

## Nih R01 Guidelines

Fostering Integrity in Research  
An Assessment of the SBIR Program at the National Institutes of Health  
Grant Application Writer's Handbook  
Final Environmental Impact Statement on NIH Guidelines for Research Involving Recombinant DNA Molecules  
The Grant Application Writer's Handbook  
The Human Microbiome, Diet, and Health  
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Genes, Behavior, and the Social Environment  
Structural Biology of Membrane Proteins  
Mixed Methods in Health Sciences Research  
Bridges to Independence  
Biofilm Infections

### Fostering Integrity in Research

This updated volume provides insight into health services research, as well as the emerging areas of research and the tools required to perform scientific work. The book covers topics related to performance assessment, quality improvement, health care policy, and career development. New chapters on the evaluation of non-technical skills in surgery, methods of enhancing causal inference in observational studies, and writing scientific manuscripts are also included. Health Services Research aims to give advice on how to obtain National Institutes of Health funding and other grants, as well as breaking through the barriers to developing a career in academic surgery. This book is relevant to surgical residents and young surgical faculty, as well as anyone undertaking a career in academic surgery.

### An Assessment of the SBIR Program at the National Institutes of Health

The National Institutes of Health (NIH) is the primary agency of the United States government responsible for biomedical and public health research. Founded in the late 1870s, NIH has produced extraordinary advances in the treatment of

common and rare diseases and leads the world in biomedical research. It is a critical national resource that plays an important role in supporting national security. The 310-acre Bethesda campus supports some 20,000 employees and contractors, and it contains more than 12 million square feet of facilities divided amongst nearly 100 buildings, including the largest dedicated research hospital in the world. The Bethesda campus supports some of the most sophisticated and groundbreaking biomedical research in the world. However, while some new state-of-the-art buildings have been constructed in recent years, essential maintenance for many facilities and the campus overall has been consistently deferred for many years. The deteriorating condition of NIH's built environment is now putting its ability to fulfill its mission at substantial risk. Managing the NIH Bethesda Campus's Capital Assets for Success in a Highly Competitive Global Biomedical Research Environment identifies the facilities in greatest need of repair on the Bethesda campus and evaluates cost estimates to determine what investment is needed for the NIH to successfully accomplish its mission going forward.

### **Grant Application Writer's Handbook**

A rising median age at which PhDs receive their first research grant from the National Institutes of Health (NIH) is among the factors forcing academic biomedical researchers to spend longer periods of time before they can set their own research directions and establish their independence. The fear that promising prospective scientists will choose other career paths has raised concerns about the future of biomedical research in the United States. At the request of NIH, the National Academies conducted a study on ways to address these issues. The report recommends that NIH make fostering independence of biomedical researchers an agencywide goal, and that it take steps to provide postdocs and early-career investigators with more financial support for their own research, improve postdoc mentoring and establish programs for new investigators and staff scientists among other mechanisms.

### **Final Environmental Impact Statement on NIH Guidelines for Research Involving Recombinant DNA Molecules**

### **The Grant Application Writer's Handbook**

As the drug abuse epidemic evolves, so do the tools needed to understand and treat it. Accordingly, *Epidemiology of Drug Abuse* takes the long view, cogently outlining what the book calls "the natural history of drug abuse" and redefining its complex phenomena to reflect our present-day knowledge. Twenty-six eminent contributors discuss the state and future of the field, balancing the practical concerns involved in gathering drug abuse data with the ethics of using the information. - Current thinking on pathways and etiology, as well as medical, psychological, and social sequelae of drug abuse - Proven,

up-to-date methodologies for assessment - Challenges of gathering data from high-risk and other user populations - Sampling and application issues - Uses, sources, and limitations of treatment data - Analytical papers applying the methodologies to specific and global studies - The role of epidemiology studies in developing prevention strategies With this multifaceted approach to the subject, *Epidemiology of Drug Abuse* provides researchers and educators with a reference that sheds significant light on infrequently covered areas. In addition, its breadth and accessibility of coverage make it a teaching text suitable to courses in epidemiology, public health, and drug abuse.

### **The Human Microbiome, Diet, and Health**

### **The Journal of NIH Research**

This book will cover both the evidence for biofilms in many chronic bacterial infections as well as the problems facing these infections such as diagnostics and treatment regimes. A still increasing interest and emphasis on the sessile bacterial lifestyle biofilms has been seen since it was realized that that less than 0.1% of the total microbial biomass lives in the planktonic mode of growth. The term was coined in 1978 by Costerton et al. who defined the term biofilm for the first time. In 1993 the American Society for Microbiology (ASM) recognised that the biofilm mode of growth was relevant to microbiology. Lately many articles have been published on the clinical implications of bacterial biofilms. Both original articles and reviews concerning the biofilm problem are available.

### **Writing Dissertation and Grant Proposals**

In the last few years there have been many exciting and innovative developments in the field of membrane protein structure and this trend is set to continue. *Structural Biology of Membrane Proteins* is a new monograph covering a wide range of topics with contributions from leading experts in the field. The book is split into three sections: the first discusses topics such as expression, purification and crystallisation; the second covers characterisation techniques and the final section looks at new protein structures. The book will hence have wide appeal to researchers working in and around the field and provide an up-to-date reference source. Introductory sections to each topic are accompanied by more detailed discussions for the more experienced biochemist. Detailed descriptions of experimental methods are included to demonstrate practical approaches to membrane protein structure projects. The book also offers an up-to-date reference source in addition to descriptions of new and emerging developments, including state-of-the-art techniques for solving membrane protein structures. *Structural Biology of Membrane Proteins* encompasses both basic introductions and detailed descriptions of themes and should appeal to a wide range of biochemical scientists, both experienced and beginner.

## **Final Environmental Impact Statement on NIH Guidelines for Research Involving Recombinant DNA Molecules: Appendices**

This updated second edition of *Acute Ischemic Stroke: Imaging and Intervention* provides a comprehensive account of the state of the art in the diagnosis and treatment of acute ischemic stroke. The basic format of the first edition has been retained, with sections on fundamentals such as pathophysiology and causes, imaging techniques and interventions. However, each chapter has been revised to reflect the important recent progress in advanced neuroimaging and the use of interventional tools. In addition, a new chapter is included on the classification instruments for ischemic stroke and their use in predicting outcomes and therapeutic triage. All of the authors are internationally recognized experts and members of the interdisciplinary stroke team at the Massachusetts General Hospital and Harvard Medical School. The text is supported by numerous informative illustrations, and ease of reference is ensured through the inclusion of suitable tables. This book will serve as a unique source of up-to-date information for neurologists, emergency physicians, radiologists and other health care providers who care for the patient with acute ischemic stroke.

## **Health Services Research**

*Mixed Methods in Health Sciences Research: A Practical Primer*, by Leslie Curry and Marcella Nunez-Smith, presents key theories, concepts, and approaches in an accessible way. Packed with illustrations from the health sciences literature, this ready-to-use guidebook shows readers how to design, conduct, review, and use mixed methods research findings. Helpful checklists, figures, tables, templates, and much more give readers examples that will elevate the quality of their research, facilitate communication about their methods, and improve efficiency over the course of their projects. Real-world examples and insights from mixed methods researchers provide unique perspectives on every aspect of mixed methods research. This book successfully pulls together foundational mixed methods principles, synthesizes the knowledge base in the field, and translates it for a health science researcher audience. “The content is highly applicable to real life research teams in the areas of clinical research, health services research, and implementation science, providing sound content and practical advice. The authors have synthesized and pull key concepts from a variety of sources to provide a concise resource.” —Linda M. Herrick, South Dakota State University “Everything from the references, to the topics, checklists, conceptual graphic representations, and organizers, interviews, and resources, all contribute to the content and aid with understanding and/or application. ... It addresses specific MM research as it pertains to health sciences in a way that other texts just do not even attempt.” —Denise L. Winsor, University of Memphis “[This text is] a very pragmatic approach to mixed methods research; excellent resources, tables, and figures [are] provided, along with cases and examples of value to researchers and grant reviewers. Its relevance to practice, education, and research, as well as to potential policy implications, is a strong focus that would make this a valued textbook for any researcher!” ? —Karen Devereaux Melillo, University of

Massachusetts Lowell “The text is cutting edge. It leads the way with its focus on team dynamics. [The authors] succeed in making the book relevant and practical. They also articulate a number of key insights in the area of mixed methods that rarely get addressed, such as teams and conflict. Great read with a lot of good, practical information for mixed methods researchers at all levels. The practical approach of this text makes it an innovative and valuable resource.” —John G. Schumacher, University of Maryland

### **NIH R01 Grant Expert Writing Skills**

The advice in this book is useful for many types of grant applications, business plans, journal articles, and research reports.

### **The Chemistry of Health**

Discusses how to plan and develop a grant proposal, what reviewers look for in applications, and covers recent changes at National Institutes of Health (NIH) and the National Science Foundation (NSF). Also includes information on private foundation proposals.

### **Getting Funded**

Written by well-respected editors with proven success in grant writing, this book will provide comprehensive advice on how to build a successful grant proposal, from the top down and from the bottom up. The book provides advice on planning, executing, submitting, and revising grant proposals in order to maximize their chances of success. Features:

- Explores general strategies and tactics including laying the groundwork, follow-up, attracting colleagues to participate, revisions, and resubmissions
- Examines key mistakes that grant-proposers often make and offers suggestions for how to avoid them
- Includes tips for writing specific proposal for various agencies

### **Mixed Methods Research**

Guide to Effective Grant Writing: How to Write a Successful NIH Grant is written to help the 100,000+ post-graduate students and professionals who need to write effective proposals for grants. There is little or no formal teaching about the process of writing grants for NIH, and many grant applications are rejected due to poor writing and weak formulation of ideas. Procuring grant funding is the central key to survival for any academic researcher in the biological sciences; thus, being able to write a proposal that effectively illustrates one's ideas is essential. Covering all aspects of the proposal process, from the most basic questions about form and style to the task of seeking funding, this volume offers clear advice

backed up with excellent examples. Included are a number of specimen proposals to help shed light on the important issues surrounding the writing of proposals. The Guide is a clear, straight-forward, and reader-friendly tool. Guide to Effective Grant Writing: How to Write a Successful NIH Grant Writing is based on Dr. Yang's extensive experience serving on NIH grant review panels; it covers the common mistakes and problems he routinely witnesses while reviewing grants.

### **Acute Ischemic Stroke**

The integrity of knowledge that emerges from research is based on individual and collective adherence to core values of objectivity, honesty, openness, fairness, accountability, and stewardship. Integrity in science means that the organizations in which research is conducted encourage those involved to exemplify these values in every step of the research process. Understanding the dynamics that support " or distort " practices that uphold the integrity of research by all participants ensures that the research enterprise advances knowledge. The 1992 report Responsible Science: Ensuring the Integrity of the Research Process evaluated issues related to scientific responsibility and the conduct of research. It provided a valuable service in describing and analyzing a very complicated set of issues, and has served as a crucial basis for thinking about research integrity for more than two decades. However, as experience has accumulated with various forms of research misconduct, detrimental research practices, and other forms of misconduct, as subsequent empirical research has revealed more about the nature of scientific misconduct, and because technological and social changes have altered the environment in which science is conducted, it is clear that the framework established more than two decades ago needs to be updated. Responsible Science served as a valuable benchmark to set the context for this most recent analysis and to help guide the committee's thought process. Fostering Integrity in Research identifies best practices in research and recommends practical options for discouraging and addressing research misconduct and detrimental research practices.

### **Autophagy**

Life comes in many shapes and sizes! Do you know what the differences are between plants and animals? Learn about these differences and the role of genetics in the structures of life. See science at work in the real world and use what you learn to identify a fossil you have found! Includes a note to caregivers, a glossary, a discover activity, and career connections, as well as connections to science history.

### **Multimodal Brain Image Analysis**

Competition for research funds in epidemiology, preventative medicine, and biostatistics has never been more intense and,

at the same time, the grant application and review process at such agencies as the National Institutes of Health (NIH) is undergoing significant transformation. *Writing Dissertation and Grant Proposals: Epidemiology, Preventive Medicine and Biostatistics* targets effective grant proposal writing in this highly competitive and evolving environment. Covering all aspects of the proposal writing process, the text: Provides summary checklists and step-by-step guidelines for grant structure and style alongside broader strategies for developing a research funding portfolio Explains how to avoid common errors and pitfalls, supplying critical do's and don'ts that aid in writing solid grant proposals Demonstrates proven tactics and illustrates key concepts with extensive examples from successfully funded proposals Written by an established NIH reviewer with inside knowledge and an impressive track record of funding, *Writing Dissertation and Grant Proposals: Epidemiology, Preventive Medicine and Biostatistics* is a virtual cookbook of the appropriate ingredients needed to construct a winning grant proposal. Therefore, the text is not only relevant for early-stage investigators including graduate students, medical students/residents, and postdoctoral fellows, but also valuable for experienced faculty, clinicians, epidemiologists, and health professionals who cannot seem to break the barrier to obtain NIH-funded research.

### **Intervention Research**

*Designing Clinical Research* sets the standard for providing a practical guide to planning, tabulating, formulating, and implementing clinical research, with an easy-to-read, uncomplicated presentation. This edition incorporates current research methodology—including molecular and genetic clinical research—and offers an updated syllabus for conducting a clinical research workshop. Emphasis is on common sense as the main ingredient of good science. The book explains how to choose well-focused research questions and details the steps through all the elements of study design, data collection, quality assurance, and basic grant-writing. All chapters have been thoroughly revised, updated, and made more user-friendly.

### **Beyond Common Sense**

Jones and Bartlett offers this set of videos which records a seminar presented by Dr. Liane Reif-Lehrer on the psychology and mechanics of successful grant writing. In these videos, Dr. Reif-Lehrer presents topics critical for successfully completing the grant application process including: understanding the review process and the reviewer, planning, and writing the research plan, and how to clearly communicate within the grant application itself. Dr. Reif-Lehrer provides an inside perspective as she reviews administrative information about the application process, and practical guidelines for outlining, drafting, and editing the grant application. Important details about funding agencies such as the NIH and NSF and what their reviewers look for are highlighted. These videos are an excellent investment for grant offices, libraries, and every department actively working on grants. They provide an ideal training course for research associates.

## **Acute Care Surgery**

Guide to Effective Grant Writing: How to Write a Successful NIH Grant, 2nd edition is a fully updated follow-up to the popular original. It is written to help the 100,000+ post-graduate students and professionals who need to write effective proposals for grants. There is little or no formal teaching about the process of writing grants for NIH, and many grant applications are rejected due to poor writing and weak formulation of ideas. Procuring grant funding is the central key to survival for any academic researcher in the biological sciences; thus, being able to write a proposal that effectively illustrates one's ideas is essential. Covering all aspects of the proposal process, from the most basic questions about form and style to the task of seeking funding, this volume offers clear advice backed up with excellent examples. Included are a number of specimen proposals to help shed light on the important issues surrounding the writing of proposals. The Guide is a clear, straight-forward, and reader-friendly tool. Guide to Effective Grant Writing: How to Write a Successful NIH Grant Writing is based on Dr. Yang's extensive experience serving on NIH grant review panels; it covers the common mistakes and problems he routinely witnesses while reviewing grants.

## **A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant**

The concept of postdoctoral training came to science and engineering about a century ago. Since the 1960s, the performance of research in the United States has increasingly relied on these recent PhDs who work on a full-time, but on a temporary basis, to gain additional research experience in preparation for a professional research career. Such experiences are increasingly seen as central to careers in research, but for many, the postdoctoral experience falls short of expectations. Some postdocs indicate that they have not received the recognition, standing or compensation that is commensurate with their experience and skills. Is this the case? If so, how can the postdoctoral experience be enhanced for the over 40,000 individuals who hold these positions at university, government, and industry laboratories? This new book offers its assessment of the postdoctoral experience and provides principles, action points, and recommendations for enhancing that experience.

## **Research Training in the Biomedical, Behavioral, and Clinical Research Sciences**

## **The Next Generation of Biomedical and Behavioral Sciences Researchers**

The Food Forum convened a public workshop on February 22-23, 2012, to explore current and emerging knowledge of the human microbiome, its role in human health, its interaction with the diet, and the translation of new research findings into

tools and products that improve the nutritional quality of the food supply. The Human Microbiome, Diet, and Health: Workshop Summary summarizes the presentations and discussions that took place during the workshop. Over the two day workshop, several themes covered included: The microbiome is integral to human physiology, health, and disease. The microbiome is arguably the most intimate connection that humans have with their external environment, mostly through diet. Given the emerging nature of research on the microbiome, some important methodology issues might still have to be resolved with respect to undersampling and a lack of causal and mechanistic studies. Dietary interventions intended to have an impact on host biology via their impact on the microbiome are being developed, and the market for these products is seeing tremendous success. However, the current regulatory framework poses challenges to industry interest and investment.

## **The Structures of Life**

This book constitutes the refereed proceedings of the First International Workshop on Multimodal Brain Image Analysis, held in conjunction with MICCAI 2011, in Toronto, Canada, in September 2011. The 15 revised full papers presented together with 4 poster papers were carefully reviewed and selected from 24 submissions. The objective of this workshop is to facilitate advancements in the multimodal brain image analysis field, in terms of analysis methodologies, algorithms, software systems, validation approaches, benchmark datasets, neuroscience, and clinical applications.

## **Enhancing the Postdoctoral Experience for Scientists and Engineers**

Acute Care Surgery is a comprehensive textbook covering the related fields of trauma, critical care, and emergency general surgery. The full spectrum of Acute Care Surgery is expertly addressed, with each chapter highlighting cutting-edge advances in the field and underscoring state-of-the-art management paradigms. In an effort to create the most definitive reference on Acute Care Surgery, an evidence-based approach is emphasized for all content included. Also, notable controversies are discussed in detail often accompanied by data-driven resolutions.

## **Responsible Conduct of Research**

Authors William Gerin, Christine Kapelewski, and Niki L. Page are here to help you secure NIH funding for your research! Writing the NIH Grant Proposal, Third Edition offers hands-on advice that simplifies, demystifies, and takes the fear out of writing a federal grant application. Acting as a virtual mentor, this book provides systematic guidance for every step of the NIH application process, including the administrative details, developing and managing collaborative relationships, budgeting, and building a research team. Helpful hints along the way provide tips from researchers who have received

grants themselves. New to this Edition: Much more user-friendly in response to the updated NIH website Covers the new Application Submission System & Interface for Submission Tracking (ASSIST) online submission form for both single and multiple projects Revamped advice on substantive sections of the proposal to address lowered page allowance Coverage of the new scoring system and reviewer reporting system Coverage of the usage and submission of the new SF 424 forms

## **Research Proposals**

### **Designing Clinical Research**

2012 First Place AJN Book of the Year Award Winner in Nursing Research! "This is a resource for success and should be a part of any researcher's library."--Doody's Medical Reviews This book is a practical, user-friendly guide for health care researchers across multiple disciplines who are involved in intervention research. It provides all of the essential elements needed for understanding how to design, conduct, analyze, and fund intervention studies that are replicable and can withstand the scrutiny of the Institutional Review Board and peer review. Developed from an annual continuing education workshop on intervention studies conducted by Dr. Melnyk, this text is the most comprehensive body of information available on this topic. Contributors address the design of interventions that are ethically considerate and sensitive to culture, race/ethnicity, and gender, minimizing threats to external and internal validity, measurement, and budgeting. The guide explores such implementation issues as subject recruitment and retention, data management, and specialized settings, cost analysis, and explaining intervention effects. The text also guides readers in writing grant applications that fund , and addresses how to move intervention study findings into the real world. A unique addition to the book is the availability of digital examples of progress reports, final reports, and research grant applications that have received funding from the National Institutes of Health and other relevant organizations. This text is a valuable resource for all health care professionals conducting research and for doctoral students in health care studies. Key Features: Presents the essential tools for designing, conducting, analyzing, and funding intervention studies Designed for use by health care professionals conducting intervention research Provides comprehensive, accessible guidelines for doctoral students across all health care disciplines Instructs readers on writing grant applications that fund Includes digital examples of funded research grants, progress reports, and final reports

### **Epidemiology of Drug Abuse**

Comprehensive research and a highly-trained workforce are essential for the improvement of health and health care both nationally and internationally. During the past 40 years the National Research Services Award (NRSA) Program has played a

large role in training the workforce responsible for dramatic advances in the understanding of various diseases and new insights that have led to more effective and targeted therapies. In spite of this program, the difficulty obtaining jobs after the postdoc period has discouraged many domestic students from pursuing graduate postdoc training. In the United States, more than 50 percent of the postdoc workforce is made up of individuals who obtained their Ph.D.s from other countries. Indeed, one can make a strong argument that the influx of highly trained and creative foreigners has contributed greatly to U.S. science over the past 70 years. Research Training in the Biomedical, Behavioral, and Clinical Research Sciences discusses a number of important issues, including: the job prospects for postdocs completing their training; questions about the continued supply of international postdocs in an increasingly competitive world; the need for equal, excellent training for all graduate students who receive NIH funding; and the need to increase the diversity of trainees. The book recommends improvements in minority recruiting, more rigorous and extensive training in the responsible conduct of research and ethics, increased emphasis on career development, more attention to outcomes, and the requirement for incorporating more quantitative thinking in the biomedical curriculum.

### **Writing Successful Grant Proposals from the Top Down and Bottom Up**

This third edition of the classic "how-to" guide incorporates recent changes in policies and procedures of the NIH, with particular emphasis on the role of the Internet in the research proposal process. Completely revised and updated, it reveals the secrets of success used by seasoned investigators, and directs the reader through the maze of NIH bureaucracies. In addition to providing a detailed overview of the entire review process, the book also includes hundreds of tips on how to enhance proposals, excerpts from real proposals, and extensive Internet references. This book is essential to all scientists involved in the grant writing process. Key Features: \* Considers the reviewer's perspective \* Detailed presentation of the review process \* All sections of the R01 proposal are reviewed \* Hundreds of tips to enhance proposals \* Includes the many recent changes in NIH policies \* Includes many excerpts from real proposals \* Provides extensive Internet references Benefits: \* Increased competitiveness \* Better priority scores \* Less chance of triage \* Increased award rates \* Uses the system to advantage \* Reveals strategies used by the "old pros"

### **Guide to Effective Grant Writing**

Beyond Common Sense addresses the many important and controversial issues that arise from the use of psychological and social science in the courtroom. Each chapter identifies areas of scientific agreement and disagreement, and discusses how psychological science advances our understanding of human behavior beyond common sense. Features original chapters written by some of the leading experts in the field of psychology and law including Elizabeth Loftus, Saul Kassin, Faye Crosby, Alice Eagly, Gary Wells, Louise Fitzgerald, Craig Anderson, and Phoebe Ellsworth The 14 issues addressed include

eyewitness identification, gender stereotypes, repressed memories, Affirmative Action and the death penalty Commentaries written by leading social science and law scholars discuss key legal and scientific themes that emerge from the science chapters and illustrate how psychological science is or can be used in the courts

### **Research Proposals**

Starting in the early 1970s, a type of programmed cell death called apoptosis began to receive attention. Over the next three decades, research in this area continued at an accelerated rate. In the early 1990s, a second type of programmed cell death, autophagy, came into focus. Autophagy has been studied in mammalian cells for many years. The recen

### **Guide to Effective Grant Writing**

The SBIR program allocates 2.5 percent of 11 federal agencies' extramural R&D budgets to fund R&D projects by small businesses, providing approximately \$2 billion annually in competitive awards. At the request of Congress the National Academies conducted a comprehensive study of how the SBIR program has stimulated technological innovation and used small businesses to meet federal research and development needs. Drawing substantially on new data collection, this book examines the SBIR program at the National Institutes of Health and makes recommendations for improvements. Separate reports will assess the SBIR program at DOD, NSF, DOE, and NASA, respectively, along with a comprehensive report on the entire program.

### **Writing the NIH Grant Proposal**

Mixed Methods Research: A Guide to the Field by Vicki L. Plano Clark and Nataliya V. Ivankova is a practical book that introduces a unique socio-ecological framework for understanding the field of mixed methods research and its different perspectives. Based on the framework, it addresses basic questions including: What is the mixed methods research process? How is mixed methods research defined? Why is it used? What designs are available? How does mixed methods research intersect with other research approaches? What is mixed methods research quality? How is mixed methods shaped by personal, interpersonal, and social contexts? By focusing on the topics, perspectives, and debates occurring in the field of mixed methods research, the book helps students, scholars, and researchers identify, understand, and participate in these conversations to inform their own research practice. Mixed Methods Research is Volume 3 in the SAGE Mixed Methods Research Series.

### **Managing the NIH Bethesda Campus Capital Assets for Success in a Highly Competitive Global**

## **Biomedical Research Environment**

Recent scandals and controversies, such as data fabrication in federally funded science, data manipulation and distortion in private industry, and human embryonic stem cell research, illustrate the importance of ethics in science. Responsible Conduct of Research, now in a completely updated second edition, provides an introduction to the social, ethical, and legal issues facing scientists today.

## **Genes, Behavior, and the Social Environment**

A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant provides F-Series grant applicants and mentors with insider knowledge on the process by which these grants are reviewed, the biases that contribute to the reviews, the extent of information required in an NRSA training grant, a deeper understanding of the exact purpose of each section of the application, and key suggestions and recommendations on how to best construct each and every section of the application. A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant is a solid resource for trainees and their mentors to use as a guide when constructing F30, F31, and F32 grant applications. Covers F30, F31, and F32 grant applications Detailed overview of the review process Key suggestions on how to best construct each section of the application Includes a checklist of required items

## **Structural Biology of Membrane Proteins**

## **Mixed Methods in Health Sciences Research**

Over the past century, we have made great strides in reducing rates of disease and enhancing people's general health. Public health measures such as sanitation, improved hygiene, and vaccines; reduced hazards in the workplace; new drugs and clinical procedures; and, more recently, a growing understanding of the human genome have each played a role in extending the duration and raising the quality of human life. But research conducted over the past few decades shows us that this progress, much of which was based on investigating one causative factor at a time—often, through a single discipline or by a narrow range of practitioners—can only go so far. Genes, Behavior, and the Social Environment examines a number of well-described gene-environment interactions, reviews the state of the science in researching such interactions, and recommends priorities not only for research itself but also for its workforce, resource, and infrastructural needs.

## **Bridges to Independence**

This third edition of the classic "how-to" guide incorporates recent changes in policies and procedures of the NIH, with particular emphasis on the role of the Internet in the research proposal process. Completely revised and updated, it reveals the secrets of success used by seasoned investigators, and directs the reader through the maze of NIH bureaucracies. In addition to providing a detailed overview of the entire review process, the book also includes hundreds of tips on how to enhance proposals, excerpts from real proposals, and extensive Internet references. This book is essential to all scientists involved in the grant writing process. Key Features: \* Considers the reviewer's perspective \* Detailed presentation of the review process \* All sections of the R01 proposal are reviewed \* Hundreds of tips to enhance proposals \* Includes the many recent changes in NIH policies \* Includes many excerpts from real proposals \* Provides extensive Internet references Benefits: \* Increased competitiveness \* Better priority scores \* Less chance of triage \* Increased award rates \* Uses the system to advantage \* Reveals strategies used by the "old pros"

## **Biofilm Infections**

Since the end of the Second World War, the United States has developed the world's preeminent system for biomedical research, one that has given rise to revolutionary medical advances as well as a dynamic and innovative business sector generating high-quality jobs and powering economic output and exports for the U.S. economy. However, there is a growing concern that the biomedical research enterprise is beset by several core challenges that undercut its vitality, promise, and productivity and that could diminish its critical role in the nation's health and innovation in the biomedical industry. Among the most salient of these challenges is the gulf between the burgeoning number of scientists qualified to participate in this system as academic researchers and the elusive opportunities to establish long-term research careers in academia. The patchwork of measures to address the challenges facing young scientists that has emerged over the years has allowed the U.S. biomedical enterprise to continue to make significant scientific and medical advances. These measures, however, have not resolved the structural vulnerabilities in the system, and in some cases come at a great opportunity cost for young scientists. These unresolved issues could diminish the nation's ability to recruit the best minds from all sectors of the U.S. population to careers in biomedical research and raise concerns about a system that may favor increasingly conservative research proposals over high-risk, innovative ideas. *The Next Generation of Biomedical and Behavioral Sciences Researchers: Breaking Through* evaluates the factors that influence transitions into independent research careers in the biomedical and behavioral sciences and offers recommendations to improve those transitions. These recommendations chart a path to a biomedical research enterprise that is competitive, rigorous, fair, dynamic, and can attract the best minds from across the country.

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