



# DISCOVERY



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Fall 2008

## Greenebaum Cancer Center Granted NCI Designation

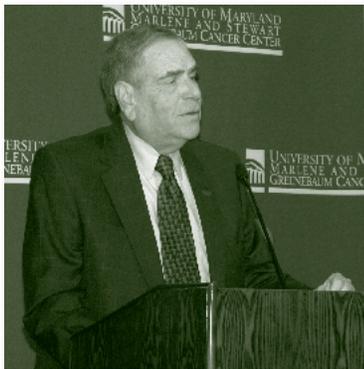
The University of Maryland Marlene and Stewart Greenebaum Cancer Center has been selected as a National Cancer Institute (NCI)-designated cancer center, a distinction shared by only 63 other centers across the country.

The Greenebaum Cancer Center received a second honor in September, cracking the top 50 in the annual U.S. News & World Report rankings of cancer centers around the country. Of some 3500 cancer centers rated, the Greenebaum Cancer Center ranked 48th.

The Institute of Human Virology (IHV) of the University of Maryland School of Medicine is one of five research programs within the Greenebaum Cancer Center. The center's director, Kevin J. Culkin, M.D., cited the close working relationship with the IHV as a key factor in the NCI designation. Researchers from IHV collaborate with Greenebaum Cancer Center colleagues on preventing and treating cancers that arise in people who are HIV-positive.

"The rise in HIV-related cancers is a growing public health concern in the United States and worldwide. Those infected with HIV have a much higher risk of developing cancer," said IHV director Robert Gallo, M.D. "The NCI recognizes the enormity of the problem, and with its continued support, we will be able to significantly expand our research with the cancer center on HIV-related malignancies and in other areas, such as cancer vaccine development."

The NCI designation recognizes the nation's top cancer centers for their scientific excellence and their outstanding patient care. NCI-designated centers are selected through a competitive



Stewart Greenebaum

peer-reviewed process made even more competitive in the wake of recent NCI funding cutbacks.

NCI recognizes centers in two categories – cancer centers and comprehensive cancer centers. The Marlene and Stewart Greenebaum Cancer Center was approved as a designated cancer center. The main difference is that comprehensive centers have epidemiological research programs.

There are 41 NCI-designated comprehensive cancer centers and 23 designated cancer centers in the United States, including the Greenebaum Cancer Center. As part of the designation, the Greenebaum Cancer Center will receive up to \$3 million in NCI funding over the next three years. The designation also will ease the way for additional grants offered only to designated centers.

"It's obviously very nice to be recognized," said Stewart Greenebaum, the Baltimore real estate developer and businessman who, along with wife Marlene, the center is named for. "It's even better when it opens the door to additional funding."

Stewart Greenebaum also serves on the board of IHV. He said that the connection between the IHV and the cancer center helped cement the NCI honor. "There are a lot of viruses caused by cancer, and having the IHV here is one of the reasons we received the NCI designation. The IHV is probably the most important institute of that nature in the country."

Greenebaum added that the NCI designation recognizes years of hard work by the cancer center's employees. "It's the people who do the work who are being recognized. It's an honor to Marlene and myself to have our names associated with these hard-working people. It's a thrill to see the recognition going to the people who really deserve it."

## DIRECTOR'S MESSAGE

Robert C. Gallo, MD

### Transitions

This fall marks a significant transition.

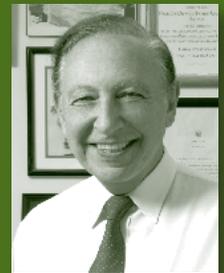
The University of Maryland's Marlene and Stewart Greenebaum Cancer Center just earned designation as a National Cancer Institute (NCI) cancer center. This recognizes the Center's outstanding patient care and research. Congratulations to the Center for the achievement and especially to Director Kevin Cullen.

Since 2008, IHV has been one of five major research programs within the Greenebaum Cancer Center. The next goal for the Greenebaum Cancer Center – designation as an NCI comprehensive cancer center – will require renewed efforts by all programs but perhaps particularly by IHV staff.

An outside observer might wonder, what's the connection between viruses and cancer? After decades of hard work by many talented people, we now know that viruses play a role in at least 20% of all human cancers on a global scale, and perhaps in a much larger proportion than that. At first, skeptics didn't believe that viruses could cause cancer.

HTLV-1 is a cause of a particular T-Cell leukemia and some strains of human papilloma viruses cause cervical and some other cancers.

*Continued on page 3*



# Solved: One apparent paradox surrounding HIV infection



Fabio Romerio, IHV researcher

For years, HIV researchers have been perplexed by a conundrum involving interferon-alpha, a potent immune system molecule. Interferon-alpha acts as a first-line of defense against viruses, and yet as HIV infected-patients progress toward AIDS, blood levels of interferon-alpha skyrocket. Researchers first noticed this apparent paradox in the 1980s but didn't know what to make of it.

More recently, though, a cohort of researchers has suggested something different: They say that as HIV patients progress, the immune cells that make interferon-alpha die off and stop making the molecule. They say their findings refute the earlier studies.

Now, new research from IHV and the University of Cologne helps solve the puzzle. Published in the August 15 Journal of AIDS, the

study shows that the immune cells that make interferon-alpha in fact survive, sequestered in lymph nodes and other hiding places. And these cells produce prodigious amounts of interferon-alpha as HIV progresses, says Fabio Romerio, the IHV researcher who served as senior author on the study.

The findings support the early data and bolster the idea put forth by Romerio and Gallo that an overproduction of interferon-alpha contributes to declining immune system function in HIV patients.

"As always, too much of a good thing can be a bad thing. You can have too much interferon-alpha, produced chronically and produced at sites where it shouldn't be present. And then it may have a counterproductive effect on the immune system," says Romerio.

The new study searched for the cells that make interferon-alpha, called plasmacytoid dendritic cells (PDCs), in their lymph nodes, tonsils, and the lining of the gut. The earlier studies, the ones that claimed the cells were dying, only searched for the cells in the blood. "This was a fatal flaw of those studies," says Romerio.

Romerio and his colleagues, led by Clara Lehmann of the University of Cologne in Germany, found that, in HIV patients, the lymph tissues harbored high numbers of PDCs. The

research did confirm that the blood carried many fewer of the cells than normal, leading them to conclude that PDCs migrate from the blood to the lymph tissues as HIV progresses. This makes sense, says Romerio, because those tissues are where HIV targets CD4+ T cells.

"The earlier studies didn't consider that PDCs migrate to other locales in the body," says Romerio.

The new study also found that the PDCs in HIV patients produce huge quantities of interferon-alpha, 100-fold or higher amounts than seen in non-infected people. This finding also directly rebuts earlier research, which reported that the PDCs didn't make interferon-alpha when stimulated in laboratory dishes. But again, the earlier methodology was inadequate, says Romerio, because the cells are malfunctioning and don't respond properly to stimulus. But when monitored without external stimulation, the cells do in fact produce large amounts of interferon-alpha, the new study shows.

Romerio and colleagues are now working to prove that the skyrocketing concentrations of interferon-alpha directly causes immune system dysfunction in HIV patients. Evidence is trickling in, says Romerio, but so far the connection has not been shown to be causal. "A key point that we're trying to address is why having so much interferon-alpha is bad to the immune system," he says.

However, there is enough data to suggest that clinical trials employing interferon-alpha in chronic and late-stage HIV patients are probably not going to work, Romerio says. "If you give interferon-alpha late, during the chronic phase or even during full-blown AIDS, either you will have no effect, simply because the immune system isn't working, or you may have detrimental effect. We think these trials may even be dangerous."

Romerio says the next stage is to develop therapies that, instead of adding interferon-alpha, actually deplete the molecule in HIV patients. This research is in early stages, says Romerio.

"So it's clear that these cells decline in peripheral blood, but they are not depleted from the body, they are simply translocating to lymph nodes, to lymphoid tissue. Which, by the way, is where HIV replicates primarily."

## Discovery is published quarterly.

Complimentary copies are available upon request.

### Questions/Comments?

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## Director's Message, Transitions

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Epstein-Barr virus can play a role in some lymphomas and likely also in some other cancers as well. Hepatitis B and C can cause liver cancer. Human herpes virus-8 can trigger Kaposi's sarcoma. And HIV, of course, increases the risk for many cancers. *Helicobacter pylori*, though not a virus, is still another example of an infectious disorder causing cancer (stomach). These links may in fact be just a portion of infectious cancer. With this new backing from NCI, we can now increase our efforts to understand the molecular details of how these viruses lead to cancer, and we can add new resources into looking for linkages of new infectious agents to other cancers. Concomitantly, our work on a HIV vaccine will intensify. It is highly relevant that people in the U.S. who die with HIV infection now more frequently die of cancer than they do of opportunistic infections – as was the case before anti-HIV therapy. Therefore, there should be and I believe will be a significantly greater role for the NCI in HIV/AIDS research. We hope this will also include vaccine research because NCI's multi-faceted talent and programs could be a real "shot in the arm" for the field.

IHV Associate Director William Blattner is planning a cancer epidemiology program in Nigeria as a major component of our viral oncology program. The incidence of liver, prostate, breast and uterine cancers are rising in that country, and the new NCI funding will allow IHV staff, in consultation with local researchers, to search for new viral links to these cancers. It's high-risk work, but that's the kind of work that leads to the biggest rewards.

Finally, we thank Stewart Greenebaum for his years of service as a member, a chair and now a vice-chair of IHV's Board of Advisors. He's been a key advisor and a generous supporter of our work. And of course, he serves as a vital link to the Cancer Center that bears his name and the name of his wife, Marlene. I know that he's very proud of the NCI designation, and proud of the people that made it happen. Let's continue the hard work that led us here - and keep a sharp focus on our future goals.

## IHV Board Member Fred Cannon Supports JACQUES Initiative



*Back row (L to R): Derek Spencer, Bob Sima, Victoria Vox, Rob Goad, Susan Souza, Fred Cannon  
Front row (L to R): Kathy Bennett, Jeff Weaver, two patients of the JACQUES Initiative, Jean Bayou*

IHV Board of Advisor Member, Fred Cannon, utilized his connections in the music industry and linked IHV's JACQUES Initiative to the Baltimore Songwriters Association and the Songwriters Association of Washington to help raise awareness of the Program and the HIV crisis in Maryland. Held in the Courtyard, we had an eclectic group of artists – including our very own Dr. and Mrs. Marv Reitz – entertaining IHV staff, patients, friends of IHV, students and the public. Cannon made the trip down from New York to Baltimore to support and attend the first of four events held in October. Additionally, the JACQUES staff organized pro-active HIV-positive patients to provide moving testimonials while JACQUES staff distributed educational materials. Just as important as the event itself, the JACQUES staff also conducted free HIV testing to a number of participants.

"I am delighted that through Broadcast Music, Inc. (BMI), I was able to bring together the local songwriters members of the Baltimore Songwriters Association and the Songwriters Association of Washington, to participate in educating the Baltimore community about the Jacques Initiative through courtyard concerts," said IHV Board of Advisor Member and Senior Vice President of BMI, Fred Cannon. "The response to my call to the song writing community to support the JACQUES Initiative has been amazing. Many of the area's best songwriters have volunteered their time to promote this wonderful Initiative. The Initiative gives 'hope' of a normal life for those infected with AIDs. It is imperative that we educate the local community to

this important successful program," said Cannon. "BMI and the song writing organizations will continue to promote the Institute of Human Virology's JACQUES Initiative with planned concerts in the spring. It is an honour for all of us to be part of this project and we thank all the folks at the University of Maryland- Baltimore and the Institute of Human Virology for their support and vision to educate the community through talented songwriters, said Cannon."

As you may recall, in 2002, IHV was awarded \$400,000 from The Abell Foundation to kick off the JACQUES Initiative national pilot program. Today, with additional funding from the Maryland AIDS Administration, the JACQUES Initiative is open to all HIV patients who are newly diagnosed and just beginning treatment built around the philosophy that it's difficult for anyone to remember to take any medication 95% of the time. As such, the program pairs HIV-positive patients (approximately 400) with healthcare providers in the clinic or with family, friends or other HIV patients who've been successful at managing a rigorous treatment plan.

"I am very grateful to Fred Cannon and the artists who participated in the Courtyard Concert Series," said Derek E. Spencer MS CRNP, Executive Director of the JACQUES Initiative. "The epidemic of HIV in our community is great and it will take an equally great and concerted effort to control the spread of HIV in our communities. Having IHV Board of Advisor member Fred Cannon's support was a great way to partnership around this issue. We look forward to future projects."

# A Meeting of the Science of HIV

The 11th Annual Institute of Human Virology (IHV) of the University of Maryland School of Medicine International Meeting was held in September and attracted more than 300 scientists, clinicians and pharmaceutical representatives from around the world to explore the latest developments in the fight against the HIV/AIDS and its consequences. The Meeting – carried over from IHV Director Robert Gallo's days at the National Cancer Institute (NCI) – is one of the world's leading HIV/AIDS conferences, particularly for basic research on HIV, and undoubtedly because of the level of expertise possessed by presenters and participants.

Prior to the IHV Annual meeting, IHV faculty vote each year for the prestigious Lifetime Achievement Award in Public Service and Lifetime Achievement Award for Scientific Contributions. In an unprecedented decision, the Institute's faculty unanimously voted to bestow Lifetime Achievement Awards for Public Service to two outstanding individuals, who also are members of IHV's Board of Advisors. Mr. John D. Evans, a co-founder of C-SPAN and an internationally recognized expert in the cable and telecommunications industry and The Honorable Robert K. Gray, a Cabinet member in the Eisenhower Administration, founder of Gray and Company and former worldwide Chairman of Hill & Knowlton. Additionally, IHV presented the IHV Lifetime Achievement Award for Scientific Contributions to Prof. Isaac P. Witz, a cancer researcher of Tel Aviv University for pioneering the entire field of the important role of the microenvironment in cancer.

"We are thrilled to have the opportunity to recognize the life-long commitments of John Evans, Bob Gray and Isaac Witz for their uniquely important contributions to the mission of the Institute in advancing the human condition," Gallo, Director and Professor of IHV. "This year's recipients will follow in the grand footsteps of previous honorees including IHV Board of Advisors members Stewart Greenebaum and Martin Delaney and many world-renowned scientists" (listed below).

"I am truly humbled to be recognized for my work in the fight for an HIV vaccine and cure, but the true honor goes to the hundreds of dedicated men and women I have had the privilege of working and associating with who are in the science labs, clinics and our global communities fighting with all of us to end this pandemic," said Evans, Chairman and CEO of Evans Telecommunication Company. "Additionally, Bob Gallo has been my friend, teacher, and mentor for almost 25 years and I am honored to receive this award from him and the faculty of IHV."

"I am flattered to be in the same galaxy as Bob Gallo," said Gray, Chairman and President of Gray and Company II. "His is the lifetime of achievement."

"I am delighted that the scientific endeavors to prove that the microenvironment is a pivotal determinant of carcinogenesis and of metastatic spread is worthy of an award," said Witz of Tel Aviv University. "I am also honored and proud to belong to the highly prestigious group of IHV Lifetime Achievement Honorees, and I hereby express my sincere gratitude to the faculty members of IHV for bestowing this great honor upon me. I must note, it is symbolic that IHV's 11th Annual Meeting starts on September 11 – a clear manifestation that the human spirit, integrity and achievements are victorious."

Please save the date for next year's Annual Meeting May 9 – 11, 2008 in Baltimore, MD as it will be a special Symposium commemorating, "25 Years Following the Discovery of HIV as the Cause of AIDS."

## Past IHV Awardees Lifetime Achievement Award for Scientific Contributions

- 1999 Georg Klein, Karolinska Institute, Stockholm Sweden
- 2000 Maurice Hilleman, Merck Research Laboratories, Sumneytown, Pennsylvania
- 2001 Hilary Koprowski, Thomas Jefferson University, Philadelphia, Pennsylvania
- 2002 Alexander Rich, Massachusetts Institute of Technology, Cambridge, Massachusetts
- 2003 Jan Svoboda, Institute of Molecular Genetics, Prague, Czech Republic
- 2004 Paul Zamecnik, Massachusetts General Hospital, Boston, Massachusetts
- 2005 Manfred Eigen, Max Planck Institute, Göttingen, Germany
- 2006 Maxine Singer, National Institutes of Health, Bethesda, MD



*IHV Director Dr. Robert Gallo, Tel Aviv University Professor and IHV Lifetime Achievement Award for Scientific Contributions recipient Isaac Witz and Tel Aviv University Professor Jonathan Gershoni*



*White House Chief of Staff Joshua Bolten, IHV Board Member and IHV Lifetime Achievement Award in Public Service recipient John Evans and IHV Director Dr. Robert Gallo*



*Hill & Knowlton Vice-Chairman Frank Mankiewicz, IHV Board Member and IHV Lifetime Achievement Award in Public Service recipient Bob Gray and IHV Director Dr. Robert Gallo*

# IHV Community News

## New Members Strengthen IHV Board of Advisors



Fred Cannon

Fred Cannon is the Senior Vice President, Government Relations at the performing rights organization, BMI, Inc. Cannon is on the Board of Governors of the Recording Academy's Washington, DC chapter.



William Haseltine

William Haseltine is Chairman and CEO of Haseltine Associates, Ltd. and President of the William A. Haseltine Foundation for Medical Sciences and the Arts. He is a professor at The Scripps Research Institute.



Thomas Lynch

Thomas Lynch is the Amarin Chief Executive Office. Mr. Lynch was with Elan Corporation plc where he held a number of positions including Chief Financial Officer and Executive Vice Chairman.

## Delaney Retires as Director of Project Inform – Gallo Speaks at Gala

This past June in Washington, DC, Director Dr. Robert Gallo of the Institute of Human Virology (IHV) at the University of Maryland School of Medicine, spoke before Martin Delaney's family, friends and colleagues in celebration of Delaney's more than 25 years of dedication to HIV/AIDS community activism. Delaney, a member of IHV's Board of Advisors, founded the non-profit Project Inform to bring much needed education and cutting edge treatments to communities at a time when HIV/AIDS was still a mystery to the broader public.

In the 1980's, many activists and scientists often found themselves in conflict with each other due to miscommunications – however, Delaney and Gallo were able to forge a partnership, and further, a close friendship in their concerted efforts to fight HIV/AIDS.

"Marty was a key figure in evolving the relationship between activists and scientists, and he has been a major catalyst in maximizing the quality of life for HIV infected people," said Gallo. With Marty at the helm, Project Inform is one of the few activist groups that truly played a historic role in the education of HIV infected persons and prevention education of the uninfected."

Delaney will continue to serve as a valued member of IHV's Board of Advisors.

## IHV Vice Chair Board Member Greenebaum Names First Endowed Professor

Institute of Human Virology (IHV) of the University of Maryland School of Medicine Vice Chair Board Member Stewart Greenebaum and his wife, Marlene, named Dr. Mohan Suntha the first Marlene and Stewart Greenebaum Endowed Professor in Radiation Oncology at the University of Maryland School of Medicine (SOM). This generous initiative is the latest philanthropic endeavor in the Greenebaum's quest to partner with SOM and find cures for cancer.

Dr. Suntharalingam, known affectionately as Dr. Suntha, is associate professor and vice chairman of the Department of Radiation Oncology at the University of Maryland School of Medicine and associate director for Multidisciplinary Program Development and Outreach for the Marlene and Stewart Greenebaum Cancer Center. Dr. Suntha is an expert in the field of radiation oncology and leads the efforts and oversees the daily activity of an elite team of medical research professionals.

The endowment supports radiation oncology research – an effort the Greenebaum's hope will lead to their name being taken off the wall of the Center as a result of cancer being proven a curable disease. Dr. Suntha will use the funds to further his study methods for treating head, neck and esophageal cancers.

## Dr. William Haseltine Keynotes Greenebaum Annual Lecture



Left to right: IHV Assistant Director David Pauza, IHV Associate Director and IHV Director of the Division of Epidemiology and Prevention William Blattner, IHV Associate Director and IHV Director of the Division of Clinical Care and Research Robert Redfield, IHV Director and IHV Co-Director of the Division of Basic Science and Vaccine Research Robert Gallo, Keynote Speaker Haseltine, IHV Board of Advisor Member Stewart Greenebaum, Director of the University of Maryland Greenebaum Cancer Center Kevin Cullen, IHV Co-Director of the Division of Basic Science and Vaccine Research George Lewis and IHV Director of the Division of Animal Models Joe Bryant.

The Fifth Annual Marlene and Stewart Greenebaum Lecture hosted guest lecturer, Dr. William A. Haseltine, a long-time acquaintance and close friend of IHV Director Robert Gallo. Haseltine is President of the Haseltine Foundation for Medical Sciences and the Arts, a foundation that supports access to high quality healthcare for the poor and middle class of developing countries, primarily India. Haseltine is Chairman of Haseltine Global Health, LLC, a company dedicated to creating new and more efficient means to develop new life saving drugs and medical devices. He is also Adjunct Professor at The Scripps Institute for Medical Research, is Chairman of the Board of the Berkeley Center for Synthetic Biology, and serves on the Boards of both Profectus and the IHV.

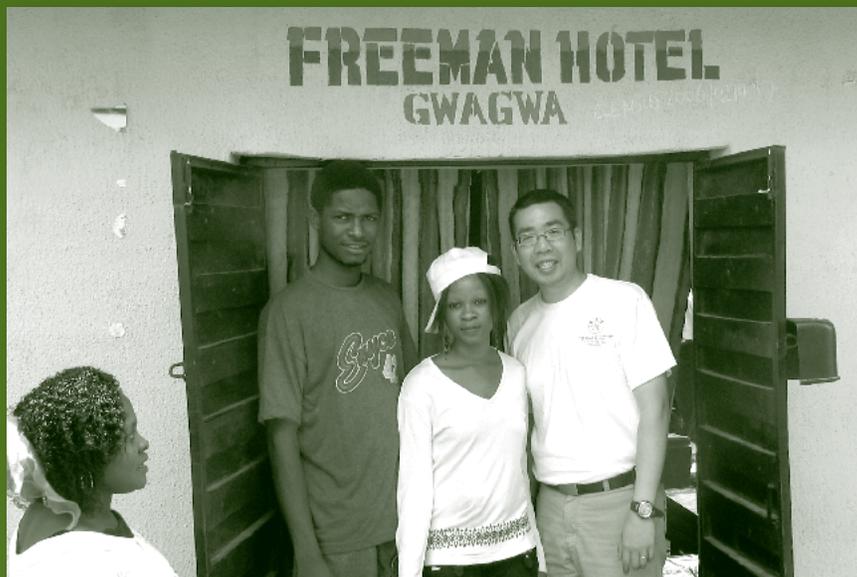
With more than a hundred in the audience during the Greenebaum Lecture, Haseltine spoke about "Biomedical Science in a Changing World." Greenebaum sponsors this series insisting that the key note speaker be someone who has made substantial scientific contributions, while caring for the betterment of the human condition.

# Manhattan “Man” Charurat and REACH in Nigeria

Every six weeks or so, you'll find Man Charurat, an infectious disease epidemiologist, from IHV's Division of Epidemiology and Prevention, on a plane to Nigeria. He's racking up the frequent flier miles to help cover a lot more ground, bringing HIV counseling and testing to high-risk communities within Africa's most populous country.

His project, called REACH (Recruiting Acute Cases of HIV), deploys local health-care workers in vans to brothels, night clubs, motor parks, and other areas where high-risk behaviors increase the risk of HIV infection and access to HIV tests is low. “We're trying to penetrate hard to reach most at-risk populations that don't normally access any care or prevention services,” said Charurat, who is co-principal investigator of REACH. Charurat has worked at IHV since 1998.

As part of IHV's larger ACTION (AIDS Care and Treatment in Nigeria) program, REACH is trying not only to prevent the spread of HIV, but also to gauge where the epidemic is heading next. While HIV prevalence is much lower in Nigeria than in other African countries – about 5% of the population is HIV-positive – the country's huge population of 150 million makes it a key locale in the battle to stem the epidemic. Nigeria “will be at the front of the next wave of countries in the epidemic if prevention is not taken seriously,” said Charurat. “By deploying sophisticated laboratory and epidemiologic methods being done in the REACH project, we're trying to estimate HIV incidence in various subpopulations to help guide prevention programs.”



When REACH vans reach their destinations, local facilitators and “peer informants” try to make contact with key individuals in the community.

They then offer HIV testing and on-the-spot results. Sex workers and their clients make up a large portion of the 20,000 people the project has tested since launching in 2005.

Charurat said that building connections with Nigerians – from collaborators at the Federal Ministry of Health to street-level allies – is key

to the project's success. “Collaborations take time to build,” he said. “But it's important. We do a lot of friendship building, to make sure people are involved in decisions, to make sure there's transparency in the process.”

One big goal of REACH is to identify people newly infected with HIV. In this “window period” – one to two weeks after infection – the newly-infected person is highly infectious. REACH uses a process called “pooled polymerase chain reaction (PCR)” to detect the presence of the virus among individuals who otherwise test negative through conventional antibody tests. “These acutely infected individuals could amplify transmission within the population since they are very infectious and do not know they are infected,” said Charurat. “The project also enables us to determine the characteristics of the transmitted virus in acute HIV-1 infection and to study the HIV-1 virus and the host response factors that determine HIV transmission and viral set point.”

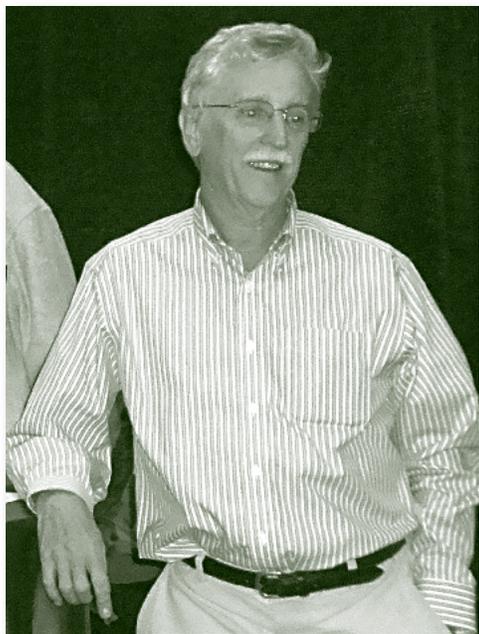
“The number of high-risk individuals we're counseling and testing is very high,” said Charurat. “But there aren't as many who get care. There are facilities in Nigeria now that offer anti-retroviral treatment. So we're also trying to remove the barriers and end the disconnect between counseling and testing and appropriate care.”

“*We're also trying to remove the barriers and end the disconnect between counseling and testing and appropriate care*”

MAN CHARURAT



# IHV Dr. Marvin Reitz Inches His Way into Retirement



*Dr. Marvin Reitz*

When the answering machine picks up at IHV's Dr. Marvin Reitz's house, the recorded voice of his wife Cathy says, "We're either out making money or out making music." For almost 40 years, Reitz has been making money in the field of molecular biology, making key discoveries about HIV, HTLV-1 and HTLV-2 and animal retroviruses. But now Reitz, who had been associate director of the basic science division at IHV, is cutting back his role, entering a

transition period of semi-retirement. Reitz will work about a day a week, he said, mentoring young scientists, writing review articles, and helping IHV Director Robert Gallo with reviews of papers and in writing essays.

"I'll miss the day-to-day interactions with my colleagues," said Reitz. "That's probably what I'll miss the most."

Reitz joined IHV at the institute's inception, accepting an offer from Gallo to continue the pair's pioneering work on HIV and other retroviruses. Initially, Reitz was hesitant to join the new institute. "I had trouble making my mind up about it," he said. "But Gallo is kind of a silver-tongued devil, and he was very persistent."

Reitz and Gallo first teamed up at the National Cancer Institute in the early 1970s, authoring key discoveries on HIV and, before that, on the first human retrovirus discovered, HTLV-1. Reitz showed that HTLV-1 integrated into the genome of T cells – proving that the virus was, in fact, a retrovirus and a cause of leukemia. "He was the first to demonstrate that," said Gallo. "It was one of many significant, if not major, scientific contributions that Marv made. He got an early start on retroviruses and he did a lot of superb work."

Reitz's work on HTLV-1 converted skeptics of the concept that retroviruses existed in humans and could cause disease. "It wasn't a big shift in thinking on our part but it caused a big shift in thinking for other people," he said.

Reitz cited his work on HTLV-1 as one of the top three accomplishments of his career. The second, also before moving to IHV: Showing that a small change in HIV's genetic code rendered the virus immune from antibodies generated by the infected individual. "We did a lot of work confirming that a single mutation could make the virus resistant and it would be very difficult to get a vaccine based on neutralizing antibodies," said Reitz. "I remember thinking, 'Oh boy, that's not good.'"

After joining IHV, Reitz focused on human herpes virus-8 and its connection to Kaposi's sarcoma, a previously rare cancer appearing with alarming frequency in AIDS patients. Reitz discovered that HHV-8 caused Kaposi's sarcoma – but only in association with another factor, most commonly HIV

infection. In particular, Reitz found that a protein made by HIV, called Tat, triggered tumors in people co-infected with HHV-8, verifying a notion Gallo proposed in the late 1980's.

"Marv made a major contribution to our understanding of the mechanism of disease of Kaposi's sarcoma," said Gallo, who added that, through this work, Reitz forged key connections to the Marlene and Stewart Greenebaum Cancer Center. "Marv was my bridge to the cancer center for several years," said Gallo. "He carried information back and forth, thought about collaborations, invited them to our retreats. Without him doing all of that, I wonder if we would have been one of the cancer center's programs. It's like losing a brother, but be sure I'm not about to let him get completely away."

Beyond these contributions, colleagues painted Reitz as a consummate teammate and an ideal colleague. "'Unselfish' is the word that describes him best," said Gallo. "Without him around as much, I won't be as happy or as confident."

Anthony DeVico, another IHV colleague, said, "If you needed something, Marv was always there. He'd never turn you away." DeVico added, "Marv is so low-key that people don't truly appreciate the critical contributions he's made to human retrovirology. In this day and age of HIV research, there are a lot of fiddlers on the roof, but somebody had to build the foundation of the house, and that's what Marv did."

With his new schedule, Reitz plans to focus on his second love: music. He plays the saxophone, clarinet, guitar, and jug. In the 1990s, Reitz blew the jug on a record cut by the Sunshine Skiffle Band, an outfit that still gigs around the region. "I'm hoping to have enough time to practice so I can finally get good," he said.



*Pictured from left to right Dr. Sushil Devare, Abbott Molecular HIV researcher, Dr. Gallo and Mr. Stafford O'Kelly, President of Abbott Molecular.*

On October 24, Dr. Robert C. Gallo Director and Professor of the Institute of Human Virology (IHV) of the University of Maryland School of Medicine, was presented an Award by Abbott Molecular "as a token of Abbott's appreciation for Dr. Gallo's extraordinary contributions to biomedical research and the fight against HIV/AIDS." When Dr. Gallo developed the HIV/AIDS blood test in 1984, the U.S. government awarded Abbott the contract to market the world's first test to screen blood and blood products for HIV.

**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.

## The Search Must Continue

Mitchell Warren, Executive Director, AIDS Vaccine Advocacy Coalition (AVAC)

Is an AIDS vaccine still important? This question has come up frequently in recent months—in large part because of a series of disappointing setbacks in HIV prevention.

Merck's MRK-Ad5 vaccine failure was met with great consternation and it triggered strong debate. As part of this, some scientists said it was time to move away from large-scale clinical trials testing experimental vaccines in humans and toward more fundamental basic research to better understand the basic biology of the virus and its effects on the human immune system.

Much of this debate has been invigorating. But it has also generated some false dichotomies, like the “either/or” proposition of whether to keep on doing trials in humans versus returning to basic science. The reality is that the field should proceed using the combined strengths of basic science, animal studies and human trials to guide and shape its scientific strategy.

Others called for the dismantling of the vaccine field altogether and would like to see the money spent instead on treatment and care for people with HIV. To this, vaccine supporters say, again,

the false dichotomy of “either/or” is dangerous, and funding for vaccine research does not supplant research for treatment or other prevention areas.

There are also those who say it's just not possible to make an AIDS vaccine—that the HIV virus is too smart and wily to ever outwit. These critics are speaking too soon. There are compelling lines of evidence that an AIDS vaccine is possible. There are examples of humans infected with HIV who maintain viral loads at or below the limits of detection for many years without taking antiretrovirals.

In addition, highly exposed, persistently seronegative individuals, like commercial sex workers who have been studied in Kenya, remain HIV negative over many years, despite repeated exposures. There are also infants born HIV-negative in spite of in utero exposure and infants who do not get infected during breastfeeding—all in the absence of antiretroviral treatment. Here, too, there is a suggestion that the body is defending itself successfully against infection.

An AIDS vaccine is too important to give up on. Looking across the world at rates of new infections and at the human costs and dismal

coverage of proven prevention strategies, we should say, “We need an AIDS vaccine, no matter how long it takes.”

Historically, it has taken decades—and more setbacks than advances—from the discovery of a virus or bacteria until an effective vaccine is licensed. Typhoid was discovered in 1884, but there was no vaccine until 1989. Malaria, discovered in 1893, still has no vaccine. The measles vaccine took 42 years to develop.

In the 1930s, two experimental polio vaccines failed because they were determined to be unsafe, and polio vaccines were almost abandoned. At the time, we understood how to prevent infection by sanitation and avoiding public swimming areas, just as we know how to stop HIV infection today. We needed new tools then, and we need them now.

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