



# **TRAINING SCIENTISTS TO MAKE THE RIGHT MOVES**

**A Practical Guide to Developing Programs  
in Scientific Management**

**Burroughs Wellcome Fund  
Howard Hughes Medical Institute**



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**Burroughs Wellcome Fund**  
Research Triangle Park, North Carolina

**Howard Hughes Medical Institute**  
Chevy Chase, Maryland

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Project Developers: Maryrose Franko, Ph.D., and Martin Ionescu-Pioggia, Ph.D.  
Editor: Laura Bonetta, Ph.D.  
Managing Editor: Patricia Davenport  
Production Manager: Dean Trackman  
Designer: Raw Sienna Digital  
Writer: Barbara Shapiro  
Copyeditors: Cay Butler and Kathleen Savory

Burroughs Wellcome Fund  
21 T.W. Alexander Drive  
P.O. Box 13901  
Research Triangle Park, North Carolina  
27709-3901  
<http://www.bwfund.org>

Howard Hughes Medical Institute  
4000 Jones Bridge Road  
Chevy Chase, Maryland 20815-6789  
<http://www.hhmi.org>



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# PREFACE

In July 2002, the Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI), two leading philanthropies that support scientific research and education, held an intensive three-and-a-half-day course in scientific management for about 130 senior postdoctoral fellows and newly appointed faculty who had received research training or career development grants from these organizations. BWF and HHMI developed the course because they thought it was vitally important that these beginning scientists receive some formal training in preparing for their new roles as managers of independent research laboratories. Sessions dealt with an array of competencies—including job negotiation, grantsmanship, laboratory leadership, time management, data management, publishing, and mentoring—that could be broadly characterized as “scientific management” skills.

The course drew highly favorable feedback from the participants. To reach a wider audience, BWF and HHMI adapted the session content into a manual titled *Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty* and made it freely available in both a hard-copy version and online at <http://www.hhmi.org/labmanagement>. Guided by evaluation findings, BWF and HHMI revised some elements of the original course and presented a retooled version in June 2005.

Both organizations recognized, however, that even their pooled resources could not meet the enormous need for this type of training. From this realization grew an idea to invest in a different approach—a program to train “trainers” and potentially multiply the impact. HHMI and BWF formed the Partners in Scientific Management Program by inviting representatives of academic institutions and professional societies interested in improving the training of early-career research scientists to apply to help plan the 2005 BWF-HHMI course and to attend and critique the course itself. In exchange, applicants pledged to stage training events in scientific management suitable for their own constituencies, ranging from workshops at professional society meetings to full-blown programs in a university setting. Representatives of the partner organizations (see page xiii, “Contributors”) also participated in the development of this guide by sharing their experiences in organizing their training events, contributing materials, and reviewing manuscript drafts.

This guide, which distills the collective wisdom of the partners, BWF and HHMI course organizers, and others with extensive experience in scientific management training, is a companion to *Making the Right Moves*. *Making the Right Moves* is about concrete course content—what participants ultimately see and hear. This guide is about the discrete steps involved in course planning and follow-up—the behind-the-scenes activities that are invisible to participants but essential to a successful training event.

BWF and HHMI believe that training in scientific management should be available to all researchers early in their careers. *Making the Right Moves* and *Training Scientists to Make the Right Moves: A Practical Guide to Developing Programs in Scientific Management* were devised to help anyone who takes on the important task of providing such training to the next generation of biomedical researchers.

**Enriqueta C. Bond, Ph.D.**

*President*

Burroughs Wellcome Fund

**Thomas R. Cech, Ph.D.**

*President*

Howard Hughes Medical Institute

**Peter J. Bruns, Ph.D.**

*Vice President*

Grants and Special Programs

Howard Hughes Medical Institute



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HHMI’s Dean Trackman managed the production process, Cay Butler and Kathleen Savory provided additional editorial support, and Adam Newton and Catherine Newton (Raw Sienna Digital) designed the guide.





# CONTRIBUTORS

## **BWF-HHMI Partners in Scientific Management: Partner Organizations and Their Representatives**

### **American Physiological Society**

Bethesda, Maryland

Melinda E. Lowy

Coordinator, Higher Education Programs

American Physiological Society

### **American Society for Microbiology**

Washington, D.C.

Amy L. Chang

Director, Education Department

American Society for Microbiology

### **American Society of Plant Biologists**

Rockville, Maryland

Crispin B. Taylor, Ph.D.

Executive Director

American Society of Plant Biologists

Mary L. Tierney, Ph.D.

Associate Professor, Department of Botany

University of Vermont

Burlington, Vermont

### **Association for Academic Surgery**

New Brunswick, New Jersey

Siobhan A. Corbett, M.D.

Associate Professor, Department of Surgery

UMDNJ–Robert Wood Johnson Medical School

New Brunswick, New Jersey

### **Medical College of Wisconsin**

Milwaukee, Wisconsin

Philip S. Clifford, Ph.D.

Associate Dean for Postdoctoral Education

Professor of Anesthesiology and Physiology

Medical College of Wisconsin

**National Postdoctoral Association**

Washington, D.C.

Alyson Reed

Executive Director

National Postdoctoral Association

**Northwestern University**

Evanston, Illinois

Holly J. Falk-Krzesinski, Ph.D.

Executive Director, Office for Research Coordination

Office for Research

Northwestern University

**Sigma Xi, The Scientific Research Society**

Research Triangle Park, North Carolina

Jenny Zilaro

Manager, Education Programs

Sigma Xi, The Scientific Research Society

**Society for Developmental Biology**

Bethesda, Maryland

Ida Chow, Ph.D.

Executive Officer

Society for Development Biology

**Thomas Jefferson University**

Philadelphia, Pennsylvania

Lisa M. Kozlowski, Ph.D.

Assistant Dean for Postdoctoral Affairs and Recruitment

Jefferson College of Graduate Studies

Thomas Jefferson University

**University of California–Davis**

Davis, California

John C. Galland, Ph.D.

Director, Laboratory Management Institute

Office of Research

University of California–Davis

**University of California–Riverside**

Riverside, California

Linda L. Walling, Ph.D.

Associate Dean of Biological Sciences

Professor of Genetics

College of Agricultural and Natural Sciences

University of California–Riverside

**University of California–San Francisco**

San Francisco, California

Samara L. Reck-Peterson, Ph.D.  
Director, Postdoctoral Education  
University of California–San Francisco

**University of Cincinnati and Cincinnati Children’s  
Research Foundation**

Cincinnati, Ohio

Sandra J. Degen, Ph.D.  
Vice President for Research  
Associate Chair and Professor of Pediatrics  
University of Cincinnati and Cincinnati Children’s  
Research Foundation

**University of Missouri**

Columbia, Missouri

Karen L. Bennett, Ph.D.  
Associate Professor, Department of Molecular  
Microbiology and Immunology  
University of Missouri

**University of Pittsburgh School of Medicine**

Pittsburgh, Pennsylvania

Joan M. Lakoski, Ph.D.  
Assistant Vice Chancellor for Academic Career  
Development, Health Sciences  
Associate Dean for Postdoctoral Education and  
Professor of Pharmacology  
University of Pittsburgh School of Medicine

**Additional Contributors**

Laura Bonetta, Ph.D.  
Coordinator, BWF-HHMI Course in Scientific Management  
Garrett Park, Maryland

Emily Brownold  
Manager, Meeting Services  
Howard Hughes Medical Institute  
Chevy Chase, Maryland

Paul Corona, Ed.D.  
Director, Training and Development  
Northwestern University  
Evanston, Illinois



Maryrose E. Franko, Ph.D.  
Senior Program Officer  
Office of Grants and Special Programs  
Howard Hughes Medical Institute  
Chevy Chase, Maryland

Martin Ionescu-Pioggia, Ph.D.  
Senior Program Officer  
Burroughs Wellcome Fund  
Research Triangle Park, North Carolina

Krystyna R. Isaacs, Ph.D.  
Program Development and Evaluation Consultant  
Coppell, Texas

Irene V. Hulede  
Manager, Student Programs  
American Society for Microbiology  
Washington, D.C.

Anh-Chi Le, Ph.D.  
Program Officer  
Office of Grants and Special Programs  
Howard Hughes Medical Institute  
Chevy Chase, Maryland

Bill Lindstaedt  
Director, Career and Professional Development  
University of California–San Francisco  
San Francisco, California

Victoria McGovern, Ph.D.  
Senior Program Officer  
Burroughs Wellcome Fund  
Research Triangle Park, North Carolina

Rolly L. Simpson Jr.  
Senior Program Associate  
Burroughs Wellcome Fund  
Research Triangle Park, North Carolina

Melanie V. Sinche  
Director, Office of Postdoctoral Services  
University of North Carolina–Chapel Hill  
Chapel Hill, North Carolina

Leslie K. Sprunger, D.V.M., Ph.D.  
Assistant Professor, College of Veterinary Medicine  
Washington State University  
Pullman, Washington

Andrea L. Stith, Ph.D.  
Program Officer  
Office of Grants and Special Programs  
Howard Hughes Medical Institute  
Chevy Chase, Maryland

Nancy S. Sung, Ph.D.  
Senior Program Officer  
Burroughs Wellcome Fund  
Research Triangle Park, North Carolina

Darlene F. Zellers  
Director, Academic Career Development in the Health Sciences  
University of Pittsburgh Schools of the Health Sciences  
Pittsburgh, Pennsylvania

Barbara L. Ziff  
Senior Program Officer  
Office of Grants and Special Programs  
Howard Hughes Medical Institute  
Chevy Chase, Maryland





# INTRODUCTION

Preparing postdoctoral fellows and new faculty to be successful managers of research programs is the collective responsibility of universities, professional societies, and funders of science. *Training Scientists to Make the Right Moves: A Practical Guide to Developing Programs in Scientific Management* was created by the Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI) to help you and others interested in improving the training of research scientists.

This guide presents a menu of ideas for planning, delivering, and evaluating a multisession training program in scientific management. Of course, many training organizers will opt to hold less complicated events. For that reason, the guide is designed for selective reading. If you want a comprehensive primer, it can take you step by step through all the details. Alternatively, you can use the contents section to pick and choose what you need according to the scope of the training activity you envision and the planning support available to you at your organization. For example, if you are planning a small-scale workshop at your institution with local speakers and participants, you can skip the sections that discuss collaborative partnerships, travel arrangements, overnight accommodations, hotel contracts, and other matters that pertain to a more complex event.

In addition, depending on whether you work for a university or professional society, some sections will have more or less relevance. For example, professional societies often tie training events to existing meetings and their planning staff are more likely to have other staff or contractors to help with logistics, publicity, and budgets. Also note that, depending on your circumstances, some of the steps in the guide can occur simultaneously or in a slightly different order.

In the following pages, you will find a sampler of opinions, suggestions, lessons learned, and descriptions of how others at universities and scientific organizations have creatively used available resources to structure training events for early-career scientists. The chapters capture the experiences of faculty and staff representing the organizations that compose the BWF-HHMI Partners in Scientific Management. In this program, representatives from academic institutions and scientific professional societies helped plan and then attended and critiqued the 2005 BWF-HHMI Course in Scientific Management. The partners also agreed to hold training events in scientific management suitable for their own constituencies. In addition to input from the partners, the guide reflects the experiences of other program planners who are committed to helping beginning scientists become successful. Staff from BWF and HHMI who developed the joint course in scientific management also contributed their perspectives.

The first few chapters cover early-planning activities and decisions that are crucial for the ultimate success of a training program. “Getting Started: Deciding Whom to Train and What They Should Learn” includes sections on identifying your target audience, setting goals and objectives, and selecting topics. “Obtaining Support and Assembling a Planning Team” offers advice on making the case for training to your organization’s leadership, finding people to help you organize your program, and working with them in a collegial and productive fashion. “Deciding What, When, and Where” reviews factors to consider in selecting a date and location for the training. “Developing a Budget and Getting the Funds Together” offers guidance on determining costs and securing additional funding.

Building on decisions made in the starting phase, the next few chapters narrow the focus from the big picture to its components. “Fine-Tuning the Agenda” delves into the details of deciding what content to cover, as well as the sessions’ format and length. “Finding and Working with Speakers” offers advice on securing knowledgeable and engaging speakers and working with them to deliver the information that your trainees need. “Recruiting and Registering Participants” contains strategies for publicizing a training event and handling the registration process.

As the day of the event approaches, “Making It Happen” will walk you through the nitty-gritty of meeting logistics (e.g., travel and accommodations, food, room setup and audiovisual equipment, and handouts). “Evaluating the Training” makes the case for follow-up assessment: A thoughtful evaluation can tell you how well you met the goals you set for the training and pinpoint how future activities might be improved. Tips on developing evaluation tools and working with professional evaluators are included.

The appendixes contain a case study of the two BWF-HHMI courses in scientific management, which shows how the lessons learned from the 2002 course shaped the course held in 2005. Included are abstracts of the 2005 course sessions and a summary of the postcourse evaluations.

In addition to the printed guide, a resources section is available online at <http://www.hhmi.org/labmanagement>. Here, you will find a detailed version of the BWF-HHMI courses case study, as well as a variety of materials from the 2005 BWF-HHMI course and training events developed by others, such as letters, forms, checklists, and case-study examples. They are offered as samples that you can adapt to your needs and time-savers to free up more of your attention for the specifics of your own training activities.

Note that nothing in this guide is presented as a required protocol or a way to guarantee success. Some options will be feasible for you and your organization; others will not be. A range of ideas and resources is provided as a starting point to help you form your own judgments and develop your own materials—a template for designing a training event that will help beginning scientists launch their careers better equipped to meet the leadership challenges ahead.