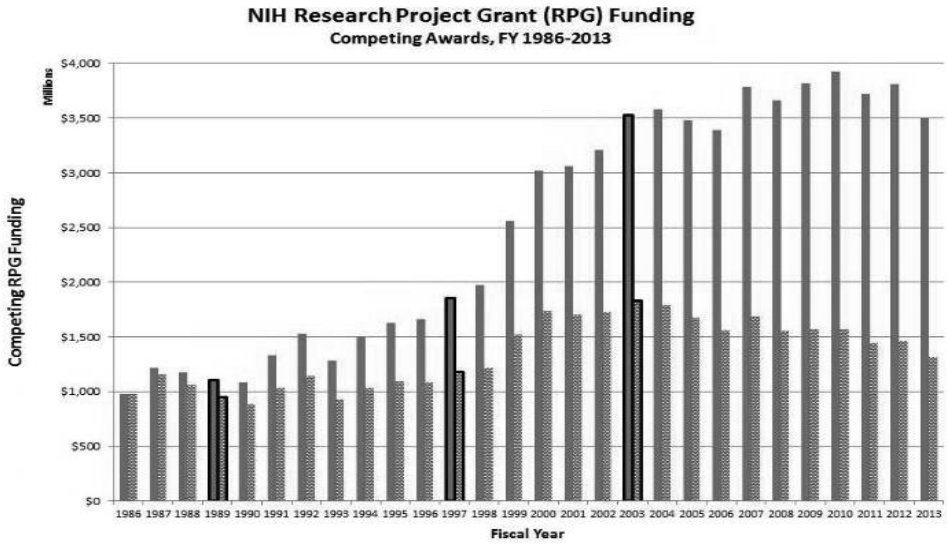
PREFACE

January 2018

Charles Dickens' opening to *The Tale of Two Cities* is one of the most quoted in all of literature. It begins, "It was the best of times, it was the worst of times, ..." That opening could just as well characterize the current status of biomedical research in the United States. Investigators have never had greater opportunities to improve human health, while, at the same time, they have never had greater difficulty meriting the research funds that they need to capitalize on those opportunities.

The authors of a relatively recent policy paper in the *Proceedings of the National Academy of Sciences* (Rescuing US Biomedical Research from Its Systemic Flaws, [2014] 111, 5773-5777; http://www.pnas.org/content/111/16/5773.full), Bruce Alberts, Marc Kirschner, Shirley Tighlman, and Harold Varmus (Dr. Varmus is a former director of the National Institutes of Health and of the National Cancer Institute), characterize the current era as one of "hypercompetition" for grant funds. The underlying cause in their view, at least in part, is an ever-expanding number of investigators who need research grant support. (Think about it: you train ten new investigators, each of whom then trains ten additional researchers, and then each of them trains ten more, *ad infinitum*.) At the same time, the base of support for biomedical research has been decreasing. For example, 25% fewer funds were available in constant dollars to support NIH Research Program (R-series) grants in 2013, compared to 2003 – just ten years earlier (Figure: tall bars are actual dollars; shorter bars are constant dollars). Things haven't improved since.



In times like these, when fewer and fewer investigators are being funded, there is naturally talk about "fairness," and some have recently concluded, mostly on the basis of anecdotal evidence, that the system is inherently unfair. We strongly disagree with that conclusion. Although we recognize that the times are incredibly hard and agree with the *PNAS* authors cited above that the biomedical research system in this country is flawed, we don't believe that the part of the sys-

tem that awards grants is unfair. It's not perfect, to be sure, but it is not corrupt. This point of view is supported by the authors of another relatively recent publication (D. Li and L. Agha, "Big names or big ideas: Do peer-review panels select the best science proposals?" *Science*, 348:434-438, 2015), wherein a range of objective measures is used to show that NIH peer-review panels get it right most of the time. If that's the case, then the main problem for grant applicants is hypercompetition, which isn't going to go away soon, in our opinion. Successful grant applicants will be those who have unwavering commitment to making the adjustments that are necessary to cope with today's (and tomorrow's) reality.

Those facts bring us to the premise of this *Workbook*, which is: To be successful in these hypercompetitive times, you must do far more to ensure that your grant proposal is competitive than your peers do. You must take a "leave-no-stone-unturned" approach. This *Workbook* will help you to take those "extra" steps that we consider to be absolutely necessary. Our opinion in that regard is based on personal experience writing successful grant applications, our collective experience of more than 20 years serving on NIH study sections, and our experience since GWSW was founded in helping literally thousands of other investigators write grant proposals. To us, it stands to reason that, if you do more to position your proposal for success than your competitors do, it will be your application that succeeds, and it will be theirs that fail.

In the theater, the last words of encouragement that an actor often hears before going on stage are, "Break a leg." We don't know what the equivalent is with respect to writing a grant application – maybe "Break a word processor."? Whatever it is, it would translate as, "Best of luck." But, as you will see, luck doesn't play much of a role in the process of getting funded – unless, of course, it is the kind that Thomas Jefferson was referring to when he wisely remarked, "I'm a great believer in luck, and I find the harder I work the more of it I have." We agree with him, so let's get started – let's get "lucky!"

John D. Robertson, Ph.D.
Managing Member

Stephen W. Russell, DVM, Ph.D.
Member (Emeritus) & Co-Founder

David C. Morrison, Ph.D.
Member (Emeritus) & Co-Founder