial of a Novel HIV Protein Construct that Presents CD4 Induced Epitopes." The main goal of this project is to support a Phase I clinical trial of a novel HIV protein construct that presents CD4 induced epitopes. This research will allow for clinical testing of FLSC evaluating immune response and safety in humans, and optimization of the prime-boost vaccination strategy. The research is specifically designed to determine if the immune responses elicited by the vaccine candidate are sufficiently powerful and long-lasting in humans. The research will also assess prime-boost combinations of the HIV vaccine developed by Sanofi Pasteur (ALVAC), which recently demonstrated modest protection in an efficacy trial conducted by the MHRP in Thailand, coupled with the FLSC developed by the Institute. Both vaccine candidates involve use of a modified form of the outer protein envelope, allowing each to potentially complement the use of the other.

Robert Gallo, MD, Director, Institute of Human Virology, Division of Basic Science and Vaccine Development, received a one year $2,200,000 award from the US Army Medical Research & Material Command for his work entitled "Safety and Immunogenicity of FLSC." The Military HIV Research Program (MHRP) in collaboration with the Institute of Human Virology and Profectus Biosciences plan to conduct a phase 1-2 clinical trial in Thailand. The main goal of this project (phase 1) will evaluate the safety and immunogenicity of the full length single chain (FLSC) subunit prior to evaluating combinations with either an ALVAC-HIV (V cp1521) Prime, or a new ALVAC construct expressing FLSC.

Robert Gallo, MD, Director, Institute of Human Virology, Division of Basic Science and Vaccine Development, received an award in the amount of $60,000 from the Office of the Director, Office of AIDS Research, National Institutes of Health, to support the first Global Virology Network (GVN) Director's Annual Meeting held on March 1-3, 2011at the Italian Embassy in Washington, DC.

Alfredo Garzino-Demo, PhD, Institute of Human Virology, Division of Basic Science and Vaccine Development, received a 7 month $15,000 Viral Oncology Program Pilot award from the University of Maryland, Marlene and Stuart Greenebaum Cancer Center for his work entitled "Impact of Antiretroviral Agents on Defensin Production and Innate Immunity Against Oncogenic Papillomaviruses." The main goal of this project will address the question of why treatment of HIV infection, which improves most illnesses associated with AIDS, does not improve the outcome of HPV infection and, in the case of oral HPV, seems to actually increase the incidence of HPV-associated lesions. He will investigate whether select antiretroviral drugs lower the production of defensins, innate immunity peptides that have anti-viral and anti-cancer activities.

Igor S. Lukashevich, MD, PhD, Institute of Human Virology, Division of Basic Science and Vaccine Development, received a five year $4,300,700 award from the National Institute of Allergy and Infectious Diseases (NIAID) for his work entitled "Development of New Bivalent Cross-Protective Arenaviral Vaccines." The main goal of this project is an advanced development and optimization of alphavirus-based VLPV (virus-like-particle-vectors) technology as a generic platform for preventive vaccines against highly pathogenic arenaviruses, Lassa, Machupo, and Junin. Rationally designed vaccine candidates and VLPV technology will be transferred to a manufacturing environment and scaled-up to produce GLP-grade vaccines for preclinical testing in nonhuman primates. This project is based on partnerships between academia (IHV/SOM), industry (Medigen, Inc, Frederick, MD; SAFC Pharma, Carlsbad, CA; ATCC, Manassas, VA), and non-profit organizations (TxBiomedResInst, San Antonio, TX; Midwest Res Inst, Kansas Citi, MO).

Fabio Romerio, PhD, Institute of Human Virology, Division of Basic Science and Vaccine Development, received an 18 month $100,000 Grand Challenges Explorations award from the Bill & Melinda Gates Foundation for his work entitled "Cell Surface Biomarkers of Latently Infected CD4+ T Cells." The main goal of this project is to generate latently infected cells in the lab, and to profile the entire complexity of their cell surface-associated proteins (membrane proteome). By comparing the profiles obtained with uninfected cells, he expects to identify proteins uniquely and differentially expressed on the surface of latently infected cells. These results will be validated using clinical samples obtained from HIV patients.

Davide Zella, PhD, Institute of Human Virology, Division of Basic Science and Vaccine Development, received a 7 month $22,500 Viral Oncology Program Pilot award from the University of Maryland, Marlene and Stuart Greenebaum Cancer Center for his work entitled "Genomics Analysis of Mycoplasma Strains Associated with Human B cell Lymphoma." The main goal of this project will provide insights into the role of M. fermentans as a chronic infectious agent that can cause major changes in leading to the development of lymphomas.

Discovery is published biannually. Complimentary copies are available upon request.

Questions/Comments?

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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.