



DISCOVERY



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Fall 2009

Shandong Gallo Institute of Virology Established in China



Construction of the new SGIV building is now complete

On June 22, 2009, the Shandong Academy of Medical Sciences (SAMS) announced the establishment of the Shandong Gallo Institute of Virology (SGIV), named after world renowned virologist and pioneer in retrovirology

and HIV/AIDS, Dr. Robert C. Gallo. Dr. Gallo attended the ceremony as an Honorary Guest and Keynote Speaker at the Opening Ceremony. The announcement was made simultaneously with an MOU Signing Ceremony to establish China's first Molecular Diagnostic Center for Personalized Healthcare (MDCPH), which will be a joint venture among the University of Maryland at Baltimore, Roche Diagnostics Asia Pacific and SGIV at the Shandong Academy of Medical Sciences.

The mission of the SGIV is to promote the basic science of virology especially in the area of HIV/AIDS and other important and emerging viral diseases and to facilitate translational research and clinical trials for related diseases. SGIV also aims to provide molecular-based testing for disease diagnosis, prognosis and treatment in particular in the area of individualized molecular testing for personalized medicine.

Special guests also included Lieutenant Governor for Education Mr. Huang Sheng, the former President of the Chinese Academy of Preventive Medicine and member of the Chinese Academy of Sciences Dr. Zeng Yi and President of the Shandong Academy of Medical Sciences Dr. Han Jinxiang. Other special guests included representatives from SGIV's Shandong strategic alliances including Shandong University, Shandong Center for Disease Controls and Shandong Blood Center. Numerous guests from other part of China, Japan and the United States also attended the Opening Ceremony. Among many congratulation letters received they include letters from Dr. David J. Ramsay, President of the University of Maryland at Baltimore, Dr. Zhong Nanshan, President of the Chinese Medical Association, and the Embassy of the People's Republic of China in the United States of America.

"The establishment of the Shandong Gallo Institute of Virology combines the strength of the Institute of Human Virology at the University of

DIRECTOR'S MESSAGE

Robert C. Gallo, MD

It is now approximately six weeks since the announcement by the United States Army, Sanofi-Pasteur and the Thai Ministry of Health on the results of an efficacy AIDS vaccine trial in Thailand. This was to date the biggest, efficacy clinical AIDS vaccine trial, and it produced surprising results from at least two points: first, the majority of scientists would have suspected that a positive result would mean not protection against infection but a reduction in virus titer in those infected and a reduction lasting only for a limited period of time before variants emerged. Indeed that is the goal of all cell mediated immune (CMI) vaccine candidates, and it is a CMI type of vaccine

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Maryland School of Medicine and the Shandong Institute of Virology in HIV research and other related diseases," said Dr. Richard Zhao, an IHV-affiliated faculty member and the Advisory Director of SGIV. "With its fast progress in virology research and study, and its vast talent pool, China is very well

positioned in the world to achieve excellence in the study of virology. Based in the Shandong Academy of Medical Sciences with access to outstanding support from the Shandong provincial and central government as well as the medical community, the SGIV will be able to carry on its vision

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Opening of the Shandong Gallo Institute of Virology. Left, Dr. Robert C. Gallo; Right, Lieutenant Governor of Education Mr. Huang Sheng. Photo taken at the Shandong Academy of Medical Sciences, Jinan, China on June 22, 2009

Conspiracy beliefs can affect treatment of people with HIV

Antiretroviral therapy has dramatically improved the quality and quantity of life for people living with HIV; yet some patients still view these medications with suspicion. “You can have the most effective medicines, but if the person doesn’t take them, they’re not going to work,” notes Dr. Lydia Temoshok, Director of the Behavioral Medicine Program at the Institute of Human Virology (IHV) and Professor of Medicine at the University of Maryland School of Medicine (UMSOM). In the course of conducting clinical research over the past 10 years with almost 1000 HIV-infected outpatients and inpatients, she and her colleagues have reached some conclusions about factors that contribute—and don’t contribute—to HIV drug treatment adherence. So-called ‘common sense’ factors like forgetting to take medications, pill burden (taking multiple medications), knowledge of HIV-related information, and understanding the consequences of not taking one’s medicines as prescribed did not predict adherence, Temoshok explained. The factors that did predict more optimal adherence, she added, were underlying, chronic attitudes and ways of perceiving, thinking about, and dealing with the world.



Lydia Temoshok, PhD

“What we were finding, again and again, was that it wasn’t so much that people forget to take their medicines, it’s that they don’t want to take their medicines,” says Dr. Rebecca Wald, Assistant Professor at the IHV and UMSOM. Wald started to look systematically at the reasons for this. “She decided to focus on conspiracy beliefs,

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

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Design: Graphic Solutions

Director’s Message, *Continued from page 1*

that most of us believed was the main mechanism induced by the vaccine used in the Thai trial, but this was not the case. Among infected people both placebo and vaccinees had the same levels of HIV. However, it is the second point that was most unexpected and important. For the first year, and especially the first six months, there were significantly more infected persons in the placebo group. In other words, there seemed to be complete protection against infection that lasted for a while, but in time the vaccine became ineffective. The rate of infection of the placebo treated groups and the vaccine treated groups became virtually identical.

Protection against infection almost certainly requires a humoral (antibody response) or an innate immune response that quickly produces killer cells that destroy infected cells or a barrage of chemokines that block HIV infection. There was indeed an antibody response, and the final vaccine used in the Thai trials was really not chiefly a CMI-based vaccine as I thought but one that included a significant stimulation of antibody production against the HIV gp120 envelope. Nonetheless, we all know that antibodies to a typical gp120 envelope does not protect except in a type specific manner. So then how could we get a broader affect that would give protection for several months in the vaccinated group? We have to assume one of two possibilities. Either the local population had very specific gp 120 envelopes (Thailand has been dominated by a clade E HIV and the vaccine contained a gp 120 envelope of a clade E HIV), or the expression system used by Sanofi (canary pox viral vector) produced an envelope with a modified form that induced antibodies of the kind we usually do not achieve with conventional gp120. The results have generated much enthusiasm because as such they are historical in that they are the first results of any success in an AIDS vaccine trial. This does not mean there have not been those who argued against the Thai trial results. Some have argued that the apparent positive results could be due to a change in habit when the volunteers knowing they were vaccinated took greater risks. However that does not explain why the vaccinees did better than the placebo group. There is a second and more recent criticism by some. The trial announcement results were analyzed by what has been called a modified intention to treat evaluation.

It is with this analysis that statistical success was seen but not when the analysis was done a second method by what is called a per-protocol analysis. I am not an expert in these kinds of statistical approaches, but from everything I have heard, the analysis that used to report positive results, namely the MITT method, may be the more appropriate for this kind of study. I trust my own instincts. When you look at the curves in those first six months they are clearly quite different from the latter period and to me reveal that something interesting has happened in the early months. In other words, I favor the positive interpretation but with a focus only on a “short-lived” (six months or so) effect.

What to do with these results? Does this mean we go forward with still a larger phase study? That is not the conclusion of the authors of this study nor is it the conclusion of the scientific community. Rather these results should be regarded as an experiment, and we should focus our attention to the events of this early period. What are the things that need to be looked at carefully? Clearly we would like to know everything about the immune response. For instance, we would like to know the levels of beta chemokines in production. We would like to know the type of antibodies produced. Did the antibodies block HIV infection in conventional assays, or were they of other types that simply bound to the virus but didn’t really neutralize in the conventional assays but have other effects that block HIV? CMI also needs to be examined, but I bet we are not going to find answers from that direction. In my view the most important cellular experiments to be carried out are to examine the memory B cells during the early period in the vaccinees. As my colleagues, George Lewis and Yongjun Guan, have shown in the last couple of years the memory B cells are good archival records of what antibodies were produced that might not still be found in serum, and the decline in some of those antibodies may be why the vaccine effect was short-lived. I hope our IHV scientists, including myself, can contribute to these analyses. Finally, I congratulate the authors of the work, particularly Jerome Kim, formerly of IHV, and Nelson Michael both of the U.S. Army, Jim Tartaglia of Sanofi-Pasteur, who for so long stayed with his study of ALVAC as a vector including this trial, and the Thai Group.

JACQUES Initiative Joins Maryland AIDS Administration to Extend HIV Testing to the Faith-Based Community

The JACQUES Initiative, a community program at IHV, in partnership with the Maryland AIDS Administration, several local faith-based and community organizations kicked-off Project SHALEM on July 21, 2009 during City Uprising Baltimore, a four day event sponsored by the Gallery Church Baltimore. Volunteers from nine states across the country descended upon Baltimore to offer community services, including encouraging Baltimoreans to know their HIV status and get tested. Project SHALEM, managed by JACQUES Initiative's Jamie Mignano, is an unconventional sustained partnership that seeks to take the stereotype and anxiety out of HIV testing through faith-based organizational support. The name, "Shalem," was chosen for its universal expression in all faiths – Christianity, Judaism and Islam – symbolizing "peace" or "a safe place."

"The JACQUES Initiative was excited to launch Project SHALEM this summer which was built on the community presence and technical expertise of the IHV to promote education, counseling, testing and linkages to care in Baltimore City," said Derek Spencer, MS CRNP, Executive Director of the JACQUES Initiative. "It is my hope that Project SHALEM serves as a model program for other cities on how to engage faith-based organizations in breaking down stigma by openly talking about the impact of HIV in their community."

Through Project SHALEM faith-based volunteers participate in an unprecedented HIV testing and counseling training sponsored by the Maryland AIDS Administration and supported by the JACQUES Initiative's technical expertise and



JACQUES Initiative's Alex Brown explains the simple HIV test procedure to a participant before taking the test. Photo by Cricket Barrazotto



Waiting for HIV test results, Reverend Darnell Ranson and Ms. Harriet Kapilikisha pray with Mr. & Mrs. Mark Young at Bethlehem Baptist Church test site. Photo by Cricket Barrazotto

on-site mentoring and assistance. These faith-based volunteers are then qualified to bring HIV testing and education into communities where members feel safe to be tested for HIV. While July 21 marked the kick-off of Project SHALEM in coordination with City Uprising Baltimore, the program is staged in two phases with Phase I engaging the JACQUES Initiative's existing partners from the Christian community— including HopeSprings, a long-term partner comprised of two local churches with 30 members participating in Project SHALEM. Phase II engages new partners, including Baltimore's Jewish and Muslim communities. The ultimate goal is to build the foundation for a sustainable Project SHALEM and finally put the first real dent in combating the HIV crisis within Baltimore's strong faith-based communities.

"We must increase our coordination and collaborative efforts to scale up HIV prevention messages, and increase access to HIV counseling, testing and treatment," said Dr. Angela Wakhweya, Deputy Director of the Maryland DHMH AIDS Administration. "We thank the JACQUES Initiative for their leadership in coordinating this event to increase HIV awareness and testing in Baltimore City."

Maryland AIDS Administration 2007 data shows the largest proportion, greater than 70%, of new and living cases of HIV are in Baltimore City, Prince Georges and Montgomery County. The Centers for Disease Control's estimates from 2006, reports 21% of Americans infected with HIV do not know they are infected and those unaware of their HIV status are responsible for more than half of the new sexually transmitted infections in the US.

When asked about his church's participation in this project nationally known Reverend Frank Reid of Bethel AME Church stated, "We are proud to be a partner of the JACQUES Initiative and IHV. We are trying to put together a partnership that will be a model for cities across the nation where churches will become health centers for people with HIV and hypertension. There are more churches in our community than there are hospitals."



Inside one of the busier testing sites, Bio Scripts. Photo by Cricket Barrazotto

During the July 21 City Uprising and launch of PROJECT SHALEM, out-of-state volunteers, community and faith-based supporters and the JACQUES Initiative recruited citizens to eleven HIV testing sites across Baltimore testing 900 members of the public for HIV. Two-hundred twenty volunteers were engaged in the efforts and more than twenty churches from the US including Maryland were represented. Further, more than twenty people IHV serves via the JACQUES Initiative program (who are HIV positive) served as volunteers and the faith-based community provided thirty-eight new testers and one-hundred sixty non-tester volunteers.

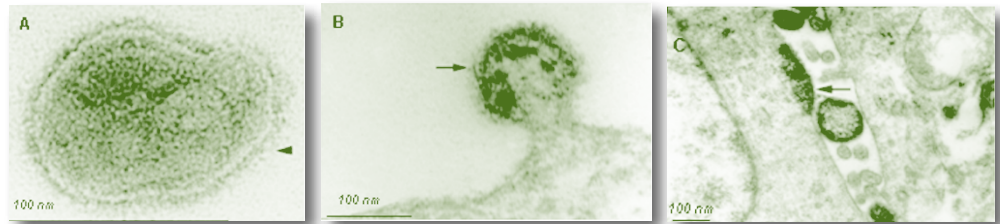
A Lassa Fever Vaccine is Safe Even in Immunocompromised Animals

Lassa fever may not be as well-known as Ebola or Marburg, but it causes more deaths every year than either of those hemorrhagic fever viruses. This is mainly because so many people are infected with Lassa virus--about 300,000 people each year in endemic regions of West Africa. Lassa can be treated using Ribavirin, an antiviral drug. Unfortunately, Ribavirin is not only fairly toxic, but it is only effective if given a few days after exposure to the virus. The high prevalence of this deadly disease and the less-than-ideal treatment options led researchers to search for a Lassa fever vaccine.

Dr. Igor Lukashevich and Dr. Maria Salvato at the Institute of Human Virology (IHV) successfully developed a Lassa vaccine candidate that was safe and effective in animal models. But they were still concerned that this vaccine might cause an adverse reaction in immunocompromised people, such as AIDS patients. This was an important concern: areas endemic for Lassa fever virus also have a very high incidence of AIDS, says Dr. Salvato. Critics continued to question the wisdom of conducting an immunization program in West Africa where many people are already immunocompromised.

To address this question, Salvato decided to test the safety of the vaccine in an animal model for AIDS. In a study funded by the National Institutes of Health, the researchers looked for high levels of the vaccine virus and signs of Lassa disease in immunocompromised animals injected with the vaccine. The animals showed no viremia (the presence of the virus in the bloodstream) or disease, indicating that the vaccine was safe. The vaccine also produced a specific immune response against Lassa virus. These results showed that this Lassa vaccine could be useful even in areas where AIDS was widespread.

The vaccine strain that Lukashevich and Salvato developed, called ML29, is a "live-attenuated" vaccine. This means that it can replicate and create an immune response, without causing disease. As a live-attenuated vaccine candidate for Lassa fever, ML29 produced a stronger immune response than other Lassa vaccine candi-



A, LASV purified from isopycnic sucrose gradient, negative staining (x200,000). Panels B and C depict ultrathin sections of LASV-infected cells. B, a particle which appears to be budding from plasma membrane (x170,000); C, the arrow indicates the discrete area of membrane thickening associated with viral buds. Arrows on panel A and B show glycoprotein projections on viral surface.

dates, and was the only one that protected against a broad range of Lassa strains.

But it was the live-attenuated nature of the vaccine that caused the researchers to take extra steps to ensure that it was safe in immunocompromised individuals. "This is a very important question, because there is a notion that you can reactivate a live-attenuated vaccine in immunocompromised individuals," says Lukashevich. Because of this fear that the live-attenuated vaccine could cause disease, ML29 is classified as a bio-safety level 3 virus strain, the same level as the pathogens causing anthrax and SARS. This entails extra safety measures that make its commercial production prohibitively expensive. "What's frustrating is that in Europe and Africa it's considered level 2, which means it can be

says Salvato. According to her, a yellow fever-vector vaccine is much more popular in third world countries because it can be inexpensively produced in existing facilities.

Salvato and Lukashevich hope to interest the government of Nigeria, where Lassa is endemic, in their vaccine. "Our goal is to find good partners in Nigeria," because the IHV has a well-established infrastructure there, says Lukashevich. But the Nigerian government "has many other problems and they're not sure that this is a priority," says Salvato.

But Salvato has hope for another approach--vaccinating the rats that are the carriers for the disease. The vaccine could be delivered in rodent bait, from where it could spread easily among the rats. The vaccine could not only prevent the rats from carrying Lassa virus, but as an added benefit, would probably also decrease litter size, says Salvato.

The researchers would like to overcome the various obstacles to ML29's commercial production, and hope that showing that the vaccine is safe in immunocompromised patients will help. In the meanwhile, ML29 will still be extremely useful for laboratory studies; "it's a way to produce something that looks to cells like Lassa fever virus, and yet its replication is attenuated," says Salvato. "It's what we're using in regular daily research in our lab." Among other things, researchers can infect the same cell with Lassa virus and HIV, and study the interactions between the two viruses. Interestingly, the researchers noticed that "when we applied this vaccine immediately after infection with Lassa virus, it was also protective against Lassa disease," says Lukashevich and this is also something they plan to look at. Who knows--with more research, ML29 may be useful not just as a vaccine and as a laboratory strain, but even as a form of treatment.



Drs. Maria Salvato and Igor Lukashevich in an IHV lab

produced more cheaply," says Salvato. She hopes to collaborate with drug companies in Europe or Africa to produce the vaccine. But even though ML29 has a number of advantages over other Lassa fever vaccine candidates, it isn't currently the most likely to be commercially produced,

Board Buzz

IHV's Board of Advisor Chair Named to Sheppard Pratt Board of Trustees

This past summer, Kathleen Kennedy Townsend, Chair of IHV's Board of Advisor, was named to the Board of Trustees of Sheppard Pratt Health System

Ms. Townsend's two year term is effective July 1st. The 26 member Board of Trustees guides Sheppard Pratt, Maryland's largest nonprofit provider of behavioral health and therapeutic special education services, through a variety of executive, operational and clinical decisions.



Kathleen Kennedy Townsend

In addition to her new role at Sheppard Pratt and her current leadership in IHV, Ms. Townsend serves on the board of directors of the John F. Kennedy Library Foundation, the Robert Kennedy Memorial, The Center for American Progress, the Brady Campaign, and the YMCA of New York City. She is the Vice Chair of the annual Future of Science conference held in Venice, Italy, and is on the Advisory Board of the Wiedenfeld Scholarship at Oxford University.



Robert Gallo, MD and IHV Board member Harry Hogue greet students following Gallo's lecture, "Viruses, Epidemics and the Prospects for Their Control With Emphasis on HIV/AIDS," at Hogue's alma mater Nebraska Wesleyan University.



Left to Right: Kevin Cullen, MD, Director, University of Maryland Greenebaum Cancer Center; Mr. and Mrs. Marlene and Stewart Greenebaum; Essex; E. Albert Reece, MD, PhD, MBA, Dean, University of Maryland School of Medicine; and, Gallo.

Dr. Max Essex Keynotes Greenebaum Annual Lecture

The Sixth Annual Marlene and Stewart Greenebaum Lecture hosted guest lecturer, Max Essex, DVM, PhD, who is a long-time friend of Robert Gallo, MD and a member of IHV's Scientific Advisory Board. Essex is a Lasker Professor of Health Sciences at Harvard University, Chair of the Harvard School of Public Health AIDS Initiative and Chair of the Botswana Harvard AIDS Institute Partnership. It was in 1982 when Gallo and Essex first postulated that the likely cause of AIDS was a new human retrovirus.

With close to two hundred in the audience on November 3, Essex's Greenebaum Lecture was entitled "Multiple Uses of Drugs Against HIV/AIDS in Africa: Progress and Problems." Greenebaum and IHV Board of Advisor member, sponsors this series insisting that the key note speaker be someone who has made substantial scientific contributions, while caring for the betterment of the human condition.



John D. Evans Honored by NGLCC

IHV Board Member John Evans was honored last month by the highly regarded National Gay & Lesbian Chamber of Commerce (NGLCC) during their 2009 National Dinner. Widely known for co-founding C-SPAN and his charitable efforts in AIDS awareness and research, Evans was recognized for his leadership in fighting the HIV/AIDS pandemic. In particular, NGLCC co-founder and president, Justin Nelson said, "C-SPAN has been a central part of ensuring everyday Americans can be a part of the dialogue in Washington." Nelson further noted that Evans has also "been a courageous leader in other areas, including his prolific fundraising efforts for the AIDS vaccine and his life's work in technology."

July 2009 IHV Promotions



Mayurika Ghosh, M.B.B.S.

Mayurika Ghosh, M.B.B.S. of the Institute of Human Virology was promoted to Assistant Professor, non-tenure track, in the University of Maryland School of Medicine, Department of Medicine Division of Infectious Diseases.

Yongjun Guan, Ph.D. of the Institute of Human Virology was promoted to Assistant Professor, non-tenure track, in the University of Maryland School of Medicine, Department of Microbiology and Immunology.



Yongjun Guan, Ph.D.



Wuyuan Lu, Ph.D.

Wuyuan Lu, Ph.D. of the Institute of Human Virology was promoted to Professor, with tenure, in the University of Maryland School of Medicine, Department of Biochemistry and Molecular Biology.

Gregory Melikian, Ph.D. of the Institute of Human Virology was promoted to Professor, with tenure, in the University of Maryland School of Medicine, Department of Microbiology and Immunology.



Gregory Melikian, Ph.D.



Marzena E. Pazgier, Ph.D.

Marzena E. Pazgier, Ph.D. of the Institute of Human Virology was promoted to Assistant Professor, non-tenure track, in the University of Maryland School of Medicine, Department of Biochemistry and Molecular Biology.

Lai-Xi Wang, Ph.D. of the Institute of Human Virology was promoted to Professor, with tenure, in the University of Maryland School of Medicine, Department of Biochemistry and Molecular Biology.



Lai-Xi Wang, Ph.D.

Conspiracy beliefs can affect treatment of people with HIV

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because our research showed that participants in our studies held a number of irrational or semi-rational beliefs that prevented them from taking their medicines correctly or at all," says Temoshok.



Rebecca Wald, PhD

Wald was awarded a two-year NIH grant to study conspiracy beliefs among HIV positive African Americans at the Evelyn Jordan Center, the out-patient HIV clinic affiliated with the IHV and UMMS. Before this, little was known about conspiracy beliefs among people with HIV. She looked specifically at African Americans, since previous studies had found that belief in conspiracy theories tended to be higher within this group, and also that African-American men who believed conspiracy theories were less likely to use condoms. Her research indicated that conspiracy beliefs were common among HIV-positive African Americans. "About 40% of the participants in the study think that there's a secret cure for HIV that only rich people get access to," says Wald. "And about 40% believe that the U.S. government created HIV in the first place." An overlapping 20% of the participants reported their belief that HIV was "deliberately created to get rid of undesirable minorities."

Wald says her study is also one of the first to look at how conspiracy beliefs affect treatment. Her research showed that patients who were not taking antiretroviral therapy (ART) were more likely to endorse conspiracy beliefs. Preliminary results from a follow-up study also suggested that conspiracy beliefs, as well as poor communication with medical providers, reduced patients' willingness to initiate ART over time.

According to Temoshok, IHV behavioral medicine research has revealed some of the underlying and fundamental reasons patients don't take their prescribed medications correctly, including maladaptive coping with stress, depression, and poor relationships with treatment providers. "Trust is a critical factor," she emphasized, adding that if patients felt that their providers cared about them, they were more apt to take their medications correctly, even if

they experienced side effects. Many HIV-positive patients "don't have a good background in trusting authority," says Temoshok, and have "decades of mistrust of the medical establishment," adds Wald. Because of this, they may be unwilling to take their doctor's word for the safety and effectiveness of medications for HIV.

Wald says that the most surprising finding from her study was that even patients receiving the best treatment, education and resources available tended to believe in conspiracy theories. "The people who are coming to the clinic here are the best-case scenario," she says; "I think if you looked at people who had HIV but who are not in care, that you would find that these issues are more extreme."

Wald is currently applying for a grant to develop an intervention to reduce mistrust and increase patients' comfort with ART. The first step will be to modify existing intervention techniques to deal with conspiracy beliefs, and then to conduct a series of studies testing the feasibility, acceptability, and effectiveness of this approach. Eventually, this work should lead to a large randomized controlled trial of these innovative, targeted interventions.

Reaching the people who are not coming in for care and have given up on getting treatment is a larger problem, notes Temoshok. But she believes there are creative ways to tackle the problem, starting with wider and increased communication by trusted, credible sources. No matter how much trust exists, however, you can't just lecture patients into taking their medicines, she says. Most of us, including people living with HIV, generally know what we should be doing or not doing to avoid getting ill or more ill. Our research and intervention focus, explains Temoshok, is to tackle the conundrum of why we don't do what is good for us, and then to help people choose what is right—at least more often. Real and lasting behavioral change in terms of optimal HIV medication adherence can only come from helping people find the motivation to change. They will need to not only change what isn't working for them, but also work with trusted medical providers to choose the treatment that is right for them, while the providers recognize that patients are not merely complying with what someone is telling them they should do.

New IHV Grants

Robert C. Gallo, M.D., Director, Institute of Human Virology, Professor of Medicine and Microbiology and Immunology, University of Maryland School of Medicine, and Co-Director of Viral Oncology, University of Maryland Marlene and



Robert C. Gallo, M.D.

Stewart Greenebaum Cancer Center, received a two-year, \$936,985 grant from the National Cancer Institute for his work entitled, "FLSC Combined with Tat Toxoid as an HIV Prophylactic Vaccine." This funding is supported by the American Recovery and Reinvestment Act of 2009. The goal of this research is to evaluate in a rhesus macaque SHIV model whether a combination of the Full Length Single Chain (FLSC) and Tat toxoid can potentially be a preventative vaccine for AIDS and AIDS malignancies.

Robert Redfield, M.D., Associate Director, Institute of Human Virology, Professor of Medicine, Director of the Infectious Diseases Division



Robert Redfield, M.D.

, the University of Maryland School of Medicine, received a five-year \$8,050,000 President's Emergency Plan for AIDS Relief (PEPFAR) grant through the Centers for Disease Control and Prevention (CDC) National Center for HIV, STD, and TB Prevention, entitled, "Partnership for Advanced Clinical Education (PACE) Strengthening Pre-Service and In-Service HIV Training in the Republic of Kenya." This grant will enable the IHV to work with the government of Kenya to assess and strengthen HIV training for key medical personnel. The first of its kind to be funded through PEPFAR, the program will integrate pre-service HIV education and in-service HIV training to ensure that the country of Kenya has a sustainable system for educating and continuously developing healthcare providers through the entire continuum of care delivery. The grant is expected to expand within Kenya during the funding time period, and will act as a model for other HIV affected countries seeking to streamline HIV education by linking education and service delivery.

George K. Lewis, Ph.D., Professor and Co-Director, Division of Basic Science and Vac-

cine Research, Institute of Human Virology, received a two-year \$850,866 grant from the National Institute of Allergy and Infectious Diseases for his work entitled, "Broad Neutralizing Monoclonal Antibodies from HIV Controllers." This funding is supported by the American Recovery and Reinvestment Act of 2009. The goal of this research is to identify novel monoclonal antibodies (mAbs) that broadly recognize the HIV-1 envelope glycoprotein (Env) and block infection in vitro to guide vaccine development.

Maria Salvato, Ph.D., Professor, Division of Basic Science and Vaccine Research, Institute of



Maria Salvato, Ph.D.

Human Virology, received a two-year \$984,910 grant from the National Institutes of Health for her work entitled, "Protection of vaccine immunity by inhibiting Fas/FasL signaling." The goal of this research is to test inhibitors of cell-death signals that would have short-term effects and highly-specific targets, yet would not interfere with the development of strong responses against cancers or infections.

Lai-Xi Wang, Ph.D., Professor, Division of Basic Science and Vaccine Research, Institute of Human Virology, received a 21-month \$525,000 grant supplement from the National Institute of General Medical Sciences for his work entitled, "Convergent Chemoenzymatic Synthesis of Glycopeptides and Glycoproteins." This funding is supported by the American Recovery and Reinvestment Act of 2009 (Stimulus Funding). The goal of this research is to develop new methods for the efficient synthesis of glycoproteins for structural and functional studies. The information gained will be valuable for development of glycoprotein-based therapeutics.

Fabio Romero, Ph.D., Assistant Professor, Division of Basic Science and Vaccine Research, Institute of Human Virology, received a two-year \$421,129 grant from the



George K. Lewis, Ph.D.

National Institute of Allergy and Infectious Diseases for his work entitled, "A New Insight into HIV-1 Latency Through a Novel In Vitro System." This funding is supported by the American Recovery and Reinvestment Act of 2009.

The goal of this research is to determine the gene expression profile of in vitro-generated latently infected cells isolated by fluorescence activated cell sorting and to test the hypothesis that CCR5- and CXCR4-tropic HIV-1 strains show different propensities to establish and re-emerge from latency.

Alfredo Garzino-Demo, Ph.D., Assistant Professor, Division of Basic Science and Vaccine Research, Institute of Human Virology, received a five-year \$1,687,500 grant from the National



Alfredo Garzino-Demo, Ph.D.

Institute of Neurological Disorders and Stroke for his work entitled: "A Novel Anti-HIV Activity of CCR6 via APOBEC3G: Relevance to CNS Infection." The goal of this research is to investigate the mechanism of inhibition of HIV by a cellular receptor called CCR6. These studies are highly relevant to prevention and treatment of HIV infection because they will contribute knowledge that can be used to develop novel anti-HIV drugs that will target CCR6.

Alonso Heredia, M.D., Assistant Professor, Division of Clinical Care and Research, Institute of Human Virology, received a two-year \$150,000 grant from the National Institute of Allergy and Infectious Diseases for his work entitled, "Control of HIV Drug Resistance in Older Patients". This funding is supported by the American Recovery and Reinvestment Act of 2009.

The goal of this research is to control HIV drug-resistance by targeting cellular components required in the HIV life cycle. The objective is to determine the mechanism by which R5 HIV resistant to CCR5 antagonist regains sensitivity at reduced CCR5 density.



Fabio Romero, Ph.D.



Alonso Heredia, M.D.



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The Institute of Human Virology (IHV) at the University of Maryland School of Medicine is a world-class center of excellence focusing on chronic viral diseases, most notably HIV/AIDS, and virally linked cancers. IHV is dedicated to fundamental and clinical research leading to improved treatment and prevention of these diseases. Our unique structure connects cohesive, multidisciplinary research and clinical programs to streamline new treatments from discovery to patient. IHV serves the global scientific community and treats patients at clinics in Maryland, across Africa and in the Caribbean.



Gallo Receives Top Biomedical Award from AAMC

University of Maryland School of Medicine Dean and prominent member of the Council of Deans at the Association of American Medical Colleges (AAMC), E. Albert Reece, MD, PhD, MBA, nominated IHV Director Robert C. Gallo, MD to receive the prestigious 2009 AAMC Award for Distinguished Research in the Biomedical Sciences. On November 7, AAMC former chair Elliot J. Sussman, MD, MBA, President and Chief executive Officer of Lehigh Valley Hospital and Health Network, pictured here, presented Gallo with the Award. AAMC established this Award in 1947 to recognize outstanding clinical or laboratory research conducted by a medical school faculty member.

Shandong Gallo Institute of Virology Established in China *Continued from page 1*

in Human Virology. “Born in China and trained in the U.S., Dr. Zhao has been instrumental in coordinating the establishments of SGIV. “Our goals are to use these establishments as vehicles to promote scientific and mutually beneficial collaborations between the U.S. and China in particular the University of Maryland at Baltimore and Shandong Academy of Medical Sciences,” added Dr. Zhao.

The Institute of Human Virology at the University of Maryland School of Medicine pursues a mission of combined research, treatment and prevention. It is the first center in the world to combine the disciplines of basic research, 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 - most notably the HIV virus that causes AIDS.

Dr. Robert C. Gallo, founder and director of the Institute of Human Virology at the University of Maryland School of Medicine has been named Honorary Director of the Shandong Gallo Institute of Virology. The other Honorary Director includes Dr. Zeng Yi, a top Chinese virologist, a member of the Chinese Academy of Sciences and former president of the Chinese Academy of Preventive Medicine.

“Needless to say, I am honored and would like to thank the Shandong Academy of Medical Sciences, Roche Diagnostics Asia Pacific and the talented people of SGIV for extending me this recognition,” said Dr. Gallo. “I trust that SGIV will be a catalyst for closer collaboration between IHV and China.”