- XDR-TD - MILESTORIES DELIVE MILE AFFORDATILITY - ADOPTION - Access MDR-TB **Faster, Better TB Cure** 

# **Next Steps Now**

Preparing the World for Rapid Uptake of a



## TB ALLIANCE

GLOBAL ALLIANCE FOR TB DRUG DEVELOPMENT

2005/06 Annual Report





# 1. meet the need

Developing new TB regimens designed with patients in mind.

The current TB drug regimen, a product of the best scientific advances of the 1960s, works for active, drug-susceptible TB — as long as patients complete the six- to nine-month treatment. The problem is, many do not or cannot. The regimen, a four-drug combination taken under daily monitoring by healthcare workers, simply is not user-friendly. Patients often feel better after the first month and stop the burdensome treatment. Non-compliance has led to the emergence of multi- and extremely drug resistant TB strains that defy current medicines.

With few financial incentives, no new TB drugs have been developed for decades. Until now. At the TB Alliance, our mission — to develop powerful, patient-centric, new anti-TB drug regimens — focuses on both ease of use and speed to cure. Modernizing and simplifying TB treatment also means ensuring that the new TB regimens can be safely administered with antiretrovirals (ARVs) for HIV, so the 12 million people who are co-infected can take both treatments simultaneously.

Today, we have the scientific know-how to radically reduce duration, doses and number of pills — minimizing the impact of treatment on patients' daily lives. TB treatment will require multiple drugs to prevent the emergence of drug resistance, but we can make it much shorter and easier to take, and we can reduce side effects. While the near-term goal is to cut treatment to just two months, ultimately, we aim to develop a TB treatment in a fixed dose combination with a duration as short as that for typical bacterial infections: ten days or less.

The infrastructure necessary for today's TB treatment—with its extensive monitoring requirements—represents the bulk of the cost of treating TB patients. The world spends about \$4 billion annually to reach less than half of those with active TB. Reducing the current six-month regimen to two months could save up to 65% of those expenses, making it possible to reach more patients while significantly lightening the enormous burden on healthcare systems in developing countries.



TB DRUG DEVELOPMENT CONTINUES OUTSIDE OF THE LABORATORY.

# affordability



TB has been with us for millennia in part because it thrives among the poor. To help eradicate TB, the new regimen must be more than just highly effective and easy to use. It must be universally affordable, adopted and accessible (AAA). These principles guide our actions and inform every project at the TB Alliance.

# Ensuring the lowest cost of drug development so that patients in developing countries can afford the new TB regimens.

The TB Alliance works with partners around the world to ensure affordability. We operate as a virtual R&D organization to minimize costs, including overhead and investments in infrastructure, and to optimize the speed of development. The TB Alliance includes consideration for cost-of-goods in the selection of portfolio compounds, giving preference to those that can be easily and cost-effectively synthesized, formulated, and administered. All agreements are structured to curtail costs not related to product development such as licensing fees, milestone payments and royalties, and include upfront pricing considerations. Manufacturing rights and technology transfer provisions are geared to attain the lowest production costs and, whenever appropriate, competition.

# adoption

## access



# Incorporating the novel regimens into the standard treatment protocols worldwide.

Having the right therapy is not enough. It must be embraced by those who set the guidelines for TB treatment at the global, national and local levels. The TB Alliance regularly consults with TB experts and decision makers worldwide. The TB Alliance works with national TB programs and with advocates in high burden countries, as well as with the World Health Organization, the International Union Against Tuberculosis and Lung Disease and the Stop TB Partnership. The TB Alliance serves as the lead agency for the Stop TB Partnership Working Group on New TB Drugs. Engaging such groups at various stages - from compound selection to formulation decisions to clinical trial design helps us accelerate the science and ensure that the new regimen will be adopted.

# Putting the new TB therapies within reach of patients all over the world.

TB is one of the few diseases with a global treatment standard, part of the Directly Observed Treatment, Short-Course (DOTS) strategy. This WHO-recommended program, with 40% coverage worldwide, will help smooth the uptake and distribution of new drugs. We are working to identify ways to leverage DOTS and are exploring appropriate channels to make distribution of the new TB therapy as rapid as possible. Our examination of the go-to-market issues includes a detailed analysis of the global TB drug market and existing drug supply chains. This study is helping us better understand the current channels and the policy issues that will inform the distribution of new TB drugs. A faster, more effective cure will help speed implementation of DOTS and free up healthcare resources so public expenditures go farther, expanding the availability of the best treatments around the world.

# 2.

# understand the pathway to patients

Preparing individual markets to accept and deliver a significantly shorter and better cure.

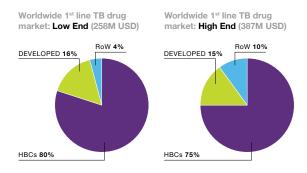
Once we have a better regimen for TB, how prepared is the world to channel it to those in need? At the TB Alliance, we are answering that question now.

The TB Alliance is overseeing a series of studies to analyze the way TB drugs are procured, distributed and delivered in key countries around the world. We are also analyzing the size of the TB drug market, as well as key trends in global healthcare that could impact TB funding and treatment. In 2006, the TB Alliance commissioned IMS Consulting to undertake the first of these studies. This study provides an overview of several highly developed markets, and a detailed analysis of the high burden countries of Brazil, China, India, Indonesia, the Philippines and South Africa. These six high burden countries represent more than 50% of the global TB burden.

This study will give us a clearer understanding of what different patients need in different locales - vital information that will help pave the way for the rapid uptake of new treatments. The goal of the study is to help better understand the role of national TB programs in shaping treatment policy, as well as the respective roles of the public and private sectors in TB treatment and drug supply. While standards are set by national governments, purchase and distribution systems vary dramatically, from entirely governmentcontrolled systems to public-private mixes. Once all these variations and subtleties are fully understood, we can identify how and where to interact. Our goal is to work with all stakeholders to help ensure fast, affordable access, especially for the poor.

The TB Alliance is overseeing a series of studies to analyze the value and volume of TB drug markets around the world.

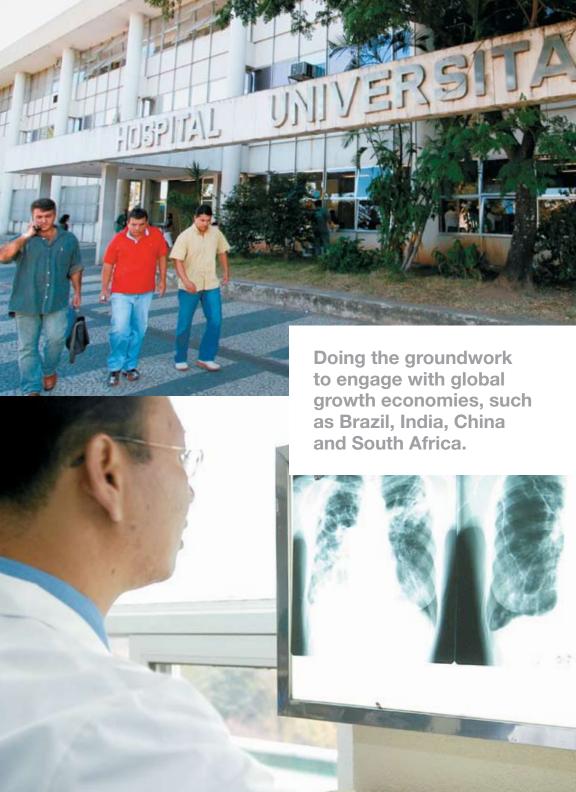
THE WORLDWIDE 1<sup>ST</sup> LINE TB DRUG MARKET RANGES FROM 258M TO 387M USD



TB PATIENTS IN INDIA HAVE A RANGE OF CHOICES OF WHERE THEY CAN RECEIVE TREATMENT



Strategically mapping out procurement channels to facilitate distribution and delivery.





A detailed market analysis is just the beginning. As a catalyst for TB drug development, the TB Alliance works closely with scientists, public health officials and advocates in Brazil, India, China and South Africa.

These countries are home to both high disease burden and high economic growth drivers. These gateway economies are expanding rapidly and driving the agenda for global enterprises looking to the future.

Successful uptake of new TB regimens in these countries will offer important test cases for the rest of the world.



# 3. shorten time-to-market

Leveraging decades of pharmaceutical, academic and governmental expertise, strategists and scientists at the TB Alliance are innovating drug development to accelerate each step of the process.

Our strategies are working, meeting milestones that match or surpass the average timelines for drug development. The TB Alliance and other drug product development partnerships perform better, in terms of cost, efficiency and health improvements, than either industry or public sector drug development efforts alone, according to a recent report by the Wellcome Trust and London School of Economics.<sup>1</sup>

Typical drug research and development still takes a long time — a dozen years or more for a single compound. And given TB's ability to mutate and develop resistance, it will always take a combination of drugs to fight the disease. The world cannot afford to wait for the decades it would take to identify and register potential drugs and then find the ideal combinations of available drugs. Too many lives are at stake right now.

The Alliance is finding ways to dramatically shorten the process of bringing a new TB regimen to the millions in need. These concepts were borne out of years of first-hand knowledge of the drug development, approval and registration process.

#### **Accelerating the Preclinical Phase**

Testing novel drugs in combination — assessing regimens rather than individual medicines — accelerates the process.

Our approach examines compounds with complementary modes of action in the preclinical phase of development. This allows us to generate a blueprint for testing combinations early in the clinical phase. Such an approach could deliver a new regimen in as few as six years — shortening the typical sequential process by a factor of four. The TB Alliance is discussing this strategy with

<sup>1</sup> Moran, M., Ropars, A.L., Guzman, J., Diaz, J., Garrison, C. The new landscape of neglected disease drug development. London School of Economics and Wellcome Trust, 2005





the major regulatory agencies worldwide to receive guidance on the proper processes for clinical testing and regulatory approval of novel regimens.

#### **Shortening Clinical Trials**

Two current TB Alliance projects focus on speeding the front and back ends of the clinical trials process. Patient enrollment typically takes 18 months or more because of the lack of an adequate number of qualified TB clinical research sites. Our goal is to reduce that time to six months or less. To this end, in 2005, we initiated a comprehensive Clinical Site Evaluation Project. We have identified and are in the process of evaluating over fifty potential clinical research sites around the world for their capacity to participate in current Good Clinical Practice (cGCP) trials for TB. The study is also determining the specific investments and support needed to bring them all up to registration-quality.



# Identifying 50 sites to shorten clinical trial patient enrollment from 18 to 6 months.

A Biomarker Project with BG Medicine and Colorado State University seeks to find indicators in the body that tell, early on and with great reliability, whether a new TB drug is working as planned. Biomarkers, such as viral load, revolutionized HIV/AIDS clinical trials. A similar revolution in TB drug development would have a similar impact on TB clinical trials. Currently, it takes 18–24 months after treatment completion to verify that a novel TB drug regimen is truly superior to the conventional therapy. Effective biomarkers could significantly shorten this period of time.

The results of both clinical trial projects will be shared publicly to enhance TB drug development around the world.

# Fast-tracking Approvals and Registration

In anticipation of new TB regimens, the Alliance is already preparing for prompt global adoption. Since very few TB drugs

have been approved in forty years, regulatory guidelines specific to TB drug development are lacking. We are defining country-specific requirements for the registration of new TB regimens, and we are building a coalition of players in both the public and private sectors to advocate for regulatory harmonization. We are also engaging major regulatory authorities such as the Food and Drug Administration and the European Medicines Agency in concrete discussions to develop new guidelines for TB drug registration and approval, and working together to harmonize them with clinical practices. In December 2005, the TB Alliance hosted the first "Open Forum" to review these key regulatory issues, with over 120 participants. The Stop TB Partnership Working Group on New Drugs and the Bill and Melinda Gates Foundation co-organized the event, with support from AstraZeneca.

# 4. build a solid portfolio

Underlying all our strategic initiatives is a robust portfolio of novel compounds with the potential to revolutionize the treatment of tuberculosis.

In a few short years, we have built the largest, most diverse pipeline of potential TB drugs ever assembled: ten new projects in active development with more in discussion.

Working with the best in both the public and private sectors, we collaborate formally with leading university laboratories, large pharmaceutical companies, biotechnology companies and government agencies. Our work is also informed by constant dialogue with other organizations working to develop TB treatments.

The TB Alliance pipeline reflects aggressive scouting around the globe, strict selection criteria and meticulous evaluation and oversight once projects are selected. Our portfolio acquisition strategy also leverages an increasingly fruitful research arena. Today, early discovery work is yielding promising candidates thanks to expanding research funding, such as the 2005 launch of an "accelerator" research effort supported by the Bill and Melinda Gates Foundation.

This program and renewed interest from private laboratories could create a steady stream of new candidates.

Three distinct approaches fuel our pipeline: identifying the most promising molecular targets that can play a role in shortening therapy; researching known antimicrobial classes with demonstrated activity against *M. tuberculosis (M.tb.)*, but not yet optimized to treat TB; and, creating back-up programs that optimize the most advanced drugs now in clinical testing, such as the nitroimidazoles and the quinolones.

All drug candidates in our diverse pipeline also share two critical features: the ability to treat drug resistant disease, including multi- and extremely drug resistant strains (MDR- and XDR-TB), by attacking novel targets; and the ability to be administered in conjunction with ARVs for HIV-infected TB patients. At the clinical stage, all work is geared toward determining the ideal combination of new and existing drugs to shorten therapy.

#### **TB Alliance Portfolio** discovery clinical testing preclinical Nitroimidazole Analogs Nitroimidazole Backup Nitroimidazole PA-824 (University of Auckland/Novartis Compound (Otsuka) (Chiron) Institute for Tropical Diseases/ National Institute of Allergy & Diamine SQ-109 Moxifloxacin Infectious Diseases) (Baver) Nitroimidazole OPC-67683 Quinolones (KRICT/Yonsei University) (Otsuka) Macrolides (University of Illinois at Chicago) InhA Inhibitors (GlaxoSmithKline) **Bacterial Topoisomerase** Inhibitors (GlaxoSmithKline) contracted program Pleuromutilins (GlaxoSmithKline) Focused Screening - 2 Projects (GlaxoSmithKline) Screening and Target Identification (AstraZeneca) Protein Synthesis Inhibitor (Pharma) **Bifunctional Molecules Malate Synthase Inhibitors** (GlaxoSmithKline/ Rockefeller University/Texas A&M) **Protease Inhibitors** (Medivir) Riminophenazines (Institute of Materia Medica/BTRI) Capuromycins **New Targets** (University of Pennsylvania) **Proteasome Inhibitors** (Cornell University)

# 5. raise more capital

The TB Alliance has garnered both political capital and significant project funding from public and private donors. Yet much more is required for a better cure.

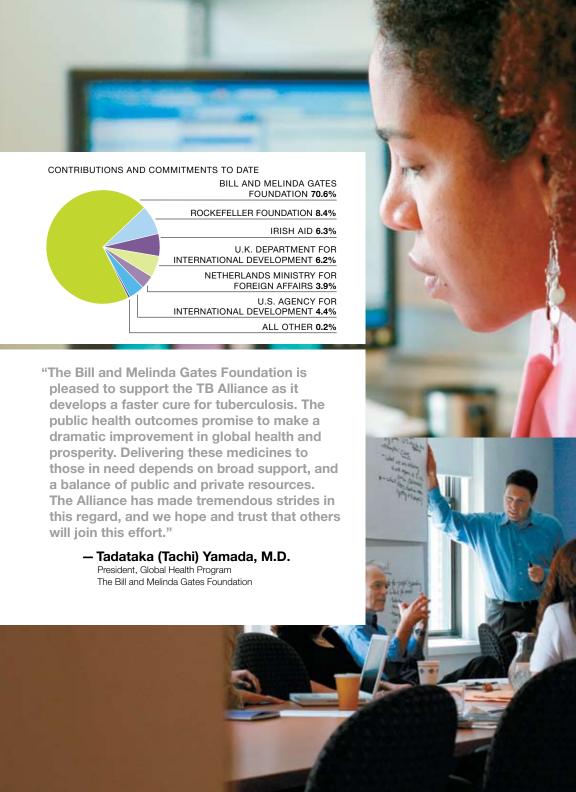
The TB Alliance has raised over \$186 million to date, most notably with the awarding of a second grant from the Bill and Melinda Gates Foundation, and support from the Rockefeller Foundation. The Dutch, the Irish, the United States and the United Kingdom governments have also recognized the importance of a faster cure for tuberculosis with a total of \$38.9 million in contributions. These investments signal the growing public confidence in, and commitment to, moving the science forward and ensuring that new TB regimens reach patients all over the world.

Additional public support will accelerate the pace of the current pipeline and provide the flexibility to identify the next potential breakthrough drugs to sustain a healthy portfolio. Leveraging the funding from the Rockefeller and Gates Foundations, the growing donor pool helps ensure diversified programs and a public-private balance for our mission. Finally, it builds momentum and signals that our efforts have high potential for return.

Political capital and support from key decision-makers is equally critical. In the last several years, the world has been raising TB and TB drug development on its priority action list. Recent international gatherings have endorsed our approach and product profile; attendees have been calling on others to join. At the July 2006 annual meeting, the Group of Eight (G8) industrialized nations endorsed the Global Plan to Stop TB 2006–2015, and praised innovative mechanisms such as the TB Alliance "that promote investment in the research, development and production of drugs for tuberculosis."

At the United Nations' 2006 high-level meeting on AIDS, delegates underscored the importance of new TB medicines that will work with ARVs — a prerequisite for inclusion in the TB Alliance portfolio.

By continuing to raise a combination of both financial and political capital, we are helping to ensure that a faster, better cure quickly reaches those who need it.



We have raised

# \$186 m.

But we need

# more.

We still face a significant funding gap.

### Support is needed to:

- See our current projects through completion, especially Phase III.
- Replenish and expand the TB drug pipeline.
- Fund the science that accelerates drug development.
- Fully understand the barriers to access for the new regimens and to ensure their widescale adoption.

In five years, the TB Alliance has gone from startup to clinical trials. In the next five years, with your help, we intend to cross the critical threshold—putting the first new TB treatments into the hands of patients in need.



Dr. Maria C. Freire CEO and President



Dr. Gijs Elzinga Chairman of the Board

### Dear Friends, Donors and Stakeholders,

The past year has seen many exciting developments that bring new TB drugs much closer to becoming a reality. From novel agreements with multiple partners to substantial financial contributions, we end this year, our fifth of full operations, with great optimism and momentum.

Our product development model is working. We have a robust pipeline of potential new drugs moving forward. Our investments in innovations like biomarkers — with the potential to substantially reduce clinical trial timeframes — are bearing fruit. And our new paradigm of testing multiple compounds in combination regimens is widely supported. In parallel, we have focused our efforts on better understanding market dynamics and distribution systems, to enable fast adoption of novel treatments upon registration.

New funding, in particular more governmental support for TB drug development, is essential to ensure the public-private balance and international buy-in for our programs. We are pleased to report that in 2005 the donor base of the TB Alliance grew substantially. The British and Irish governments joined the Rockefeller Foundation and the governments of the Netherlands and the United States, with generous support for our drug development activities. This diversification demonstrates that the Alliance has the kind of focused and creative problem-solving approach that warrants the trust and investment of sophisticated donors. And, in a record-setting milestone for TB drug development, the TB Alliance received a grant of \$104 million from the Bill and Melinda Gates Foundation. earmarked to rapidly advance the pipeline and accelerate our work on new TB regimens.

New treatments cannot come soon enough. Recently, in the South African province of KwaZulu-Natal, 53 patients were found to have an extremely drug resistant TB strain, or XDR-TB; 52 of these patients died within a month. Their TB was resistant to so many drugs that it was essentially untreatable.

"Extremely drug resistant TB is essentially not treatable," said Dr. Gerald Friedland, an AIDS specialist at Yale who worked in the South African hospital. "We know that there's quite a lot of it out there. We don't know the whole extent, and it is critical that we learn that quickly. And it is certain that we are in desperate need of new drugs now."

Already, cases of this XDR-TB strain have been seen outside of the KwaZulu-Natal area.

In the March 24 issue of *Morbidity and Mortality Weekly*, researchers pointed out that XDR-TB has emerged worldwide as a threat to public health and TB control, raising concerns of a future epidemic of virtually untreatable disease. "With XDR-TB we have very few options left — all we can even try are very old, very ineffective drugs that we stopped using in the '50s and '60s," said Dr. Karin Weyer, director of the TB Unit at the South African Medical Research Council. "For many people, there is no option."

Drug resistant TB will continue to pose a threat, so long as non-resistant TB takes at least six months to treat. A faster, better cure, reliably administered, could minimize the potential for further resistance. On this front, the TB Alliance has made great strides. In a trailblazing agreement with Bayer Healthcare AG (Bayer), we initiated late-stage trials of multi-drug combinations that, if successful, may shorten current TB treatment, with a regimen that could reach patients within the next five years. In this partnership, the Alliance brought together a network of clinical trial partners, to test moxifloxacin for the treatment of TB. This network is supported by the US Centers for Disease Control and Prevention, the US Food and Drug Administration, and

the European and Developing Countries Clinical Trials Partnership, in addition to the TB Alliance. In an unprecedented move, Bayer agreed to test this profitable, proven antibiotic for an indication that primarily affects the poor. Bayer is committed to making moxifloxacin affordable and accessible for TB patients in developing countries, where it is needed most. As part of this effort, the Alliance brought together leading TB clinicians in Europe and the US to standardize protocols, share findings and harmonize sites to current Good Clinical Practice (cGCP) standards. All partners are working together toward a common goal of registering moxifloxacin for TB.

An approved moxifloxacin-based regimen could reduce the current, burdensome TB treatment time by two months. But we must radically reduce the duration of treatment to effectively deal with this persistent. ancient disease. That means considerably more research, with many more compounds, to find potentially better anti-TB drug candidates. Given the high risks inherent in drug development, the pipeline of potential new TB drugs must be continuously replenished, as many compounds may fail to progress. We will continue to formalize agreements with partners and collaborators in the coming year. By applying our paradigm for accelerating the development of new combination regimens

to the new compounds these agreements provide, we will advance our long-term vision of a better, faster TB cure.

This year, the TB Alliance commissioned a study of the drug procurement and distribution processes in selected major markets throughout the world. This is the initiation of an effort to engage high-burden countries — their governments, local industry and advocacy groups — in programs to ensure that new TB regimens can be ethically tested, and, when approved, manufactured, adopted, and made efficiently and affordably accessible. We are most grateful to the country experts that lent their support, knowledge and insight to these studies. In addition, we are working to establish scientific and business collaborations in countries such as China and India. where strong science and biotechnology programs, and a pharmaceutical industry, now exist. Our goal is to have systems ready in every high-burden country, so that an approved TB regimen will get to patients as rapidly as possible.

Even with these advances, we know we cannot feel complacent or comfortable. For this endeavor to succeed, additional support — financial, political and technical — is essential. Phase III clinical trials, the final confirmation of new drug regimens, and by far the most expensive part of the process,

are as yet unfunded. Without new commitments, our momentum could be put on hold. That is an alternative the world, and TB patients, can hardly afford.

"Extremely drug resistant TB is essentially not treatable," said Dr. Gerald Friedland, an AIDS specialist at Yale who worked in the South African hospital. "We know that there's quite a lot of it out there. We don't know the whole extent, and it is critical that we learn that quickly. And it is certain that we are in desperate need of new drugs now."

The TB Alliance was created to revolutionize the treatment of TB, because of the dramatic impact a new treatment will have on global health and prosperity. The Alliance and its partners have made great strides toward that goal. As always, time is of the essence. With the help of our donors, partners and stakeholders, and always with patients in mind, we are doing what it takes: by taking the next steps now.

Mais Amir

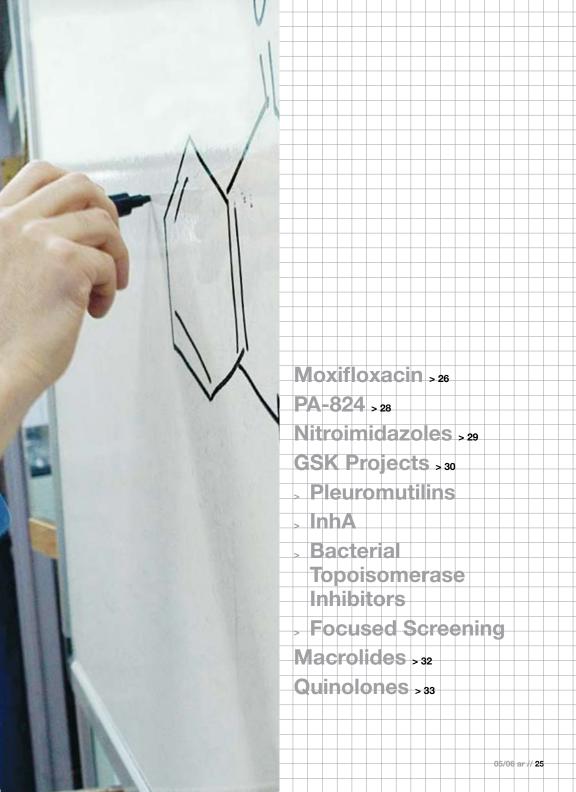
Dr. Maria C. Freire

Chief Executive Officer and President

Zinga

**Dr. Gijs Elzinga**Chairman of the Board





# Moxifloxacin

#### **Phase II Clinical Trials**

#### MOXIFLOXACIN STRUCTURE

In late 2005, a global partnership led by the TB Alliance and Bayer Healthcare AG launched Phase II trials of moxifloxacin, a widely-used Bayer antibiotic for respiratory infections, to test its ability to shorten the standard TB treatment regimen. This pioneering program is one of the first times a major pharmaceutical company has pledged to test an existing and profitable drug for a disease primarily affecting poor people. The TB community has wholeheartedly embraced the potential that moxifloxacin holds for delivering a shorter treatment within the next five years.

Moxifloxacin has a novel mechanism of action that kills *M.tb* by inhibiting DNA gyrase, an enzyme essential for both replication and persistence. Already registered in 104 countries for the treatment of acute respiratory infections, with more than 55 million patient uses worldwide, moxifloxacin's demonstrated safety could help speed the process of registering it for a new indication.

Some of the Phase II trials already completed indicate that substituting moxifloxacin into the standard TB treatment regimen may shorten duration — the first such milestone

#### USING MOXIFLOXACIN FOR TB

- Novel mechanism of action for TB
- May shorten therapy by 2–3 monthsSafe to use with HIV therapy
- Excellent oral bioavailability & long T1/2
- Demonstrated safety record:55 million exposures

for a TB drug in decades. The first Phase II trials substituted moxifloxacin for ethambutol in the standard four-drug combination regimen. Phase II trials substituting it for isoniazid, another of the first line TB drugs, began in early 2006 on four continents. Considerably larger, in terms of number of patients, a Phase II/III trial is slated to begin in early 2007 in several African countries.

This historic clinical program will enroll more than 2,500 patients, and is coordinated through a formal agreement between the TB Alliance and Bayer. Bayer is supplying the drug for free for the clinical trials and will work with the Alliance in the development and regulatory approval of the drug for a TB indication. Dr. Wolfgang Plischke, head of the pharmaceuticals division of Bayer said, "We are interested in bringing a drug into clinical use for TB, and providing it at an affordable manner to patients in need."

Conducting the individual trials are some of the world's leading clinical trial experts: the TB Clinical Trials Consortium of the U.S. Centers for Disease Control and Prevention (CDC), The Johns Hopkins University and the University College, London working

# Science Times

## **Health Fitness**

The New Hork Times

The announcement between the TB Alliance and Bayer to test moxifloxacin generated significant international media attention, including this feature story in the Science Times section of the New York Times, October 18, 2005. This has helped galvanize the community, build awareness of the clinical program, and the potential of historic trials.

# Bayer Offers New Antibiotic With Promise in Fight on TB

By DONALD G. McNEIL Jr.

Dr. Wafaa El-Sadr, who treats tuberculosis patients in central Harlem and in Durban, South Africa, believes that a new drug for tuberculosis is needed "absolutely desperately."

No new medication has been registered for 40 years, she points out. And one of the four drugs she prescribes for new patients clashes with an important H.I.V. drug,

The company hopes to have \$1 billion in annual sales of the drug soon, according to Dr. Wolfgang Plischke, head of Bayer's pharmaceutical division. First marketed in 1999, moxifloxacin the company's heir apparent to ciprofloxacin, a related antibiotic that, sold as Cipro and other names. has earned billions of dollars but its patent will soon expire.

healer holds prescription pills used to used as distributors of such medicines.

Bayer's decision is part of a contract with the Global Alliance for TB Drug Development, a public-private partnership.

with the British Medical Research Council. The logistics of these studies will be supported by a variety of Contract Research Organizations, with funding from the TB Alliance, The TB Alliance's support leverages substantial funding from the CDC, the U.S. Food and Drug Administration Orphan Products Development Center and the European and Developing Countries Clinical Trials Partnership.

Carefully conducted clinical trials are the fastest and safest way to find treatments that work in people. Initial Phase I studies are small, limited tests of the metabolism and pharmacologic actions of drugs in humans, including possible side effects. Phase II expands the research to a larger group of people, and starts to test the effectiveness of the drug. Pivotal Phase III clinical trials require a much larger group of people; they are designed to confirm that benefits outweigh any possible risks, while also providing the information needed for regulatory approval and prescribing.

"As someone who has been working in TB for 12 years, this is one of the most exciting advances I've seen..."

#### Ken Castro, M.D.

Head. Division of TB Elimination. U.S. Centers for Disease Control and Prevention

"Every new drug for TB is precious. That's why what Bayer is doing is so important.

- Wafaa el Sadr, M.D.

Columbia University

# **PA-824**

### **Phase I Clinical Trials**

#### PA-824 STRUCTURE

The first compound in the TB Alliance portfolio, PA-824 is also the first TB drug developed by a not-for-profit to reach clinical trials. In a landmark 2002 agreement with Chiron, now part of Novartis, the TB Alliance received worldwide exclusive rights to PA-824 and its analogs for the treatment of TB, and Chiron pledged to make this technology royalty-free in endemic countries.

preclinical milestones in approximately two years and is now in Phase I clinical development. The Phase I program, conducted through various CROs including the Nebraska-based MDS Pharma

The compound completed all of its

#### PA-824'S POTENTIAL FOR SHORTENING TB THERAPY

- Novel mechanism of action
- Potent activity against slow-growing and active growing *M.tb.*
- Efficacy in initial and continuation phases of therapy
- Combines most effective features of isoniazid and rifampin, two cornerstone drugs

Services, is evaluating the safety, tolerability and pharmacokinetics of single and multiple doses of PA-824 in healthy volunteers. Three Phase I studies have been conducted to date, including a single dose study with radio-labled PA-824 to assess its absorption, distribution, metabolism and excretion in healthy volunteers of both sexes.

Following completion of Phase I studies, the next major milestone for PA-824 development will be a Phase II Early Bactericidal Activity study conducted in adult patients with pulmonary TB to provide proof-of-concept of its efficacy.

# **Nitroimidazoles**

## **Analog Backup Program**

#### NITROIMIDAZOLES STRUCTURE

The novel nitroimidazole class has shown the potential to work well with established drugs to significantly shorten treatment, treat patients with drug resistant disease, treat patients co-infected with TB-HIV and improve the treatment of latent TB. PA-824, which has been in-licensed from Chiron, is a

lead candidate from this class.

over PA-824.

In addition to PA-824, the TB Alliance is pursuing an analog program on several tracks. Working with researchers at the University of Auckland in New Zealand, the Novartis Institute of Tropical Diseases in Singapore and the National Institute of Allergy and Infectious Diseases, the TB Alliance is identifying new closely

related compounds with improved profiles

The analog program has two purposes:
1) assuming that PA-824 will ultimately prove useful, second generation compounds may be even more so; and 2) if PA-824 fails to advance to registration, there may be superior compounds in this class that succeed. The program will identify new chemical structures to advance to lead optimization. The project team has developed a new, commercially viable synthesis that has

produced several synthesized analogs which

have demonstrated potent anti-tuberculosis activity. Further optimization may lead to new

nitroimidazoles with better in vivo activity.

# **Projects with GSK**

The TB Alliance and GlaxoSmithKline are advancing a broad discovery portfolio designed to yield new compounds that attack different targets of *M.tb.* with novel mechanisms of action. GSK maintains an R&D site in Tres Cantos, Spain concentrated on diseases of the developing world (including tuberculosis and malaria), and has dedicated significant resources to this effort. In addition to these four projects, others are in discussion.

#### **Pleuromutilins**

Pleuromutilins, a novel class of antibiotics for TB, inhibit bacterial protein synthesis. Derived from natural products, they have no cross-resistance with other antibiotics and produce resistance very slowly. In the preclinical phase, special attention will be given to improving on the known liabilities of this chemical class, in particular low solubility, low oral bioavailability and rapid clearance. Six hundred pleuromutilin derivatives in the GSK collection have been tested in vitro against M.tb. and leads have already emerged. A number of lead compounds with high potency against replicating M.tb., and with the most promising pharmacokinetics and preliminary toxicity properties, have been prioritized for mouse acute infection efficacy studies.

### InhA

Strong evidence suggests that InhA, an enzyme involved in the synthesis of fatty acids in M.tb., is the primary target of isoniazid, one of the more potent drugs in the existing standard therapy for TB. But isoniazid requires activation. Therefore, compounds that inhibit InhA directly, and by binding to a different site on the enzyme, may be effective against resistant strains. This program has identified lead compounds that inhibit InhA and kill MDR strains, and will optimize them for clinical development. Two new chemical series have been prioritized for further characterization, and more extensive studies have been carried out to improve potency. At this point activity against whole cell M.tb. is low, but the structure-activity relationships at the enzyme level appear tractable. Compounds with potent activity against replicating and non-replicating M.tb. will be

evaluated in animal models for efficacy.



## **Bacterial Topoisomerase Inhibitors**

DNA gyrase, a topoisomerase, is the target for fluoroquinolones such as moxifloxacin and gatifloxacin — both highly active antituberculosis drugs. GSK has made novel DNA gyrase inhibitors that bind outside the gyrase region responsible for quinolone resistance, and that lack cross-resistance with fluoroguinolones. Some of these compounds have already been tested in vitro and found to have potent activity against *M.tb*. Over a hundred compounds with diverse structures were selected for screening against whole-cell *M.tb.*, and a significant subset demonstrated good potency. This project is now in the lead identification stage with a goal of identifying a single lead target series with the appropriate profiles for further optimization.

## **Focused Screening**

This project screens GSK's extensive antimicrobial library for novel compounds with the ability to kill M.tb. The testing selects compounds active against specific molecular targets, including inhibitors of peptide deformylase and electron transport — a process essential for maintaining the cellular membrane and a good target for TB drugs because it governs even dormant bacteria. The electron transport inhibitor program has identified a number of compounds — all menaguinone analogs — that are active against whole-cell *M.tb*. This program is also in the lead identification stage.

# **Macrolides**

## Optimizing an antibiotic for use in TB

#### MACROLIDES STRUCTURE

classes, macrolides are safe, well tolerated and affordable — making them a desirable front-line drug for TB care. Macrolides concentrate in macrophages and accumulate in lung tissues, the locus of active TB disease in humans. Most importantly, macrolides have demonstrated clinical utility and bactericidal activity in infections caused by several

pathogenic and opportunistic mycobacteria

One of the most widely prescribed antibiotic

Macrolides work by inhibiting bacterial ribosomes, and efficacy against M.tb. has been proven. But until the current project, the macrolide class has never been opti-

mized for activity against TB.

in the same genus as M.tb.

The macrolides research program has made significant progress. The starting point was erythromycin, a first generation macrolide commonly used to treat various infections. Subsequently, several positions of the macrolide chemical structure have been modified for improved biological and pharmacological profiles.

With funding from the TB Alliance. researchers at the University of Illinois-Chicago have synthesized more than two hundred macrolide derivatives. Several potent in vitro compounds have been scaled up for in vivo efficacy study in mice. If those compounds demonstrate sufficient antituberculosis activity and safety, they will be advanced into preclinical evaluation.

# Quinolones

# Optimizing a potent class for a breakthrough TB indication

#### **QUINOLONES STRUCTURE**

Antibiotics in the quinolone class — including moxifloxacin — inhibit DNA gyrase, a key target for potential breakthrough drugs for TB. Moxifloxacin, a third generation quinolone compound, is fast approaching

The quinolone class itself, however, has not been extensively optimized for a TB indication, until now.

Phase III clinical trials (see page 26).

indication, until now.

Quinolones, one of the few classes of antimicrobial agents that are totally synthetic in origin, possess many desirable attributes for a first-line therapeutic agent against tuberculosis. These include potent bactericidal activity against *M.tb.*, favorable long-term safety indicators, oral bioavailability and an

Working with TB Alliance support and guidance, researchers at the Korean Research Institute of Chemical Technology and Yonsei University have synthesized

ability to penetrate macrophages.

over six hundred quinolones. They have identified a novel sub-class, known as quinolizinones, with potent activity against *M.tb.* in both its growing and persistent states. These lead compounds are highly active against mycobacteria, and have desirable solubility and pharmacokinetic properties.

Such traits are the result of chemical modifications, focused on a key position in the quinolone molecule known for its effects on antimicrobial potency, pharmacokinetics and safety profiles.

Next steps include actively searching for new structure-activity relationships within these classes of compounds, and scaling up and further evaluating the lead compounds in second- and third-tier biological assays to determine their suitability for clinical evaluation.



Board of Directors of The Global Alliance for TB Drug Development, Inc.

We have audited the accompanying statement of financial position of The Global Alliance for TB Drug Development, Inc. ("TB Alliance") as of December 31, 2005, and the related statements of activities, functional expenses and cash flows for the year then ended. These financial statements are the responsibility of TB Alliance's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the TB Alliance's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant

estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of The Global Alliance for TB Drug Development, Inc. as of December 31, 2005, and the changes in its net assets and its cash flows for the year then ended, in conformity with accounting principles generally accepted in the United States of America.

Information for the year ended December 31, 2004 is presented for comparative purposes only and was extracted from the financial statements of The Global Alliance for TB Drug Development, Inc. for that year, on which we expressed an unqualified opinion, dated April 28, 2005.

BEO Scroman, LLP

April 25, 2006

# **Statement of Financial Position**

(with comparative totals for 2004)

2005	2004
	_
\$ 15,227,673	\$ 12,091,368
142,150	136,225
6,785,816	7,775,000
704,968	69,741
186,365	176,228
262,245	320,534
\$ 23,309,217	\$ 20,569,096
\$ 1,028,194	\$ 482,530
126,345	94,976
12,130	39,659
2,278,165	2,490,632
152,634	109,156
3,597,468	3,216,953
19,711,749	17,352,143
\$ 23,309,217	\$ 20,569,096
	\$ 15,227,673 142,150 6,785,816 704,968 186,365 262,245 \$ 23,309,217 \$ 1,028,194 126,345 12,130 2,278,165 152,634 3,597,468

See accompanying notes to financial statements.

# **Statement of Activities**

(with comparative totals for 2004)

YEAR ENDED DECEMBER 31,	2005	2004
Public Support and other revenue:	(Unrestricted)	
Contributions	\$ 9,095,672	\$ 3,530,472
Grants	3,354,555	329,978
Contibuted services (Note 4)	441,688	674,829
Interest and dividend income	501,527	235,721
Miscellaneous income	12,903	571
Total public support and other revenue	13,406,345	4,771,571
Expenses:		
Program services:		
Research and development	\$ 7,874,983	\$ 5,722,936
Business development	224,656	350,916
Public affairs and policy	1,195,266	1,189,295
Total program services	9,294,905	7,263,147
Supporting services		
Management and general	1,188,344	905,344
Fundraising	287,936	124,070
Total supporting services	1,476,280	1,029,414
Total expenses	10,771,185	8,292,561
Change in net assets before		
foreign translation gain (loss)	2,635,160	(3,520,990)
Foreign translation gain (loss) (Note 2)	(275,554)	168,083
Change in net assets	2,359,606	(3,352,907)
Net assets, beginning of year	17,352,143	20,705,050
Net assets, end of year	\$ 19,711,749	\$ 17,352,143

# **Statement of Cash Flows**

(with comparative totals for 2004)

YEAR ENDED DECEMBER 31,	2005	2004
Cash flows from operating activities:		
Change in net assets	\$ 2,359,606	\$ (3,352,907)
Adjustments to reconcile change in net assets to net cash provided by (used in) operating activities:		
Depreciation and amortization	104,711	82,575
Loss on disposition of fixed assets	-	2,248
(Increase) decrease in assets:		
Restricted cash	(5,925)	(11,138)
Accrued interest	(10,816)	-
Accounts receivable	(635,227)	(69,741)
Other assets	(10,137)	52,176
Increase (decrease) in liabilities:		
Accounts payable and other liabilities	545,664	(150,077)
Accrued payroll and related liabilities	31,369	3,017
Deferred revenue	(212,467)	2,490,632
Deferred rent	43,478	109,156
Net cash provided by (used in) operating activities	2,210,256	(844,059)
Cash flows from investing activities:		
Purchase of investments	-	(10,800,000)
Proceeds from sale of investments	1,000,000	3,025,000
Additions to property and equipment	(46,422)	(268,368)
Net cash provided by (used in) investing activities	953,578	(8,043,368)
Cash flows from financing activities:		
Repayments of capital lease obligation	(27,529)	(25,430)
Net decrease in cash and cash equivalents	3,136,305	(8,912,857)
Cash and cash equivalents, beginning of year	12,091,368	21,004,225
Cash and cash equivalents, end of year	\$ 15,227,673	\$ 12,091,368
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ 2,166	\$ 4,265

See accompanying notes to financial statements.

### **Notes to Financial Statements**

### 1. Organization

The Global Alliance for TB Drug Development, Inc. ("TB Alliance") is a nonprofit organization incorporated on July 24, 2000 under the General Corporation Law of Delaware and authorized to conduct business in New York under the Not-for-Profit Corporation Law of New York. It operates as a not-for-profit, with offices in Brussels, Cape Town and New York.

The TB Alliance was formed to accelerate the development of effective new medicines to treat tuberculosis and ensure their affordability and availability in high-endemic countries.

Advocating for a worldwide mobilization against the TB epidemic through innovative research into new therapeutics, the TB Alliance develops innovative partnerships and involves scientists and researchers globally. It builds a portfolio of promising drug candidates and outsources research and development projects to public and private labs to develop affordable new drugs that will shorten the treatment of tuberculosis, be effective against drug resistant strains and improve treatment of latent infection.

# 2. Summary of Significant Accounting Policies

# (a) Basis of Presentation

The financial statements have been prepared on the accrual basis.

### (b) Financial Statement Presentation

The classification of a not-for-profit organization's net assets and its support, revenue and expenses is based on the existence or absence of donor-imposed restrictions. It requires that the amounts for each of three classes of net assets, permanently restricted, temporarily restricted, and unrestricted, be displayed in a statement of financial position and that the amounts of change in each of those classes of net assets be displayed in a statement of activities.

Income from investment gains and losses, including unrealized gains and losses, dividends, interest and other investments should be reported as

increases (or decreases) in unrestricted net assets unless the use of the income received is limited by donor-imposed restrictions.

These classes are defined as follows:

- (i) Permanently Restricted Net assets resulting from contributions and other inflows of assets whose use by TB Alliance is limited by donor-imposed stipulations that neither expire by passage of time nor can be fulfilled or otherwise removed by actions of TB Alliance.
- (ii) Temporarily Restricted Net assets resulting from contributions and other inflows of assets whose use by TB Alliance is limited by donor-imposed stipulations that either expire by passage of time or can be fulfilled and removed by actions of TB Alliance pursuant to those stipulations. When such stipulations end or are fulfilled, such temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statement of activities.
- (iii) Unrestricted The part of net assets that is neither permanently nor temporarily restricted by donor-imposed stipulations.

# (c) Cash and Cash Equivalents

TB Alliance considers short-term investments with original maturities of three months or less to be cash equivalents.

# (d) Restricted Cash

Restricted cash consists of cash held by banks providing collateral for TB Alliance's leased equipment.

# (e) Investments

Investments are valued at fair value in the statement of financial position. Unrealized gains and losses are included in the statement of activities.

### (f) Depreciation and Amortization

The cost of property and equipment is depreciated over the estimated useful lives of the assets using the straight-line method. Leasehold improvements are amortized over the lesser of the life of the lease or asset. The estimated useful lives of the assets are as follows:

Computer equipment	3 – 5	years
Furniture and equipment	3 – 5	years
Leasehold improvements	5 – 10	years

# (g) Income Taxes

TB Alliance is exempt from Federal and state income taxes under Section 501(c)(3) of the Internal Revenue Code (the "Code") and therefore has made no provision for income taxes in the accompanying financial statements. In addition, TB Alliance has been determined by the Internal Revenue Service not to be a "private foundation" within the meaning of Section 509(a) of the Code. There was no unrelated business income for 2005.

# (h) Contributions and Promises to Give

Contributions and promises to give are recorded as revenue when either unsolicited cash is received or when donors make a promise to give. Contributions and promises to give are classified as either unrestricted, temporarily restricted, or permanently restricted support.

### (i) Contributed Goods and Services

Contributed goods and services are recognized as revenue and expenses if such goods and services meet the criteria for recognition as stated in Statement of Financial Accounting Standards ("SFAS") No. 116, "Accounting for Contributions Received or Contributions Made."

# (j) Program Services

(i) Research and Development — TB Alliance creates and manages a portfolio of new anti-TB drug candidates by identifying, evaluating and acquiring promising molecules from scientific laboratories worldwide and outsourcing their development to appropriate public and private partners. Further, TB Alliance invests in infrastructure research projects that accelerate anti-TB drug development and analyzes existing scientific gaps to address these as part of the overall development strategy.

(ii) Business Development — TB Alliance negotiates, implements and manages agreements with public and private organizations worldwide and does so by adhering to sound business practices while ensuring the public good. Specifically, TB Alliance negotiates terms that support the development and access of new affordable anti-TB drugs equitably to those areas most in need while encouraging the private sector to help develop new medicines for TB indications.

(iii) Public Affairs and Policy — TB Alliance manages critical alliances with public and private organizations to raise awareness about tuberculosis ("TB") and advocate for public and private involvement in research for new anti-TB medicines. It develops landmark studies to support policy developments seeking to accelerate anti-TB drug research and mobilizes networks of researchers and investigators worldwide to focus on the development of these medicines.

# (k) Use of Estimates

In preparing financial statements in conformity with generally accepted accounting principles, management is required to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosures of contingent assets and liabilities at the date of the financial statements and revenues and expenses during the reported period. Actual results could differ from those estimates.

# (I) Comparative Financial Information

The financial statements include certain prior year summarized comparative information. With respect to the statement of activities, the prior year information is presented in total, not by net asset class. With respect to the statement of functional expenses, the prior year expenses are presented by expense classification in total rather than functional category. Such information does not include sufficient detail to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the TB Alliance's financial statements for the year ended December 31, 2004, from which the summarized information was derived.

# (m) Concentration of Credit Risk

Financial instruments which potentially subject TB Alliance to concentration of credit risk consist primarily of temporary cash investments. At various

times during the year, TB Alliance had cash deposits at financial institutions which exceeded the FDIC insurance limit.

# (n) Foreign Currency Translation

All elements of the financial statements reflecting TB Alliance's operations in Brussels are translated into U.S. dollars using applicable exchange rates. For assets and liabilities, this is the rate in effect at the statement of financial position date, with the exception of property and equipment which is measured at the historical rate. For revenue and expense items, translation is performed monthly using the average rate for the month. The exchange rate as of December 31, 2005 was 1.18440 EUR/USD.

Foreign currency is translated in accordance with the provisions of SFAS No. 52, "Foreign Currency Translation". Under the provisions of SFAS No. 52, the local currency used in TB Alliance's foreign operations is considered to be the functional currency of these operations. Translation of the financial statements of these operations resulted in a translation gain as follows:

### **DECEMBER 31, 2005**

Cumulative translation gain adjustment,	
beginning of period	\$ 463,872
Translation adjustment	(275,554)
Cumulative translation gain adjustment,	
end of period	\$ 188,317

The cumulative translation gain is included in unrestricted net assets.

### (o) Reclassifications

Certain prior year balances have been reclassified to conform with the current year's presentation.

### 3. Investments at Fair Value

TB Alliance's cost and fair value of investments are summarized as follows:

DECEMBER 31, 2005	FAIR VALUE	COST
Marketable debt		
securities	\$6,775,000	\$6,775,000

In addition to the above investments, the portfolio included \$10,511,689 of cash and cash equivalents at December 31, 2005.

# 4. Contributed Services

Included in TB Alliance's statement of activities is approximately \$441,688 and \$675,000 for the years ended December 31, 2005 and 2004, respectively, of in-kind contributions which were related to project management costs.

# 5. Property and Equipment, Net

Property and equipment, net, stated at cost, consists of the following:

### **DECEMBER 31, 2004**

Computer equipment	\$ 243,769
Furniture and equipment	198,534
Leasehold improvements	130,855
Total property and equipment	573,158
Less: Accumulated depreciation	
and amortization	(310,913)
Property and equipment, net	\$ 262,245

### 6. Deferred Revenue

In December of 2005, the Department of Development of the Netherlands Ministry of Foreign Affairs ("DDC") approved a seven-month research and development project grant to be used by June 30, 2006. The contract stipulates that any unused funds be returned to the DDC at the expiration of the grant term. As of December 31, 2005, TB Alliance received \$2,278,164 related to the grant. The remaining unspent funds of \$2,278,164 are recorded as deferred revenue as of December 31, 2005.

# 7. Capital Lease Obligation

At December 31, 2005, capital lease obligation consisted of the following:

TB Alliance financed the cost of certain equipment with a lease obligation in various monthly installments of \$2,475 until May 2006, including interest at 7.96%; secured by restricted cash accounts totaling \$136,225 \$ 12,130 Less: Current maturities 12,130

\$

Future minimum lease payments due under these capital lease obligations at December 31, 2005 are as follows:

YEAR ENDING DECEMBER 31,

2006	12,130

### 8. Commitments

TB Alliance has operating lease agreements for office space in New York, Brussels and Cape Town. TB Alliance moved its New York office in March 2004. The Brussels lease agreement expires in November 2009. The Cape Town lease expired in January 2004 and has not yet been renewed.

The following is a schedule of future minimum rental payments under the Brussels and New York operating leases as of December 31, 2005:

### DECEMBER 31.

2006	\$	230,202
2007		223,240
2008		227,704
2009		245,196
2010		254,413
Thereafter	1	1,000,376
	2	2,181,131

TB Alliance has research and development agreements with several research institutions to fund various research and development contracts useful for treatment of TB. The agreements' expiration dates are undeterminable as of December 31, 2005.

The following is a schedule of future minimum research and development payments under the above agreements as of December 31, 2005:

YEAR ENDII	NG DECE	MBER 31,
------------	---------	----------

2006	\$ 4,250,315
2007	2,879,029
2008	500,000
2009	500,000
2010	500,000
Thereafter	500,000
	per year

### 9. Pension Plan

GATB has a 401(k) plan that covers all employees who are age 21 and older. Employees may contribute up to 15% of their pay each pay period. Catchup deferral of up to \$4,000 in 2005 is available for eligible employees 50 years old or older during the plan year. GATB matches 50% of the first 3% of the pay contributed through the employee's salary deferral. Discretionary contributions are also made to the plan. Pension expense was \$109,075 for the year ended December 31, 2005. In January 2006, GATB converted into a 401(k) Safe Harbor Plan.

# Stakeholders The following institutions formally pledged to accelerate the development of TB drugs. They advise, guide and support the efforts of the TB Alliance:

American Lung Association

American Thoracic Society

Association of the British Pharmaceutical

Industry

Bangladesh Rural Advancement

Committee

Bill and Melinda Gates Foundation

European Commission

Global Business Coalition

on HIV/AIDS

Global Forum for Health Research

Global Fund to Fight AIDS. TB and Malaria

International Union Against Tuberculosis and

Lung Disease

Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association

KNCV Tuberculosis Foundation

Lupin Laboratories

Médecins Sans Frontières-Doctors Without Borders

Medical Research Council of South Africa

National Institute of Allergy and Infectious Diseases,

National Institutes of Health

National Institute of Pharmaceutical Education

and Research, India

New Jersey Medical School Global Tuberculosis Institute Novartis India, Ltd

Partners in Health

Philippines Coalition Against Tuberculosis

RTI International

**RESULTS** 

Rockefeller Foundation

Sequella Foundation

Stop TB Partnership

TB Alert

Treatment Action Group

Tropical Disease Foundation

U.K. Department for International

Development

UNDP-World Bank-WHO Special

Programme for Research and Training in

Tropical Diseases

U.S. Agency for International

Development

U.S. Centers for Disease Control

and Prevention

Wellcome Trust

World Bank

World Health Organization

# Scientific Advisory Committee Members of the Scientific Advisory Committee provide the TB Alliance with invaluable scientific expertise.

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Imperial College, London

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# Dr. Ramesh Panchagnula

School of Biomedical Sciences, University of Ulster

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Pfizer Inc.

# Recognition of Support The TB Alliance gratefully acknowledges the generosity of the following institutions that provide key funding or in-kind support and expertise:

Bill and Melinda Gates Foundation

Irish Aid

Netherlands Ministry of Foreign Affairs

Rockefeller Foundation

U.K. Department for International Development

U.S. Agency for International Development

Bayer Healthcare

GlaxoSmithKline

RTI International

Stop TB Partnership

U.S. Centers for Disease Control & Prevention

U.S. National Institute of Allergy & Infectious Diseases

# Staff and Consultants

Maria C. Freire, Ph.D. Chief Executive Officer and President

Mel Spigelman, M.D. Director, Research and Development

Bradley Jensen
Director, Finance and
Administration

Nina Schwalbe, M.P.H. Director, Policy

Al Hinman

Director, Communications

Asmita Barve, M.A., M.B.A. Grants Analyst

Ketty Belizaire Clinical Operations Manager

E. Priya Eddy, Ph.D. Project Leader, Research

Serdar Elmali Information Technology and Networking

Permi Gill, M.F.A. Executive Assistant to CEO and President

Ann Ginsberg, M.D., Ph.D. Head of Clinical Development

Ciara Goldstein, M.A. EU Policy Officer

Heather Ignatius, M.A.I.A. Policy Officer

Lon Kaiser Information Technology Help Desk

Martino Laurenzi, M.D., M.P.H. Clinical Research Scientist

Zhenkun Ma, Ph.D. Head of Research

Khisi Mdluli, Ph.D. Project Leader, Research Marie Messina Assistant, Research and Development

Christo van Niekerk, M.D. Clinical Research Scientist

Raisa Medina
Junior Accountant

Ingrid Payne
Finance and Administration
Specialist

Doris Rouse, Ph.D. Portfolio Project Manager

Gerald J. Siuta, Ph.D. Business Development

Stephanie Seidel Assistant, Policy

Brad Tytel, M.A. Communications Specialist

Karen M. Wright Senior Advisor

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President, TB Alliance Stakeholders Association, Board Member, Philippines Coalition Against Tuberculosis

The Global Alliance for TB Drug Development is a not-for-profit, tax-exempt organization recognized under section 501(c)(3) of the United States Revenue Code; contributions are tax-deductible in the United States. Its Belgium branch office was also registered in the Annex of the Belgian State Gazette for non-profit organizations on February 28, 2002.

For inquiries, please contact the New York office: Global Alliance for TB Drug Development, 80 Broad Street, 31st Floor, New York, NY 10004



