



Hepatitis B Foundation

Baruch S. Blumberg Institute

2016 Annual Report



CELEBRATING OUR

Silver Jubilee
1991 - 2016
Thanks to You



CELEBRATING OUR
Silver Jubilee
1991 - 2016



Dear Friends,

This is a milestone year for us, as well as the greater community concerned about hepatitis B and liver cancer. In 1991, we established the *Hepatitis B Foundation* in response to one family's plight. Our goal, considered wildly ambitious, was to find a cure and improve the lives of those affected.

Today, **we have become a trusted global authority.** Our website receives more than 1 million unique visitors each year from 150 countries; our public health programs are conducted in the U.S. and abroad; and our advocacy calls for increased funding and decreased discrimination against those living with hepatitis B.

Our research institute – established in 2003 and renamed the *Baruch S. Blumberg Institute* to honor our co-founder, the Nobel Prize-winning scientist who discovered the hepatitis B virus – is now a magnet for academic entrepreneurship and a premier translational research organization, home to some of the most accomplished discovery scientists in the world. Through collaboration with academic and commercial partners, our inventions and ideas are well on the way to human use.

Another milestone to celebrate is the World Health Organization (WHO) announcement that **elimination of hepatitis B is possible by 2030, through prevention and treatment. We agree!** So did a group of the world's leading experts we convened to draft a blueprint of research needed to achieve a cure.



Cover photo of Dr. John Kulp courtesy of Bill Fraser, *The Intelligencer*; Oct 4, 2016

This year, the HBF and the Blumberg Institute updated their strategic plans which identify pillars of excellence upon which we stand and will grow. As this Annual Report describes, we are already on track with the addition of major new scientific talent, more outreach and public health professionals, expanded partnership with Geisinger Commonwealth to offer graduate education, and planned new construction on our campus.

We are doing our part to make sure the admirable goals of the WHO are realized.

Of course none of this would have been possible without the confidence and support from all of you who have generously contributed time and money these many years. **Thank you from all of us here at the Hepatitis B Foundation, our Blumberg Institute and the more than 250 million people worldwide counting on us.**



Joel Rosen, Esq.
Chairman of the Board



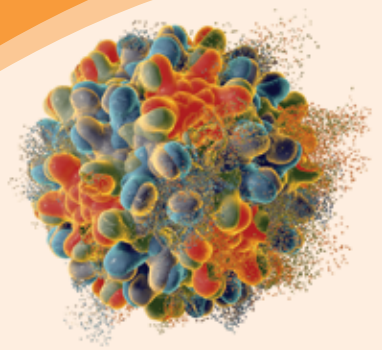
Timothy M. Block, PhD
President and Co-Founder



The Hepatitis B Foundation and its Baruch S. Blumberg Institute are the nation's leading nonprofit disease advocacy and research organizations dedicated to finding a cure and improving the quality of life for those affected by hepatitis B worldwide. The Hepatitis B Foundation was founded in 1991 and established the Blumberg Institute in 2003 to fulfill its research mission.

Research Advances

Thanks to You



The **Baruch S. Blumberg Institute** was created in 2003 by the Hepatitis B Foundation to fulfill its research mission. Today, it is one of the nation's leading centers for translational research, particularly for hepatitis B and liver cancer.

Our scientists use a team, entrepreneurial approach to research, in which groups work together on common goals and projects, and usually in collaboration with scientists from around the world. Most importantly, **our scientists are committed to moving as quickly as possible our discoveries from “bench to bedside” and into human use, to ultimately save lives.**

There is great excitement about the possibility of new curative therapies for hepatitis B, given the new technologies available. Our recent progress in drug discovery for hepatitis B, and early detection biomarkers for primary liver cancer, gives us even more reason to be optimistic and is highlighted in this report.

New Curative Therapies for Hepatitis B

Eliminating the hepatitis B cccDNA, the stable nuclear form of the viral “mini” chromosome, is the antiviral goal for our Experimental Therapeutics and Translational Medical Research groups.

Each step in the hepatitis B virus (HBV) life cycle is being used for antiviral drug discovery, using our own in-house compound and natural products libraries, as well as medicinal and computational chemistry. We have already identified potential new hepatitis B antivirals, and several of our discoveries have been licensed to Arbutus Biopharma, a company dedicated to hepatitis B drug therapeutics. Most important, some of these compounds are expected to be in human trials in 2017!

We have also participated in collaborative groups to determine the best, and new ways, to test people for evidence that the new drugs are working. One of these collaborations resulted in the recent publication, *Block et al, J. Clin Infect Diseases, Feb 12, 2017.*

• Hepatitis B cccDNA

We have already identified compounds that inhibit HBV cccDNA formation and transcription, but continue to screen for new, more selective, drugs. **Dr. Ju-Tao Guo, the W. Thomas London Distinguished Professor**, is leading our research effort. His group recently identified cellular enzymes, such as DNA polymerase ‘k,’ which are critical to cccDNA formation (*Qi, et al 2016 PLoS Path*). This discovery could provide a handle on pursuing drugs that can target cccDNA. **Dr. Tianlun Zhou**, with **Prof. Timothy Block**, is using our new assay system to identify drugs that enhance the effects of interferon upon cccDNA expression.

• Hepatitis B Core HBc

The hepatitis B core protein (HBc) is essential for virus formation. We were among the first groups, led by **Prof. JT Guo**, in targeting and identifying small molecule inhibitors of core function. Prof. Guo continues to characterize the activity of these drugs, and their varied effects upon the virus life cycle. With our computational chemist **Dr. John Kulp**, they have pinpointed ‘hot spots’ where the drug works on the virus structure (*Fig. 1*).

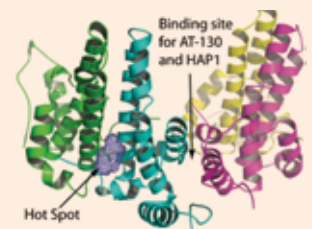


Fig.1 Structure of hepatitis B core (HBc) with ‘hot spot’ areas for antiviral drug action (*Drs. JT Guo and J. Kulp*).

• Hepatitis B Surface Antigen HBsAg

HBsAg, the ‘envelope’ protein of the hepatitis B virus, is necessary for viral infectivity. It may also play a role in maintaining ‘tolerance,’ hence, chronic infection. Our scientists were among the first to target HBsAg for antiviral development, and our drugs have been ‘tool’ compounds. **Dr. Tianlun Zhou** developed new assays that are helping to identify and design new HBsAg targeting drugs (*Block, Zhou, et al, Gastro & Hepatol;12(11); Nov 2016*).

• Innate Immune System Activators

Human cells have an innate ability to fight viruses. There is hope that it will be possible to stimulate these systems to recognize and repress HBV, with drugs. The lab group led by **Dr. Jinhong Chang**, with Prof. Guo’s group, have had encouraging success and identified lead compounds that can activate a member of this system, called STING or ‘Stimulator of Interferon Genes’ (*Guo, 2015 AAC, 1273; Cui 2016 JV 90:486*).

• Broadly Active Antivirals

An important parallel line of our research involves development of drugs active against hemorrhagic and other hepatitis fever viruses of public health concern. This year, we reported new Yellow Fever and Ebola virus-active drugs with efficacy alone, and in combination, in animal studies carried out with collaborators at the National Institutes of Health and U.S. Army Medical Research Institute for Infectious Diseases (*Guo et al, 2016 JV 90:10774*).

Research Advances



2016 Bruce Witte Distinguished Lecturer

Antonio Bertoletti, MD, (left) professor at Duke-NUS Medical School in Singapore, delivered the *Bruce Witte Distinguished Lecture* in March 2016. He is an international leader in hepatitis B research and currently focused on developing new immunological-based therapies. This annual named lectureship is sponsored by **HBF co-founders Paul and Janine Witte** (on right).

• Biomarkers of Cancer: Detecting Disease Early

More than 1 million people worldwide die each year from primary liver cancer, or hepatocellular carcinoma (HCC). Hepatitis B is the primary cause of HCC in the world. Medical options are limited once the cancer is established, but if detected early, outcomes are enormously improved, and in some cases 'curative' interventions are possible. Current methods for early HCC detection miss as many as 50% of the cancers. *Our scientists are at the forefront of discovering 'noninvasive' approaches that use urine and blood 'biomarkers' for early detection of liver cancer, when it can be treated, as well as guide treatment decisions.* We are also working on new cancer treatments, using a Proteomic (protein-based) and Genetic (DNA) approach.

• Detecting Liver Cancer DNA in Urine

Cancer cells have modified, and sometimes mutated, DNA when compared to DNA from healthy cells. **Dr. Ying-Hsiu Su** and her group have developed assays to detect this DNA when present in the urine. She has even found that the cancer DNA is 'methylated' and when the urine is from people with chronic HBV infection and liver cancer, it contains HBV DNA integrated into the host chromosomes in an amount and structure that can be used for improved liver cancer detection and even treatment guidance (*Jain et al 2015, Sci Rep*).

• Detecting Liver Cancer Proteins in Blood

An algorithm combining blood level values of our new glycoprotein markers with routinely collected test values may improve detection of liver cancer. This work, led by **Drs. Anand Mehta** (now at Medical College of South Carolina), with **Timothy Block**, uses regularly collected patient information and could greatly improve liver cancer detection rates. This clinical algorithm has already been tested with several hundred patient samples (*Wang et al, 2016, Can Prev 9: 172*).

• Understanding Cancer Biology to Develop Drugs and Biomarkers of Detection

Hepatocyte DACH 1 is a tumor suppressor. DACH 1 is a transcription factor, regulating expression of genes. **Dr. Richard Pestell** and his group have been studying the relationship between this protein and obesity and cancer. They recently made a groundbreaking observation that this protein appears to function to 'suppress' prostate cancer, which may be useful in developing new drugs and for early cancer detection (*Ozcan et al, 2016 Cell Rep 15:22145 & Meng et al 2016 Nat Comm*).

• Our Experimental HCC-Targeted Drugs

Drs. Yanming Du and John Kulp collaborated with physicians from Mt. Sinai Hospital in New York City and found that our aminothiazole compound (Fig. 2), which was highly selective against liver cancer cells in the lab and demonstrated excellent activity against actual primary liver cancers taken right out of patients. This is very encouraging and future study of these compounds is underway (*Lu 2016 BioMed L 26:5819*).

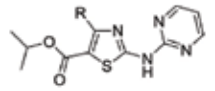


Fig. 2 New anti-liver cancer compound aminothiazole (Dr. Y. Du).

Blumberg Institute Faculty Awards



Michael J Sofia, PhD, Adjunct Professor, received the **2016 Lasker Prize** for his role in the discovery of a cure for hepatitis C. Dr. Sofia is co-founder and Chief Scientific Officer of Arbutus Biopharma, a company dedicated to hepatitis B therapeutics, whose labs and offices are located at our biotechnology center.

Patrick Lam, PhD, Distinguished Professor, received the **Heroes in Chemistry Award** from the American Chemical Society, for his role in the discovery of the anticoagulant Eliquis®.

Richard Pestell, MD, PhD, MBA, Distinguished Professor and Head of the Center for Cancer and Regenerative Medicine at the Blumberg Institute, received an **Honorary Doctorate** from the University of Melbourne, Australia.

John Kulp, PhD, Associate Professor and Director of Academic Programs, was recognized as an **Emerging Leader in Bucks County** and a **2016 Mover and Shaker**.

Ju-Tao Guo, MD, the W. Thomas London Distinguished Professor and Head of Translational Medical Research, was named to the **Editorial Board of Reviewers** of *J. Virology*.

Timothy Block, PhD, President and Co-Founder of HBF and its Blumberg Institute, was elected **Vice-Chair, HBV Special Interest Group (SIG) of the AASLD**.

Educational Research Programs

The **Hepatitis B Foundation** and its Baruch S. Blumberg Institute are committed to **building the ranks of the next generation of scientists**, and our academic environment is thriving. This is occurring at all levels of learning. In the past year, we've hosted the following:

12 high school interns in our after school and summer programs

4 undergraduate students in the Summer College Research Program

6 post-baccalaureates in the Junior Research Fellows program

9 high school students from China with the Philadelphia International Education program



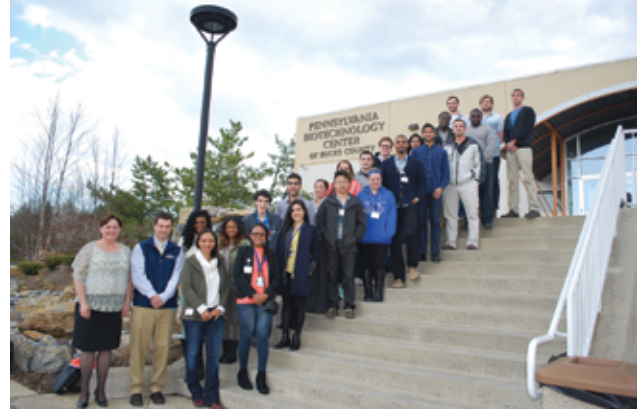
Chinese students study at HBF's Blumberg Institute (Aug. 2016).

3
Doctoral students

3
Masters students

10
Post-Doctoral trainees

who are completing their graduate research work with Blumberg Institute faculty



The first cohort of students in the Geisinger Masters of Biomedical Sciences program offered with the HBF's Blumberg Institute at its research center (April 2016).

36 full time students earning their Masters of Biomedical Sciences in 16 months at the Blumberg Institute through our partnership with Geisinger Commonwealth School of Medicine

International HBV Meeting in Seoul

The *31st Annual International HBV Meeting*, coordinated by the Hepatitis B Foundation, was held September 2016 at Yonsei University in Seoul, Korea. More than 425 scientists from around the world gathered for 4 days of presentations by leaders in the field and poster sessions featuring unpublished research findings. The meeting, co-chaired by **Wang-Shick Ryu, PhD**, Yonsei U. (left) and **Aleem Siddiqui, PhD**, U. of California, San Diego (right), opened with a satellite symposium focused on potential new hepatitis B drug therapies. This meeting continues to be the definitive meeting on the molecular biology of hepatitis B and related viruses, and rotates between North America, Europe and Asia. Visit www.HBVmeeting.org.



Thanks to You

25 Years of Conducting Hepatitis B Research,

Thanks to Donors like Shannon

Like most people of Chinese descent, Shannon knows that hepatitis B is a huge problem in China: 100 million people are chronically infected and more than 500,000 die each year from hepatitis B-related liver cancer. When she learned in 2009 about the Hepatitis B Foundation and its public health project in China to increase testing and vaccination of babies to eliminate hepatitis B, she decided to get involved and make a difference.

Since then, Shannon and her husband have been loyal donors. Most recently, they gave generously to the HBF's *Nobel Challenge* campaign to support research at the HBF's Baruch S. Blumberg Institute. They also encourage their friends to give to the cause, with Shannon helping to lead the HBF's *One Hundred Chinese Families & Friends* campaign to support hepatitis B research.



“Support for basic research is critical. There is still no cure for hepatitis B. I want to encourage people to invest now in a cure, to push this forward as quickly as possible. We need to find people who have a reason to care about hepatitis B and get them involved.”

Outreach Services

Over the past 25 years, the **Hepatitis B Foundation** has helped reduce the burden of hepatitis B by providing comprehensive information to people affected worldwide. Our information and support services through our website, social media, and phone and email Help Lines are **saving lives every day.**

- **Hepb.org**
Attracts
1 Million Visitors
Each Year

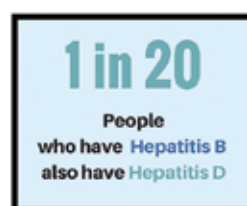
This year, we unveiled a redesigned, mobile friendly version with a clean look and simple navigation. Our website remains as comprehensive and useful as ever, but the new site offers easier access to our information, which has also been translated into 11 languages. Please visit us!



- **Hepatitis Delta Connect Launched**



Our new educational program, **Hepatitis Delta Connect**, aims to increase awareness and provide information about this deadliest form of viral hepatitis. The hepatitis D virus only infects those with hepatitis B, but this co-infection significantly increases the risk of liver cancer. Our dedicated website, social media channels, and webinars feature information and support for patients, families and providers to improve testing, management and treatment for hepatitis delta. Visit www.hepdconnect.org.



- **Learn More About Liver Cancer Connect**

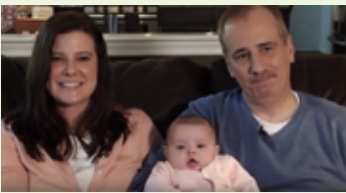


Liver cancer is the 2nd leading cause of cancer deaths in the world and results in 500,000 deaths each year. Our **Liver Cancer Connect** program works to educate those at risk for liver cancer and provides support through its email help line and social media channels for patients and families. Visit www.livercancerconnect.org.

#justB

• Our National Storytelling Campaign

To help put a human face on the serious problem of hepatitis B, our new storytelling campaign – #justB – gives voice to the stories of real people affected by hepatitis B. Patients and family members from across the U.S. are participating in our special workshops to create their storytelling videos and to learn how to share their stories publicly.



This storybank will serve as a national resource to increase awareness and understanding, decrease stigma and discrimination, and support our advocacy efforts to increase federal funding for hepatitis B.

The #justB storytelling videos are hosted on our website at www.hepb.org/justb.

Thanks to You

25 Years of Promoting Patient Outreach,

Thanks to Donors like Catharine and Rob

“Supporting the Foundation’s work in public health, education and advocacy is critical to ensuring that others who need support can rely on the Foundation being here in the future to help those in need.”

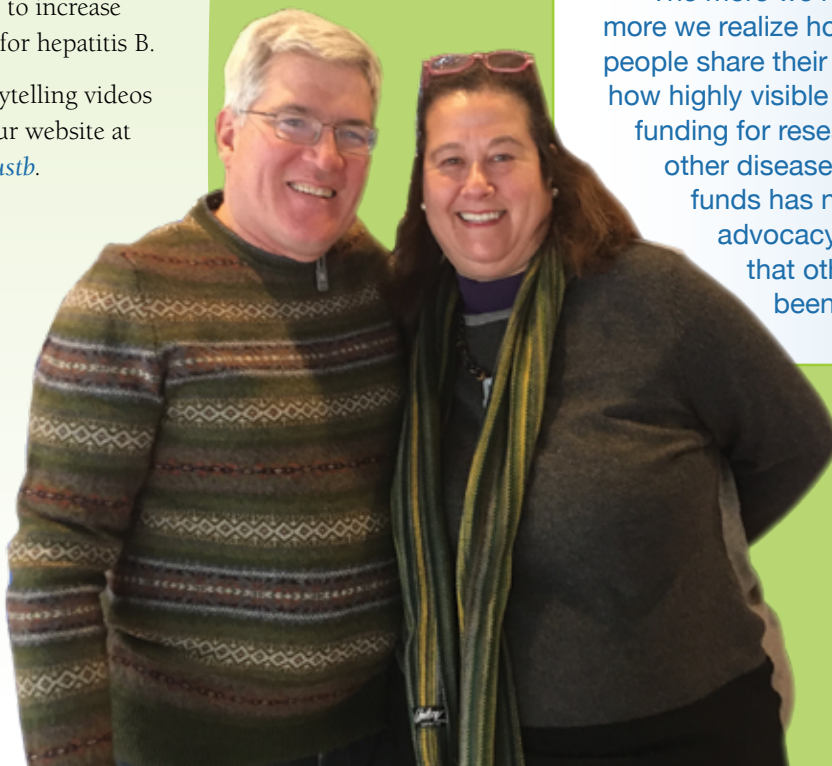
Catharine and Rob first discovered the HBF when someone they loved was diagnosed with hepatitis B and needed care. *“The Hepatitis B Foundation provided invaluable information on treatment, care, and facts about the impact of the disease on a person’s well being. It was a reliable source of information that was extremely helpful.”* Over the past 10 years, they have become loyal and generous donors.

Most recently, they provided significant seed funding for the HBF’s new #justB National Storytelling Campaign to produce the first four videos featuring people impacted by hepatitis B, which inspired additional corporate sponsorship from Arbutus Biopharma and Dynavax Technologies for the national initiative. In October 2016, Catharine and Rob hosted a fundraising event in Philadelphia that showcased the first patient video for their network of friends. The goal was to increase awareness and generate support to meet a \$50,000 matching challenge, which would be used to build an advocacy campaign around the patient stories. The challenge was met and the advocacy campaign is underway.

“

The more we have been involved, the more we realize how important it is that people share their stories since we saw how highly visible patient stories impacted funding for research and public health for other diseases. Raising the additional funds has now allowed a new HBV advocacy program to move forward that otherwise might not have been possible.

”



Public Health Campaigns

Our many public health campaigns continue to grow at the local, national and international levels as we work to increase prevention, screening, care and treatment of hepatitis B to save lives. All of our programs are built with many partners from the community, industry, academia, and government. Together we can work towards **our common goal of eliminating hepatitis B.**

- **Hep B United National Summit 2016**

Hep B United, the first national hepatitis B coalition created in 2012 and led by the HBF and AAPCHO (Association of Asian Pacific Community Health Organizations), continues to grow and bring hepatitis B coalitions across the country to work together. Today, Hep B United has 27 member coalitions in 22 cities and 17 states, including the District of Columbia. HBF successfully secured a second competitive CDC cooperative agreement for 5 years to help support and build this coalition dedicated to hepatitis B.



- **MAGIC in Haimen City, China**

Over the past six years, HBF has built a comprehensive public health program in Haimen City, China – led by **Gang Chen, MD, PhD, HBF director of China Programs**, with support from **Chari Cohen, DrPH, MPH, HBF director of Public Health** – to address the enormous burden of hepatitis B and liver cancer. The 1st phase of the program included citywide education and free screening events for the 1 million residents. The 2nd phase focused on patient empowerment using the MAGIC model to *motivate* patients, *assess* barriers and problems, *set goals*, have *individuals* create plans, and *check* that goals were met. More than 1,200 patients, who were identified through screenings conducted in phase 1, participated in this project. The findings will be published in 2017. This 5-year Haimen City program was funded in part by BMS Foundation and the Haimen City Center for Disease Control.



- **O'Liver Spotlights Hepatitis Awareness Month**

During May Hepatitis Awareness Month, we organized our 75-member strong *Hep B United Philadelphia* coalition to gather at City Hall to publicize the problem of hepatitis B. In collaboration with the Prevent Cancer Foundation, we hosted a press conference, themed as “*Making the Link Between Hepatitis and Liver Cancer*,” which included expert medical speakers, members of City Council, and student volunteers. Our very own O'Liver mascot participated as well to attract media attention and the public.



Haimen City, China community education and screening

Thanks to You

25 Years of Improving Public Health,

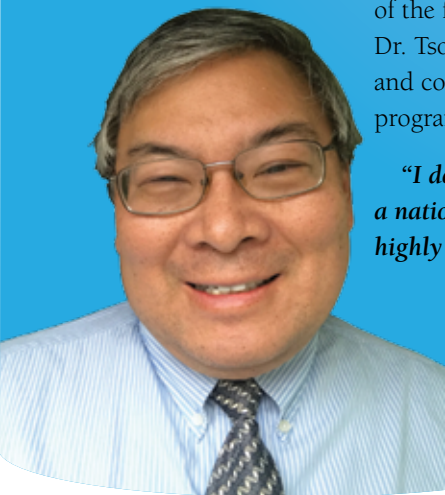
Thanks to Donors like Dr. Walter Tsou

I am very proud of the fact that I get to support some of the world's most brilliant minds in hepatitis by serving on the Board of the Hepatitis B Foundation. It has been a terrific networking and educational opportunity to learn more about the dimensions of hepatitis B and to know that we are at the forefront of finding a cure.

Walter Tsou, MD, MPH, first learned of the Hepatitis B Foundation in 1994 when he was the medical director of the Montgomery County Department of Health. He was introduced by the HBF to parents of children with hepatitis B who shared their heart-wrenching stories of discrimination due to public misunderstandings about hepatitis B. For example, some children weren't allowed to eat at the same tables as others in the school cafeteria. Another child had to sit at the front of the classroom.

As a result of these stories, Dr. Tsou became motivated to conduct a pioneering public health initiative in Montgomery County, PA, which became one of the first counties in the country to organize a hepatitis B immunization 'catch-up' campaign. Dr. Tsou expanded this campaign when he was appointed Philadelphia Health Commissioner, and continued to engage with HBF through the hepatitis B screening and vaccination programs conducted in the city.

"I don't think most people realize how remarkable the Hepatitis B Foundation is from a national perspective. It is the recipient of a very competitive grant from the CDC and is highly respected in the work being done to promote outreach, screening and referral to care."



Our Partnership in Vietnam to End Hepatitis B

Based on our success in China, HBF provided \$25,000 to the Vietnam Viral Hepatitis Alliance (V-VHA), established and led by Doan Dao, MD, to launch a pilot hepatitis B screening and care program in Ho Chi Minh City. With the outstanding results achieved in just one year, V-VHA received another \$300,000 grant to scale up their efforts. HBF is proud to be a partner of this international effort, which involves HBF medical director Robert Gish, MD, who also serves on the board of V-VHA and has been a driving force to address the problem of hepatitis B in Vietnam for almost a decade.

Dr. Robert Gish, HBF medical director (center), Dr. Tim Block, HBF president (left), and Joan Block, HBF executive director (right) were guest speakers at the V-VHA conference in Vietnam (July 2016).



Advocacy Initiatives

Over the past year, the **Hepatitis B Foundation** has led the charge to bring hepatitis B and liver cancer research funding to the forefront of national public health priorities. Our **Double the Federal Funding** initiative aims to bring a loud, strong and visible advocacy presence to Washington, DC to call for doubling the federal investment in hepatitis B and liver cancer at the U.S. National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC).

• Hep B Cure Campaign



Over the last five years, funding for hepatitis B research has declined by almost 16% at the NIH despite the increased global momentum to eliminate hepatitis B. There is the knowledge, the tools and the leadership to make hepatitis B history. So we are mobilizing our supporters for the *Hep B Cure Campaign* to call for doubling the federal funding for hepatitis B research at the NIH to accelerate the pace towards finding a cure. We are also working with community partners to increase funds at the CDC to ensure patients have access to life-saving prevention, screening and care services.

• World Hepatitis Day and Hill Visits

July 28 has been declared *World Hepatitis Day* by the World Health Organization in recognition of the birthday of **Dr. Baruch Blumberg**, who won the Nobel Prize for his discovery of the hepatitis B virus (he also co-founded the HBF). To leverage this important date, the HBF organized visits with more than 50 advocates visiting 25 Congressional offices to share their personal stories and to ask for increased federal attention and funding to address the silent epidemic of hepatitis B.



Hepatitis B Foundation and Hep B United partners make their voices heard on the Hill with more than 50 advocates visiting 25 Congressional offices calling for increased HBV research funding (July 2016).

Thanks to You

25 Years of Investing in Hepatitis B Research Advocacy,

Thanks to Donors like Dr. Raymond Schinazi



Dr. Raymond Schinazi (right) and Nobel Laureate Dr. Baruch Blumberg.

Raymond Schinazi, PhD, DSc, has always been at the forefront of inventing life-saving drugs to solve complex diseases. As a renowned scientist, he has pioneered discoveries for HIV, HBV and HCV. More than 94% of HIV-infected individuals in the U.S. on combination therapy take at least one of the drugs that Dr. Schinazi created. And one of the HIV drugs he invented – lamivudine – was approved as the first oral HBV drug.

Dr. Schinazi has received many international awards for his achievements, which includes the Hepatitis B Foundation's own *Distinguished Blumberg Scientist Award*. He has also served

It's about increasing public awareness about hepatitis B and the need to support research to find permanent solutions rather than band aids. That is what is needed from the NIH.

on our Scientific and Medical Advisory Board for almost two decades. Today, Dr. Schinazi is taking some of his passion for curing diseases and investing in our national advocacy efforts to increase federal funding for HBV research.

As the first major donor to the HBF's new *Hep B Cure Campaign*, Dr. Schinazi believes strongly that more must be done, and can be done, to find a cure and eliminate this deadly virus.

Celebrating Our Silver Jubilee

Thanks to You

THE HEPATITIS B FOUNDATION'S VALUABLE RESEARCH AND OUTREACH PROGRAMS ARE MADE POSSIBLE BY THE COMMITMENT OF DONORS LIKE YOU. WE ARE GRATEFUL TO EVERYONE WHO HAS GENEROUSLY SUPPORTED OUR MISSION THROUGH INDIVIDUAL GIFTS, GRANTS, MATCHING GIFT PROGRAMS, IN-KIND DONATIONS, SPONSORSHIPS, AND PLANNED GIVING. THANK YOU!

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JANUARY - DECEMBER 31, 2016

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Silver Jubilee Milestones



1991
HBF established in
New Hope, PA

1992
Recruited
Nobel Laureate
Dr. Baruch S. Blumberg

1994
Opened first
"HBF Lab" in
Philadelphia, PA

In Memoriam

HBF SCIENTIFIC ADVISOR DR. BUD TENNANT

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■ Current and Former HBF Board Members
+ Scientific and Medical Advisory Board Members
▲ Legacy Society Members



Dr. Bud Tennant (2nd from right) received the 2016 *Baruch S. Blumberg Prize* from HBF president Dr. Timothy Block (far left), HBF vice-chair Dr. W. Thomas London, and Mrs. Jean Blumberg at the annual Crystal Ball (April 2016).

The Hepatitis B Foundation mourns the loss of **Bud C. Tennant, DVM**, a pioneer in developing the woodchuck animal model for the study of hepatitis B, and distinguished member of the HBF's *Scientific and Medical Advisory Board*, who passed away in November 2016. He was the retired *James Law Professor of Comparative Medicine* from the Cornell University, College of Veterinary Medicine. Dr. Tennant leaves an enormous scientific legacy of contributions to advancing the science and medicine of hepatitis B, for which he was publicly recognized with the prestigious *Baruch S. Blumberg Prize* by the HBF at its annual Crystal Ball in April 2016.

Dr. Tennant's work with hepatitis B infection in woodchucks led to the development of the first and only animal model successfully used to definitively identify potential and approved therapeutics for hepatitis B. The woodchuck model he developed was used on nearly every drug licensed by the U.S. FDA for hepatitis B treatment and for most of the new drug candidates in the research pipeline.

1996
Launched
Hepb.org

1998
Built new
HBF labs
in Doylestown, PA

2001
Hosted 1st Annual
Hepatitis B Patient
Conference

2003
Established HBF
research institute

HEPATITIS B FOUNDATION LEGACY SOCIETY

Recognizing donors who have included HBF in their wills or made a planned gift

Timothy & Joan Block
Craig & Janet Esterly
Catharine & Robert Williams
Paul & Janine Witte

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**Thank you to our many In-Kind Donors
who are too numerous to mention.**

We apologize in advance for any errors or omissions in our Donor List despite our best efforts to be as accurate as possible.

Please email editor@hepb.org or call (215) 489-4900 so that we can print corrections in our next newsletter. Thank you for understanding.

Thanks to You

25 Years and Looking to the Future,

Thanks to Donors like Craig and Jan

“We first learned about the Hepatitis B Foundation through our doctor who referred us to them because we were seeking advice on behalf of a loved one with hepatitis B. Little did we know that the organization was brand new at the time – nearly 25 years ago.”

Craig and Jan became regular donors of the HBF, giving generously every year since 1995 as they relied on the advice and counsel about new research developments and treatment options. Two years ago, Craig added the HBF board to the list of many boards on which he serves because he has been impressed with the compassion of the staff, the quality of research, and the modest overhead of the organization.

When the opportunity arose to start a planned giving program, Craig and Jan spearheaded the effort.



“We are very happy to participate in the HBF Legacy Society, knowing that after our departure our money will be put to good use finding the cure and advocating for those who are still affected by hepatitis B. We invite others to join us as founding members of the HBF Legacy Society to provide a secure financial base for the Foundation.”

All people who notify us that they have named us in their will before June 30, 2017 will become Founding Members of the Hepatitis B Foundation Legacy Society. For more information, please contact us at info@hepb.org or call (215) 489-4900. Thank you!

2006

**Received \$7.9 million
state award to build our
PA Biotech Center**

2009

**Discovered and licensed
novel liver cancer
biomarkers**

2011

**Initiated 5-year
public health campaign
in Haimen City, China**

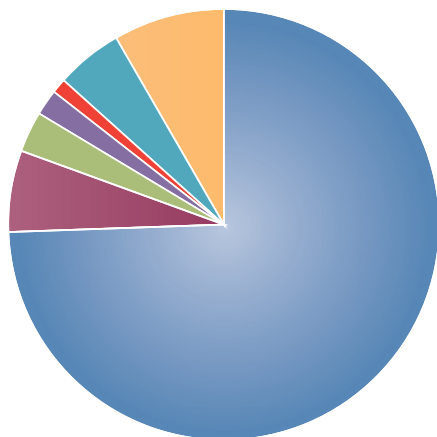
2012

**Created
Hep B United
national coalition**

Year In Review + Financial Information*

COMBINED HEPATITIS B FOUNDATION
& BARUCH S. BLUMBERG INSTITUTE**

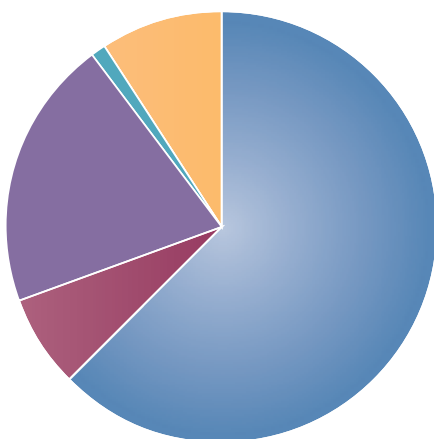
FOR THE FISCAL YEAR ENDED JUNE 30, 2016



Sources of Funds

- Grants **74%** (\$5,434,320)
- Charitable contributions **6%** (\$473,579)
- Natural Products Institute **3%** (\$247,019)
- Special events **1%** (\$93,197)
- International HBV Meeting **5%** (\$354,001)
- Management fees for biotech center **3%** (\$180,000)
- Other revenue **8%** (\$590,304)
- Investment income **<1%** (\$25,419)

TOTAL REVENUE \$7,397,839



Uses of Funds

- Research **62%** (\$4,372,781)
- Outreach, Public Health, Advocacy **8%** (\$516,599)
- General and Administrative **20%** (\$1,428,917)
- Development **1%** (\$36,815)
- Rent and Depreciation **9%** (\$658,445)

TOTAL EXPENSE \$7,013,557

*The financial information presented above does not include the activity from Hepatitis B Foundation's 50% interest in the net assets of the Pennsylvania Biotechnology Center. On June 30, 2016, this interest was valued at, based on the equity method of accounting, approximately \$3.367 million per the audited Statement of Financial Position of the Hepatitis B Foundation. The Pennsylvania Biotechnology Center was established by the Hepatitis B Foundation in 2006 and is managed by the Baruch S. Blumberg Institute.

**Baruch S. Blumberg Institute is the research institute established by the Hepatitis B Foundation in 2003 to fulfill its research mission.

The financial information in this report was prepared by management and presented in condensed form from the financial statements of the Hepatitis B Foundation and the Baruch S. Blumberg Institute, audited by EisnerAmper, LLP for the year ended June 30, 2016. A copy of each financial statement is available upon request.

2013

Advocated successfully for HBV to be protected under the Americans with Disabilities Act

2014

Celebrated renaming of our Baruch S. Blumberg Institute to honor HBF co-founder

2015

Raised \$3 million to recruit new scientists to our Blumberg Institute

2016

Launched Hep B Cure Campaign ... to make hepatitis B history!



Hepatitis B Foundation

Baruch S. Blumberg Institute

The Hepatitis B Foundation and its Baruch S. Blumberg Institute are the nation's leading nonprofit research and disease advocacy organizations dedicated to finding a cure and improving the quality of life for those affected by hepatitis B worldwide. The Hepatitis B Foundation was founded in 1991, and established the Baruch S. Blumberg Institute in 2003 to fulfill its research mission.

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Baruch S. Blumberg, MD, DPhil
Nobel Laureate (2011)

Bud Tennant, DVM (2016)

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