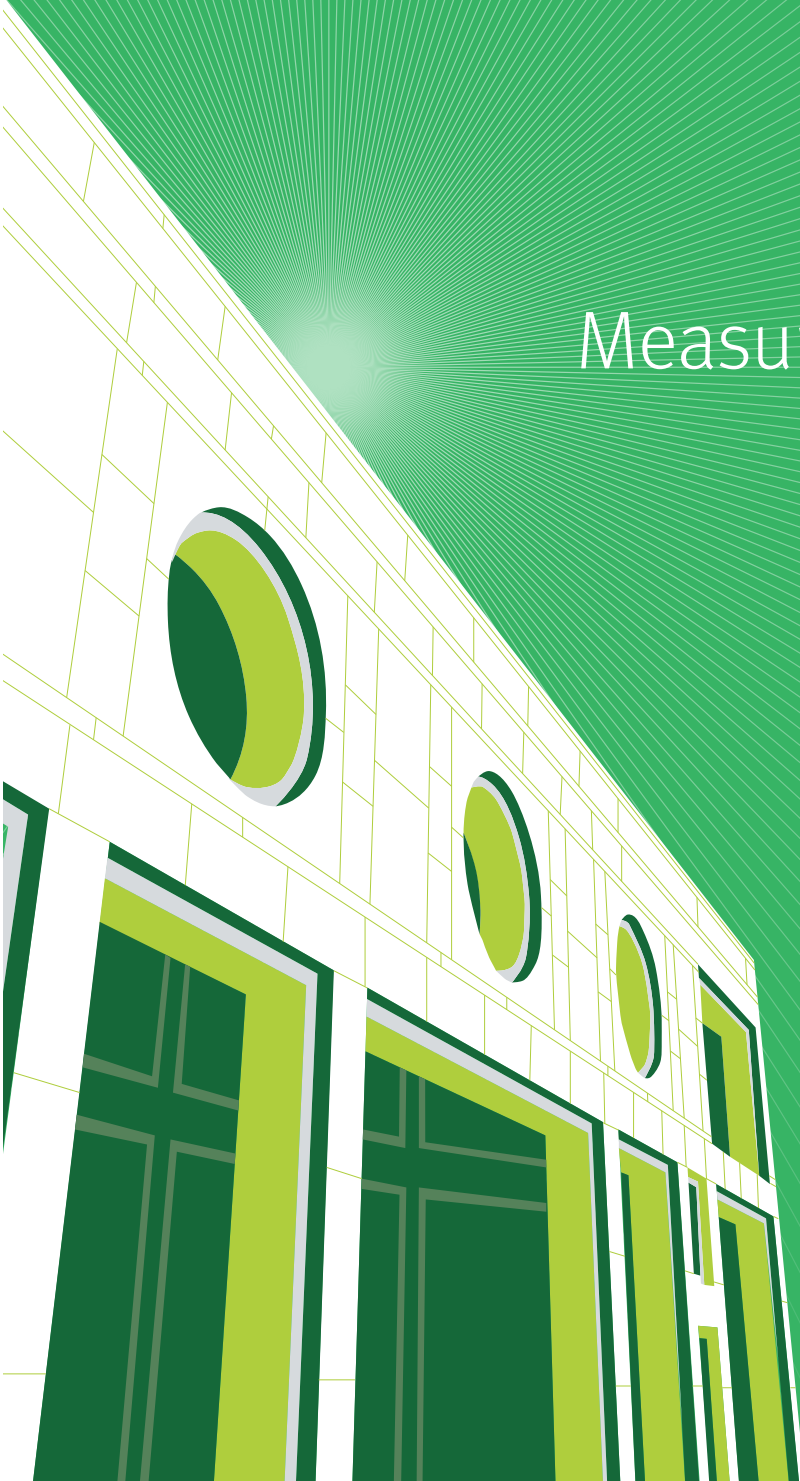


BURROUGHS
WELLCOME
FUND 

Measuring Success

2018 ANNUAL REPORT



Grant Programs

BIOMEDICAL SCIENCES

Career Awards for Medical Scientists:

Five-year awards for physician-scientists provide \$700,000 to bridge advanced postdoctoral/fellowship training and the early years of faculty service. This award addresses the on-going challenge of increasing the number of physician-scientists and will help facilitate the transition to a career in research.

Collaborative Research Travel Grants:

Provide up to \$15,000 in support for interdisciplinary biomedical researchers from degree-granting institutions to travel to a laboratory to acquire a new research technique or to facilitate collaboration.

Physician-Scientist Institutional

Program: Supports institutional programs designed to increase the number of MD's who enter careers in research (physician-scientists). Up to 10 institutions will receive awards of \$2.5 million (\$500,000/year over 5 years) to institute their proposed activities.

CAREER GUIDANCE

Career Guidance for Trainees: Provides up to \$50,000 over a one-year period to support demonstration projects that will model affordable approaches to improving trainees' readiness for stable, fulfilling careers.

DIVERSITY IN SCIENCE

Postdoctoral Enrichment Program:

Provides \$60,000 over three years to support the development of underrepresented minority postdoctoral fellows in biomedical research.

INFECTIOUS DISEASES

Investigators in the Pathogenesis of

Infectious Disease: Five-year awards provide \$500,000 to support accomplished investigators at the assistant professor level in the study of infectious disease pathogenesis, with a focus on the intersection of human and microbial biology. The program aims to improve our understanding of how human hosts handle infectious challenges.

INTERFACES IN SCIENCE

Career Awards at the Scientific Interface:

Five-year awards provide \$500,000 to bridge advanced postdoctoral training and the early years of faculty service. These awards are intended to foster the early career development of researchers with backgrounds in the physical/mathematical/computational/engineering sciences whose work addresses biological questions.

REGULATORY SCIENCE

Innovation in Regulatory Science Awards:

Provides up to \$500,000 over five years to academic investigators developing new methodologies or innovative approaches in regulatory science that will ultimately inform regulatory decisions.

REPRODUCTIVE SCIENCE

Preterm Birth Initiative: \$500,000 over a four-year period to bring together a diverse interdisciplinary group within the more traditional areas of parturition research to address the myriad questions related to preterm birth.

SCIENCE EDUCATION

Career Awards for Science and

Mathematics Teachers: Five-year awards provide \$175,000 each to eligible science or mathematics teachers in the North Carolina's public primary and secondary public schools. This award recognizes teachers who have demonstrated solid knowledge of science or mathematics content and have outstanding performance records in educating children. The award is a partnership between the North Carolina State Board of Education and BWF.

Student STEM Enrichment Program:

Three-year awards provide up to \$180,000 to North Carolina nonprofit organizations, including public/private schools, universities, colleges, and museums. This program supports creative inquiry-based STEM enrichment activities that occur outside the typical school day for K-12 students. The program's goals are to nurture students' enthusiasm for science and mathematics, expose them to the excitement of scientific discovery, and interest them in pursuing careers in research or other science-related areas.

Promoting Innovation in Science and

Mathematics: Awards up to \$4,500 provide teachers with funding for materials, equipment, and training to conduct hands-on, inquiry-based science and mathematics projects in the North Carolina public schools.

For complete program information, including deadlines, please visit bwfund.org



Interfaces in Science
(\$6.45 million)



Infectious Diseases
(\$7.31 million)



Biomedical Sciences
(\$23.55 million)

President's Message

Each year I highlight the successes of the Burroughs Wellcome Fund, mentioning the great early career scientists we support in training and research, the educational opportunities we provide for the young people of in North Carolina, and the institutional and scientific policies we have advanced by supporting key initiatives in underfunded areas of science.

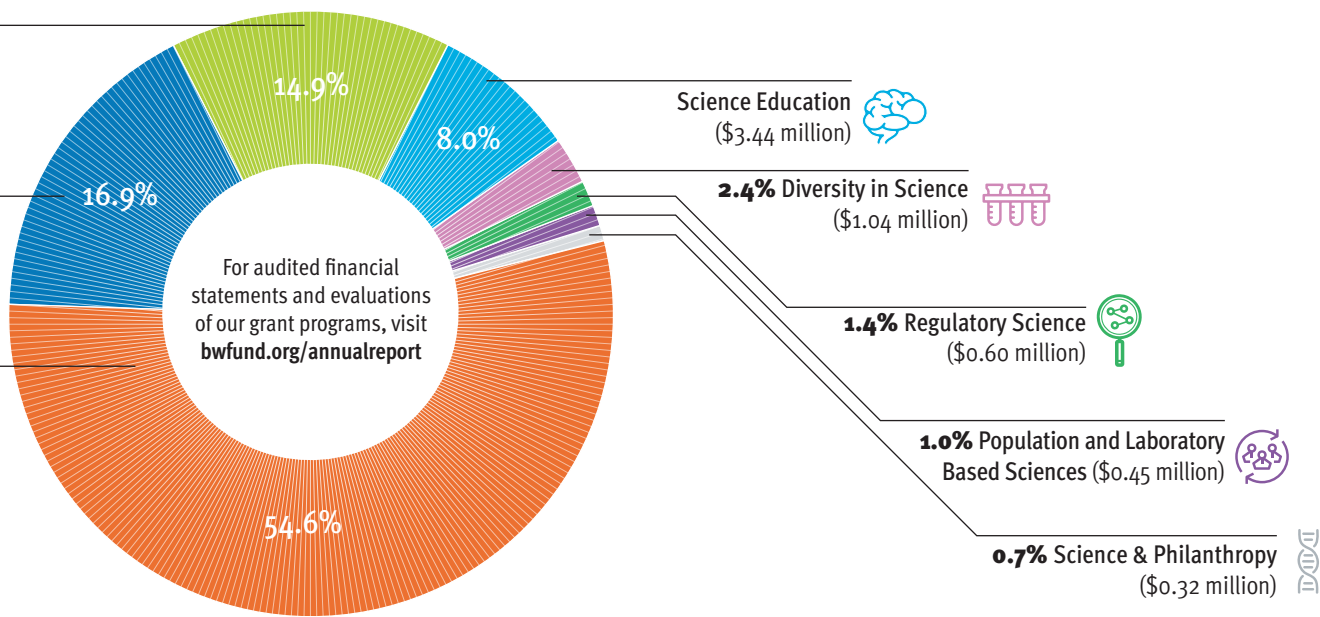


I am confident of the importance of what we, as a private foundation, do and will continue to do. The challenge that many foundations face is to prove our positive outcomes in a scientific and statistically valid fashion. At the Fund we have thus begun a careful examination of the outcomes of our grant funding programs to see if we are fulfilling our mission to advance biomedical research and education.

In developing such proof, we need a control group against which to measure the successes/failures of our awardees. Finding such as control has never been easy, but we now have several possibilities. Our initial results are based on publications and their impacts, grants, promotions, and awards and we find that we are funding individuals who outperform the controls. While we have done a careful examination for a few of our programs, much work remains to determine the success of our investments. We also continue to look at what we should consider success, what should we measure as outcomes? How are we defining success? What does success look like? I am certain that as we refine these criteria, we will strengthen the validity of our controls.

In measuring our impact in STEM education at the K-12 levels, it is even more difficult to determine success. Not only do we not have controls, we do not have the long-term longitudinal data on the program participants, most of whom we only have contact with during the actual program activity. We have, though, measured changes in attitudes toward science as well as improved science understanding by the young people in the program in pre- and post- programmatic surveys. Here we see greatly increased enthusiasm from the beginning to the end of the program, as well as a greater understanding of STEM material. We will continue to





BWF awarded more than \$43 million in grants during fiscal year 2018

refine our measures, but because of the short-term contact with most of these young people we may never be able to show that the programs have a long-term impact on career choices or appreciation of science. I am content to know that we may have planted a seed for a love of STEM regardless of career choice.

Last year I introduced you to a new institutional program designed to increase the number of MD-only physician-scientists. We made our first five awards and are pleased with the excitement and activity that was generated around the award, so much so that we are running a second award cycle to make five more \$2.5 million awards. The long-term outcome of this program — more physician-scientists — is straightforward, but that outcome is still many years in the future. We need to assess short-term outcomes to determine whether the grants are making a difference and if adjustments are needed. Here measurements have been built into the programs that range from number of individuals in the program to research residencies and fellowships to participant feedback to provide an interim idea of how the programs are proceeding and the short-term outcomes.

Although private foundations and voluntary health organizations provide less than 10% of funding for biomedical research, the

recent government shutdown highlighted again the importance of the relative stability of our funding. It also demonstrated how the flexible risk capital of the Fund provides the opportunity for our scientists to try exciting and innovative research, free from the politics that can surround Federal funding.

Although the comments of our awardees are difficult to quantify, the almost universal appreciation and testimonials from them that our funding and support and networking opportunities have made, and are continuing to make, a difference in their careers clearly demonstrates to me that even when we don't have the perfect control or know precisely how to measure an outcome, the Burroughs Wellcome Fund is on the right track in fulfilling its mission of advancing biomedical research and education.

John E. Burris, PhD
President
Burroughs Wellcome Fund

Fiscal Year 2018 Major Competitive Grant Awardees

CAREER AWARDS AT THE SCIENTIFIC INTERFACE

Gozde Durmus, DPhil, PhD
Stanford University

Kirsten L. Frieda, PhD
California Institute of Technology

Walter Gabriel Gonzalez, PhD
California Institute of Technology

Brandon Helfield, PhD
University of Toronto

Daniel R. Hochbaum, PhD
Harvard Medical School

Chiamaka Denise Okafor, PhD
Emory University

Nicolas Christian Pegard, PhD
University of California-Berkeley

Calin Plesa, PhD
University of California-Los Angeles

Silvia Rouskin, PhD
Massachusetts Institute of Technology

Geoffrey Schiebinger, PhD
Massachusetts Institute of Technology

Shahrazad Yazdi, PhD
Massachusetts Institute of Technology

CAREER AWARDS FOR MEDICAL SCIENTISTS

Samuel F. Bakhom, MD, PhD
Memorial Sloan-Kettering Cancer Center

Elizabeth Joyce Bhoj, MD, PhD
University of Pennsylvania

Hsiao-Tuan Chao, MD, PhD
Baylor College of Medicine

Keira Alexis Cohen, MD
Johns Hopkins University School of Medicine

John Gordan, MD, PhD
University of California-San Francisco

Sarah Emily Henrickson, MD, PhD
University of Pennsylvania

Benjamin Izar, MD, PhD
Harvard Medical School

Corrine RaShelle Kliment, MD, PhD
Johns Hopkins University

Albert Russell Powers, MD, PhD
Yale University School of Medicine

Deepak Angara Rao, MD, PhD
Harvard Medical School

Ansuman Satpathy, MD, PhD
Stanford University

Mark A Sellmyer, MD, PhD
University of Pennsylvania

Tanya Sippy, MD, PhD
New York University

CAREER GUIDANCE FOR TRAINEES

American Society for Pharmacology and Experimental Therapeutics

Boston University

Clemson University

Iowa State University

Ohio State University

Western Ontario University

Vanderbilt University

INVESTIGATORS IN THE PATHOGENESIS OF INFECTIOUS DISEASE

Jan E. Carette, Ph.D.
Stanford University

James J. Collins, Ph.D.
University of Texas Southwestern Medical Center-Dallas

Jorge Henao-Mejia, M.D., Ph.D.
University of Pennsylvania Perelman School of Medicine

Ivan Marazzi, Ph.D.
Icahn School of Medicine at Mount Sinai

John-Demian Sauer, Ph.D.
University of Wisconsin-Madison

Aimee Shen, Ph.D.
Tufts University School of Medicine

Michael Shiloh, M.D., Ph.D.
University of Texas Southwestern Medical Center-Dallas

Gregory F. Sonnenberg, Ph.D.
Weill Medical College of Cornell University

Peter J. Turnbaugh, Ph.D.
University of California-San Francisco

David Veesler, Ph.D.
University of Washington

Gabriel D. Victora, Ph.D.
Rockefeller University

Sebastian E. Winter, Ph.D.
University of Texas Southwestern Medical Center-Dallas

POSTDOCTORAL ENRICHMENT PROGRAM

Oscar Alberto Aguilar, PhD
University of California-San Francisco

Kylie Ariel Bemis, PhD
Northeastern University

Oscar Carrasco-Zevallos, PhD
Massachusetts Institute of Technology

Sabena Conley, PhD
Mayo Clinic-Rochester

D’Juan Tyree Farmer, PhD
University of Southern California

Tikvah Katheryn Hayes, PhD
Harvard University

Bobby Brooke Herrera, PhD
Harvard Medical School

Frankie Darryn Heyward, PhD
Harvard Medical School

Francisco Jose Luongo, PhD
California Institute of Technology

Melanie R. McReynolds, PhD
Princeton University

Sean N. Natoli, PhD
University of California-Berkeley

Justin Shaun Arnold Perry, PhD
University of Virginia

Elizabeth Marie Ransey, PhD
Duke University

Naima Gabriela Sharaf, PhD
California Institute of Technology

Michael Frederick Wells, PhD
Harvard University

Kimberly Sade Williams, PhD
University of Pennsylvania

PHYSICIAN-SCIENTIST INSTITUTIONAL AWARD

Duke University Medical Center

Stanford University

University of Pittsburgh

University of Texas Southwestern Medical Center

Vanderbilt University

STUDENT STEM ENRICHMENT PROGRAM

Alamance Community College

Digi-Bridge, Inc.

East Carolina University

Elizabeth City State University

North Carolina State University

Orange County Schools

Pfeiffer University

SouthEastern Regional Vision for Education

University of North Carolina-Pembroke

Wake Forest University School of Medicine

The Burroughs Wellcome Fund is an independent private foundation dedicated to advancing the biomedical sciences by supporting research and other scientific and educational activities. Within this broad mission, BWF seeks to accomplish two primary goals—to help scientists early in their careers develop as independent investigators and to advance fields in the basic biomedical sciences that are undervalued or in need of particular encouragement.

BWF's financial support is channeled primarily through competitive peer-reviewed award programs to degree-granting institutions in the U.S. and Canada on behalf of individual researchers. To complement these competitive award programs, BWF also makes grants to nonprofit organizations conducting activities intended to improve the general environment for science.

BWF believes that a diverse scientific workforce is essential to the process and advancement of research innovation, academic discovery, and public service.

Governed by a Board of Directors composed of distinguished scientists and business leaders, BWF was founded in 1955 as the corporate foundation of the pharmaceutical firm Burroughs Wellcome Co. In 1993, a generous gift from the Wellcome Trust, enabled BWF to become fully independent from the company, which was acquired by Glaxo in 1995.



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