UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE

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DEAN'S MESSAGE: What's On My Mind

What's on my mind is the School of Medicine's long history in making major scientific discoveries which have led to significant advances in medicine and changed people's lives.

As America's oldest public medical school, our students, faculty and leaders have made many discoveries that have dramatically and measurably impacted and improved human health. A handful of notable contributions include the following:

- In the first half of the nineteenth century, former School of Medicine Dean, **Dr. Nathan Smith**, invented the splint for leg fractures.
- In the early 1900s, **Dr. James Carroll** (class of 1891), helped identify the cause of yellow fever.
- In 1941, **Dr. Theodore Woodward** (class of 1938) showed that one dose of typhus vaccine was protective against the disease.
- **Dr. John C. Krantz, Jr.**, head of Maryland's department of pharmacology from 1932 to 1965, revolutionized the world-wide practice of anesthesiology.
- **Drs. Myron Levine** and **James Kaper** developed and tested the first live oral cholera vaccine in 1994.
- In 1994, the first aromatase inhibitors to treat breast cancer, developed by **Dr. Angela Brodie**, were released worldwide.
- In 2012, **Drs. Stephen Bartlett** and **Rolf Barth** led the team who completed the most extensive full-face transplant to date.
- An advisory committee for the U.S. Food and Drug Administration gave the "green light" to continue development of a drug to treat radiation exposure from a nuclear meltdown or terrorist attack, based on the research conducted by **Ann Farese** and **Dr. Thomas MacVittie**.

In this issue of the *SOMnews*, we celebrate another seminal contribution of a faculty member to medicine today: **the discovery of HIV and its link to the causation of AIDS**. This breakthrough was made by a research team led by **Dr. Robert Gallo**. As we commemorate the 30th anniversary of Dr. Gallo's discovery, we reflect on some of the other major contributions his work has made to the field of human retroviruses, and specifically the fight against HIV/AIDS, in the United States and around the world:

- Discovery of a factor released by T-cells that promotes growth of other T-cells, now known as **interleukin-2** or **IL-2**, which would be essential to the subsequent discovery of all human retroviruses (including HIV). IL-2 revolutionized the T-cell biology field, and today it is used in therapies of cancer and in autoimmune diseases. (1976)
- Discovery of **human T-cell leukemia virus-1 (HTLV-1)**, the first human retrovirus virus and one of the first viruses shown to cause human cancer (1980)
- Discovery of the second human retrovirus, **HTLV-2** (1982)
- Co-discovery of the third known human retrovirus, **HIV-1** (1984)
- Development of the **HIV blood test**, allowing healthcare workers to screen for the disease (1984)
- Discovery of **chemokines that can block HIV** and halt the progression of the virus into AIDS (1996)
- Establishment of the **School of Medicine's Institute of Human Virology**, a cutting-edge, translational facility which combines basic research, clinical care and prevention to understand, treat and eradicate infectious diseases (1996)
- Co-founder of the **Global Virus Network**, headquartered at University of Maryland BioPark (2011)
- Current research on a **vaccine candidate** to prevent HIV transmission, lymphomas in HIV patients, and the launch of an HIV Cure group working on mechanisms to eradicate functional HIV activity from the human body (present day)

It is truly amazing to think that, within a person's lifetime, HIV has gone from one of the most terrifying diseases of a generation to a chronic disease that can be controlled through the use of antiretroviral therapy. Although the virus affects more than 35 million people worldwide and remains a significant public health problem, HIV is no longer the "death sentence" it once was for millions of affected individuals. We have pioneering researchers, like Dr. Gallo, to thank for the incredible progress the biomedical field has made in terms of understanding, treating and preventing HIV/AIDS. However, we cannot fully grasp what an outstanding accomplishment it was to have discovered HIV without taking a brief moment to review the HIV/AIDS timeline.

When, in 1981, the CDC reported 270 cases of rare diseases, including *Pneumocystis carinii* pneumonia and Kaposi's sarcoma, the cause of these infections was an enigma. By the following year, the U.S. Centers for Disease Control and Prevention (CDC) used the term "acquired immunodeficiency syndrome," or AIDS, for the first time. The growing alarm over AIDS led Congress to allocate $15 million in funding to the CDC and the National Institutes of Health (NIH) to track the cases and study the disease, respectively. Although AIDS had only been observed in gay men living in major cities, in December 1982, the first case of AIDS in an infant who had received a contaminated blood transfusion was recorded. By 1983, cases of AIDS in women, intravenous drug users and hemophiliacs were identified.

No one knew how people were contracting AIDS, but it was clear that the disease was passed from person-to-person through sexual contact or contact with blood. Congress directed additional funds to the NIH to study the disease. This federal investment helped support the research of Dr. Gallo, who was then working at the NIH's National Cancer Institute. The intense national and international interest in identifying the cause of AIDS paid off. In 1984, Dr. Gallo's team discovered that AIDS was caused by a retrovirus which would become known as HIV and developed the HIV blood test.

Dr. Gallo's work and that of other pioneering "virus hunters," has made a significant impact on the burden of HIV/AIDS around the world. According to the World Health Organization, the number of AIDS-related deaths continues to decline from approximately 2.3 million people annually in 2005, to an estimated 1.6 million people in 2012. Not too many infectious diseases, which have deeply affected so many people on every continent in the world, arise and then are brought under control in such a short time. Many more barriers must be surmounted before we can fully eradicate HIV/AIDS, but we continue to move in the right direction, thanks, in large part, to the tireless and passionate efforts of investigators such as our own Dr. Gallo.

I am continually reminded of all our **exceptional faculty, staff, students and trainees** and am humbled by their myriad of accomplishments. This month, we celebrate Dr. Gallo and his work in HIV/AIDS, but the same could be said of many of his esteemed colleagues. I am confident that we will continue to make extraordinary impacts in many more areas of human health and disease and look forward to celebrating those accomplishments in the near term.

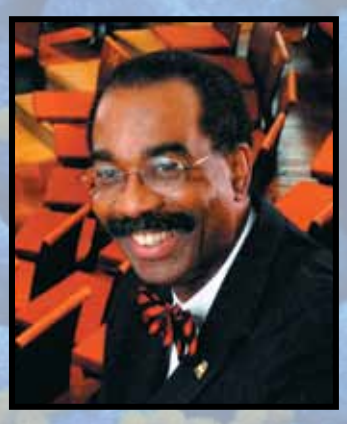
In the relentless pursuit of excellence, I am

Sincerely yours,

E. Albert Reece

E. Albert Reece, MD, PhD, MBA
Vice President for Medical Affairs, University of Maryland
John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine

"It is truly amazing to think that, within a person's lifetime, HIV has gone from one of the most terrifying diseases of a generation to a chronic disease that can be controlled through the use of antiretroviral therapy."



Background image: HIV infected T-cell (courtesy NIAID/NIH)

Thirty years ago,

Robert Gallo, MD, then Chief of the National Cancer Institute Laboratory of Tumor Cell Biology, and his colleagues, discovered the virus responsible for causing AIDS. Dr. Gallo is now Director of the Institute of Human Virology (IHV) at the University of Maryland School of Medicine and a Professor in the Department of Medicine, but AIDS is still his focus. Here is a look back at the innovative research Dr. Gallo and his colleagues in virology have been doing for more than 30 years, research that has lead AIDS to now be considered a chronic, treatable disease rather than an automatic death sentence.

1976–1980:

Dr. Gallo and his co-researchers discover the first human retrovirus, HTLV-1, and develop techniques that provide the intellectual framework for understanding these viruses, including the discovery of IL-2 (a T-cell growth factor), one of the first cytokines to be identified.

1982:

The term AIDS is coined. Dr. Gallo receives the prestigious Albert Lasker Basic Medical Research Award for the revolutionary discovery of the first human retrovirus and methods for growing human T-cells. He will go on to receive a second Lasker in 1986 for the co-discovery of HIV and showing it is the cause of AIDS.

1983:

The University of Maryland Biotechnology Institute (UMBI) is conceived in a report initiated by Rita Colwell, PhD, then the University System of Maryland's Vice Chancellor for Academic Affairs.

Drs. Montagnier and Gallo

1983-1984:

Dr. Gallo, along with French virologist Dr. Luc Montagnier and his colleagues in Paris, co-discover the HIV retrovirus. Dr. Gallo and his colleagues publish a series of papers in *Science* in 1984 that show HIV is the cause of AIDS.

1984:

Dr. Gallo and **William Blattner, MD**, now a Professor in the Department of Medicine and Director of IHV's Epidemiology and Prevention Division, publish the first report of the high sensitivity of the HIV blood test that has been developed by Dr. Gallo and colleagues, including **Mika Popovic, MD, PhD**, now an Adjunct Professor in the Department of Medicine, and M.G. Sarangadharan, PhD.

1985:

The U.S. Food and Drug Administration approves a commercially developed HIV blood test. The development of an HIV blood test enables healthcare workers to screen for the AIDS virus for the first time—leading to more rapid HIV diagnosis and, simultaneously, protecting patients who need blood transfusions from getting infected blood. The tissue culture techniques developed by Dr. Popovic and Dr. Gallo that led to the blood test also enable testing of drugs against HIV. UMBI is officially established, with Dr. Colwell appointed as founding president. Also that year, Dr. Gallo and co-researchers report the sequence of HIV and demonstrate regulatory analogues that subvert host immune function, a concept that is now a target for a therapeutic and preventative vaccine. **Robert Redfield, MD**, proves the heterosexual transmission of the HIV virus. Dr. Redfield is now a Professor in the Department of Medicine, Associate Director of IHV and Director of IHV's Clinical Care and Research Division.

1986:

Dr. Redfield and colleagues develop and publish a comprehensive staging system for HIV in the *New England Journal of Medicine*—the Walter Reed Staging Classification of HIV Infection. This staging system is adopted by the Department of Defense, as well as a number of countries worldwide. Dr. Blattner and colleagues document the high incidence of AIDS among HIV positives in the journal *Science*. Dr. Gallo is awarded Canada's Gairdner Prize, which recognizes biomedical scientists who have made original contributions to medicine resulting in increased understanding of disease.

1987:

Based on studies by Samuel Broder, MD, working in collaboration with Dr. Gallo, AZT (Zidovudine) becomes the first anti-HIV therapeutic drug approved by the FDA.

1988:

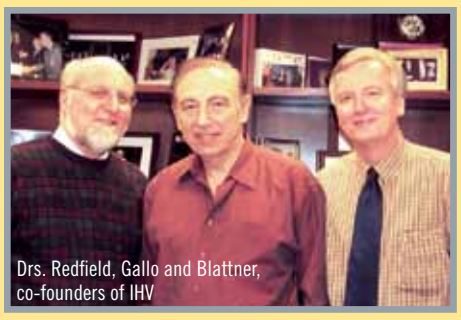
Dr. Gallo is awarded the Japan Prize for Science and Technology.

1990:

The Institute for Scientific Information recognizes Dr. Gallo as the most referenced scientist in the world in the 1980s.

1991:

Dr. Blattner and colleagues demonstrate the high rate of maternal infant transmission and linkage to prematurity in a Lancet publication. Dr. Redfield and colleagues prove the feasibility of a prototype HIV therapeutic vaccine to alter HIV-specific immunity in the setting of chronic HIV infection. They publish their findings in the *New England Journal of Medicine*.



Drs. Redfield, Gallo and Blattner, co-founders of IHV

1994:

As scientists develop the first treatment regimen to reduce mother-to-child transmission, Drs. Gallo, Redfield and Blattner explore options as to where to establish what they are calling The Institute of Human Virology (IHV), a first-of-its-kind virology center that will intertwine basic science, population studies, and clinical care and research in a multidisciplinary, teamwork approach to the study of viral diseases and, in particular, AIDS.

1995:

After a series of discussions with the State and UMBI, a memorandum of understanding is signed establishing Baltimore as the home of IHV. Also, protease inhibitors are introduced by pharmaceutical companies as a new therapeutic treatment approach. Coupled with reverse transcriptase inhibitors in a "cocktail" of anti-HIV drugs, a dramatic advance in therapy is achieved.

1996:

The Institute of Human Virology (IHV) opens at 725 W. Lombard Street. IHV is a center within UMBI and is affiliated with the University of Maryland, Baltimore (UMB), and the University of Maryland Medical Center (UMMC). IHV assumes the responsibility of providing clinical care for patients with HIV within the University of Maryland Medical System, including the Evelyn Jordan Center and UMMC and the Baltimore VA Health System. The 1995 discovery by Dr. Gallo and **Fiorenza Cocchi, MD** (Assistant Professor, Department of Medicine), **Anthony DeVico, PhD** (Professor, Department of Medicine); and **Paulo Lusso, MD, PhD**, that naturally-occurring substances in the body called beta chemokines are potent inhibitors of HIV is hailed as one of the scientific breakthroughs of the year by *Science* magazine. This discovery identifies new avenues for therapeutic potential and paves the way for the development of a new class of drugs now known as entry inhibitors. Evidence of the efficacy of Highly Active Antiretroviral Therapy (HAART) is also presented for the first time this year. This research facilitates the discovery by others of CCR5, a key co-receptor for HIV's entry into cells.

1997:

Dr. Blattner and **Farley Cleghorn, MD, MPH**, former IHV faculty member and now Chief Technical Officer and Senior Vice President, the Futures Group International receive IHV's first NIH program project grant to study host virus interactions during HIV infection, a study that has contributed fundamental insights about the immune correlates of HIV and disease outcome.

1998:

Drs. Gallo, Blattner and **Joseph Bryant, DMV**, receive a large NCI grant to study Kaposi Sarcoma. Led by Dr. Blattner, the NIH Fogarty funded UM-IHV AIDS International Training and Research Program grant, now in its 15th year of continuous funding has provided advanced research training to 46 doctoral and advanced trainees. The Clinical Research Unit opens at the Institute of Human Virology, and the first HIV therapeutic clinical trials are started, under the direction of **Charles Davis, MD**, who is also an Associate Professor in the Department of Medicine. **Dr. Man Charurat** joins Dr. Blattner in implementing analyses of mother to child transmission with funding from NIAID in support of the Women's and Infant Transmission Study.

1999:

The first efficacy trial of a potential HIV vaccine in a developing country begins in Thailand, and Dr. Blattner is awarded a prestigious AIDS International Training and Research program grant from the NIH-sponsored Fogarty International Center. The first IHV patent is awarded for an innovative vaccine delivery system that utilizes live attenuated bacteria, developed by David Hone, PhD; Robert Powell, PhD; and **George Lewis, PhD**, who is Co-Director of IHV's Basic Science and Vaccine Development Division (with Dr. Gallo) and also a Professor in the Department of Microbiology & Immunology. IHV researchers report new evidence for beta chemokine protection against AIDS in an article in *U.S. Proceedings of the National Academy of Sciences (PNAS)*. Dr. Gallo wins the Paul Ehrlich and Ludwig Darmstaedter Prize, Germany's most distinguished award in biomedical research.

2000:

Tat protein provides a new front for AIDS therapeutic vaccine research, according to findings reported by IHV researchers in *PNAS*. IHV enters into partnership with the In-ternational AIDS Vaccine Initiative to help develop an oral preventative vaccine utilizing the Salmonella DNA delivery system. The ultimate goal is the design of an affordable vaccine suitable for use in developing countries. A patent is awarded for the first HIV transgenic rat model. Dr. Blattner successfully competes to lead the IHV HIV Vaccine Trials Network (HVTN) center, becoming one of 10 international sites for preventative AIDS

Human Virology IHV Timeline

vaccine testing. Dr. Gallo is awarded the Prince of Asturias Award, Spain's highest honor.

2001:

Drs. Gallo, **Alash'le Abimiku, PhD**, and Blattner partner with the Harvard School of Public Health in an international initiative funded by the Bill and Melinda Gates Foundation to lead AIDS prevention and intervention efforts in Nigeria. The John Evans Foundation gives $500,000 to IHV for AIDS vaccine development, while community educator Joseph Jacques wills close to $1 million to the Institute to support patient education. Mikhail Gorbachev honors Dr. Gallo with the World Health Award in Vienna. Findings published *PNAS* by **Joseph Bryant, DVM**, Associate Professor, Department of Pathology and Director of IHV's Animal Models Division, and colleagues note that IHV's genetically engineered rat may be the best model of HIV in humans. Two more IHV patents are awarded, including one for treatment and prevention of HIV infection by administration of derivatives of hCG (urinary peptides) an outcome of the 1998 NCI PO1.

2002:

Drs. Blattner and **John Vertefeuille, PhD**, former faculty and now CDC program director launch the $64 million University of Maryland Technical Assistance Project (UTAP) in Nigeria, which is an important component of the CDC Global AIDS Program. UTAP is established to provide technical assistance to the Nigerian health sector and lays the foundation for future PEPFAR work. Dr. Blattner is also awarded $4.4 million by the CDC to promote global access to antiviral therapy and prevention of mother-to-child HIV. Dr. Gallo and Dr. Luc Montagnier, co-discoverers of the virus that causes AIDS, announce their partnership in a global research endeavor, the *Program for International Viral Collaboration* designed to speed the development of AIDS vaccines. Tim Fouts, PhD, and Anthony DeVico, PhD, report in *PNAS* about a promising vaccine candidate that, in the laboratory, neutralizes multiple strains of HIV. Microscience LTD licenses vaccine delivery technology, known as Bactofection, from IHV, which retains the rights to technology for HIV vaccines. IHV becomes part of the Adult AIDS Clinical Trials Group (AACTG), funded by the National Institute of Allergy and Infectious Diseases (NIAID)'s Division of AIDS, to develop new therapies for HIV. UMBI licenses its HIV rat model to Harlan.


The JACQUES Initiative educates the community about HIV

2003:

The JACQUES Initiative, a national pilot program utilizing direct observation therapy, is launched with funding from the Abel Foundation. Drs. Blattner and Charurat implement the REACH (Recruiting Acute Cases of HIV) Study, funded by the CDC, to study acute HIV Infection among key populations at high risk to promote development of public health tools monitoring incident HIV infection. Drs. Redfield, Davis, **Alonso Heredia, PhD**, (Assistant Professor, Department of Medicine), and colleagues in the Clinical Division are awarded two new patents for the treatment of viral infections, based on the work they have been doing at IHV.

2004:

Dr. Redfield receives a President's Emergency Plan for AIDS Relief (PEPFAR) grant that funds a unique partnership, known as AIDSRelief, between the Institute of Human Virology and Catholic Relief Services. Over the next nine years, IHV receives $189,213,186 from this grant and plays a key role in providing technical assistance and advanced clinical education in 10 countries in Africa and the Caribbean, ultimately serving more than 700,000 persons living with HIV. Dr. Blattner receives the AIDS Clinical Care in Nigeria (ACTION) PEPFAR grant that results in funding to IHV of $334,125,319. Drs. Blattner, **John Farley, MD**, and **Patrick Dakum, MD, MPH**, and **Mr. Charles Mensah, MBA, CPA**, establish IHV's first international affiliate, Institute of Human Virology Nigeria that establishes 167 antiretroviral treatment, 950 PMTCT venues, 193 TB centers and 1030 testing sites to provide HIV testing to over 3.2 million, care and support to 283,000 individuals, treatment to over 183,000 patients including 10,000 children and 8,000 pregnant women in Nigeria.


Dr. Redfield with former President George Bush

2005:

Dr. Redfield is appointed to serve as a member of the US President's Advisory Council on HIV/AIDS (PACHA), and subsequently becomes the Chair of the International Subcommittee in 2006. Drs. Redfield and Heredia, and their colleagues in the clinical division, are awarded additional patents related to beta chemokine and CCR5 modulation as a therapeutic strategy. This work builds on earlier work by Dr. Gallo and colleagues.

2006:

Dr. Blattner is appointed by the White House to serve as a member of Office of AIDS Research Advisory Committee at NIH.

2007:

The University of Maryland School of Medicine (SOM) announces that IHV will move into the School of Medicine and become its first official institute. IHV receives a $15 million grant from the Bill & Melinda Gates Foundation for research to further develop a promising HIV/AIDS vaccine candidate. The candidate, created by IHV, had shown in early studies the potential to provide broad protection against HIV.

2008:

The Washington Post publishes the first in a series of opinion-editorials by Dr. Gallo addressed to the new Obama Administration, which call for a PEPFAR-style program to curb the spread of AIDS in America's inner cities.

2009:

Israel honors Dr. Robert Gallo with the 2009 Dan David Prize for "his research on HIV and T-cell leukemia viruses and especially for the development of a robust, simple blood test to detect HIV, the importance of which, for the epidemiology of this huge pandemic, cannot be overestimated." SOM and the U.S. National Cancer Institute honor Dr. Gallo with a symposium and gala in Baltimore to mark the 25th Anniversary of the discovery of HIV as the cause of AIDS. The symposium, attended by the world's leading HIV/AIDS researchers, looks back at the origins of research on human retroviruses, progress on combating the virus through a successful research enterprise, and obstacles that still need to be overcome in treatment and prevention for the global AIDS epidemic. IHV's JACQUES Initiative launches Project SHALEM, a movement comprising hundreds of volunteers and medical staff to bring free HIV testing to the public through a variety of community organizations, including the faith-based community. Led by Dr. Charurat IHV begins the five-year, NIH funded, Acute HIV Infection and Pregnancy (AVERT) study in Nigeria to research HIV transmission rates from mother to child for mothers who are newly infected with HIV. This study uncovers significantly higher transmission rates for mothers who acquire HIV during pregnancy. Drs. Gallo and David Pauza establish the Program in Viral Oncology at the Greenebaum Cancer Center to expand IHV's cancer research mission.

2010:

Clement Adebamowo, MD, ScD, an internationally recognized cancer researcher is recruited to the Division of Epidemiology and Prevention and is awarded the *Capacity Development for Research into AIDS Associated Malignancies* grant from NCI. A collaboration between Dr. Blattner and **Walter Royal, MD**, from the Department of Neurology, the *Correlates of Monocyte-Associated Virus in HIV Neurocognitive Impairment* study in Nigeria Is funded by NIMH to investigate the impacts of HIV on brain function, including understanding the characteristics of the virus taken to the brain by monocytes, which are associated with brain impairment. Dr. Redfield and the clinical division are awarded the first of a series of new international grants focused on advancing clinical education in HIV, TB, and infectious diseases. They establish strategic partnerships with key international medical schools, including the University of Guyana; the University of Notre Dame, Haiti; the University of Nairobi; the University of Rwanda; and the University of Zambia. Dr. Blattner is appointed Associate Director for Population Science and Director, Division of Cancer Epidemiology in the Department of Epidemiology and Public Health further strengthening IHV's linkages to the Greenebaum Cancer Center. Dr. Abimiku receives a four year grant from the Canadian Vaccine Initiative supported by the Bill and Melinda Gates Foundation—*Creating a Common Platform for HIV Vaccine Research and HIV Care and Treatment in Nigeria*—to promote vaccine preparedness.

2011:

The Global Virus Network (GVN) is co-founded by Dr. Gallo, Dr. Reinhard Kurth (Germany), and Dr. William Hall (Ireland). Top medical virologists representing more than a dozen countries ratify


Drs. Hall, Gallo and Kurth

their participation in, and support of, the newly-formed GVN, a global authority and resource for the identification, investigation, and control of viral diseases posing threats to mankind. Maryland Governor Martin O'Malley announces that IHV will receive $23.4 million from a consortium of funding partners, The Bill and Melinda Gates Foundation ($16.8 million) and the US Army's Military HIV Research Program ($2.2 million) to support the next phase of research into IHV's


Governor O'Malley

promising HIV/AIDS preventive vaccine candidate including first in man clinical trials. IHV's JACQUES Initiative trains over 450 students and faculty from six professional disciplines at UMB, as well as clinicians and staff from UMMC, through the newly launched *Preparing the Future (PTF)* program, whose trainees provide direct services that include HIV education, testing, and linkage to care. Dr. Adebamowo is awarded the Training Program in Nigeria for Non-Communicable Disease Research (TRAPING–NCD), which supports the development of infrastructure to successfully conduct nutrition epidemiology research in Nigeria, as well as training on epigenetics and the molecular biology of breast cancer. He also successfully competes for *The West African Bioethics Training* grant, which is designed to provide modern international research ethics training to biomedical researchers in West Africa. Dr. Dakum receives a 5-year, $25 million, CDC health strengthening grant to strengthen primary care facilities infant and maternal health programs for IHV-Nigeria. Dr. Abimiku receives a four year Canadian Institute grant to study immune responses in HIV-1 exposed uninfected infants in Nigeria.


Drs. Redfield and Blattner

2012:

The Clinical Division is awarded 26 new awards from the CDC, NIH, World Health Organization (WHO), the U.S. Agency for International Development (USAID), and the Department of Defense, targeting technical assistance, advanced clinical education, and operational research, with an estimated award value of $148,987,015. Drs. Blattner and Redfield are named UMB's 2012 Entrepreneurs of the Year

[timeline continued on back page]

Professorship in Advanced Pulmonary Care

Thomas Scalea, MD, Aldo Iacono, MD, and Dean Reece

An investiture ceremony was held earlier this summer to award Aldo T. Iacono, MD the Hamish S. and Christine C. Osborne Professorship in Advanced Pulmonary Care. Dr. Iacono was among the many physicians at the School of Medicine who treated Mr. Osborne after his diagnosis of idiopathic pulmonary fibrosis resulted in a life-saving double-lung transplant at the University of Maryland Medical Center a year ago.

During Mr. Osborne's illness, his wife Christine was assured that in a year those fearful days would be only an unpleasant memory. "I am happy to report they were right," Mrs. Osborne said with a smile, while thanking all of the medical staff during the ceremony. "I know now why Hamish survived. It wasn't his time. Together we still have a lot of work to do. We have turned over a new chapter in our lives.

> *"A man [Dr. Iacono] to whom I owe my life; a man who tirelessly demonstrates every day and in every way the finest attributes of a physician; a man who lives the Hippocratic Oath; and a man who has become a dear friend."*
>
> *Hamish Osborne*

We want to help others who are following in our footsteps, and today is just the beginning."

In good health now, Mr. Osborne expressed his appreciation for all of the medical personnel whose dedication helped ensure his survival. He called Dr. Iacono "a man to whom I owe my life; a man who tirelessly demonstrates every day and in every way the finest attributes of a physician; a man who lives the Hippocratic Oath; and a man who has become a dear friend."

The University of Maryland Medical Center offers hope to many critically ill patients with advanced lung disease, and School of Medicine physician-scientists are pushing the frontier in providing answers and options for these patients by devising innovative solutions for repair, replacement and regeneration of injured lungs.

"With the time remaining for me, I hope to be able to help these talented people here, especially Drs. Iacono and [Bartley] Griffith (the Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery), create a world-class lung-healing program, finding even more solutions for patients suffering from end-stage lung disease," Mr. Osborne said.

As part of the investiture ceremony, an engraved medal was presented to Dr. Iocono and a replica was given to the Osbornes. "I would like to thank Hamish and Christine Osborne for making this endowment possible," Dr. Iacono said. "Their generous founding gift to the School of Medicine will help build a program in advanced pulmonary care. This gift is a cornerstone for lung healing, and I am proud to be the inaugural Osborne professor."

"It is because of endowed professorships like this that we can recruit faculty members of great significance to these positions, which continues a tradition going back 500 years," said Dean E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland, and the John Z. and Akiko K. Bowers Distinguished Professor and Dean of the School of Medicine. "The talented members of this group inspire our students, advance the frontiers of knowledge, and make discoveries that change people's lives."

IHV Timeline *[continued]*

...2012 2013 **2014**

reflecting their social entrepreneurship in implementing the PEPFAR program in 9 African and Caribbean nations, resulting in 500,000 patients receiving antiretroviral treatment and close to three million people receiving prevention interventions and HIV testing. Together, they have trained 35,000 in-country healthcare professionals, who have delivered more than 100 million doses of medication. IHV researchers publish in *PLoS ONE* about their discovery of a new cell. The group identifies new behavior for the human macrophage that provides new explanations for several features of HIV biology, including how the virus persists within the body indefinitely, how quiescently infected CD4+ T-cells arise, and how the infection leads to depletion of CD4+ T-cells. Drs. Blattner and Charurat successfully compete for the *Network-Based Recruitment of Men Having Sex with Men (MSM)* in Nigeria NIH grant that engages MSM in HIV care and treatment, while also collecting social and behavioral data. Dr. Blattner inaugurates *The Nigerian Alliance for Health Systems Strengthening (NAHSS)* project, funded by the CDC to provide technical support to the Federal Ministry of Health towards the development of a National Quality Improvement program. Dr. Abimiku successfully competes to establish the *Human Heredity in Health for Africa (H3 Africa) Biorepository* grant at IHV-Nigeria to support future research into the role of the genome in human health and viral diseases under a joint program supported by the NIH and Wellcome Trust. Dr. Dakum receives the first IHV-Nigeria 5-year PEPFAR award for $300 million dollars. **Dr. Nadia Sam-Agudu** receives a four year $400,000 Prevention of Mother to Child World Health Organization grant for IHV-Nigeria. Dr. Abimiku receives a $1.2 million dollar grant from CDC for IHV-Nigeria to strengthen laboratory training in Nigeria. Dr. Adebamowo receives $800,000 from CDC for IHV-Nigeria to strengthen pre-service training for community health professionals at the primary care level.

2013:

Dr. Adebamowo is successful in receiving a large program project grant from NIH to establish *African Collaborative Center for Microbiome and Genomics Research (ACCME)* grant to explore host and viral genomics and epigenomics and somatic cervical cancer genomics as a scientific focus of the H3 Africa program. SOM announces the appointment of Dr. Gallo as the Homer & Martha Gudelsky Distinguished Professor in Medicine. The University of Maryland BioPark announces that the Global Virus Network is the Park's newest tenant. The GVN is headquartered across the street from the IHV, and is a 501(c)(3) organization comprised of top medical virologists in more than 30 institutions spanning 21 nations—and growing. Dr. Dakum receives three IHV-Nigeria Global Fund grants for MDR-TB, HIV and malaria.

2014:

April 23rd marks the 30-year anniversary of the press conference where Dr. Gallo and colleagues reported that a new retrovirus, now known as HIV, was the agent causing AIDS and that they had developed an effective HIV blood test and the capacity to continuously produce the virus so that drugs to fight it could be tested. IHV develops HIV-1 transgenic nude rat—a novel disease progressed animal model for HIV-1/AIDS. Over 10,000 Baltimoreans, including more than 200 persons living with HIV, have been tested through the Project SHALEM and Preparing the Future programs at IHV.

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