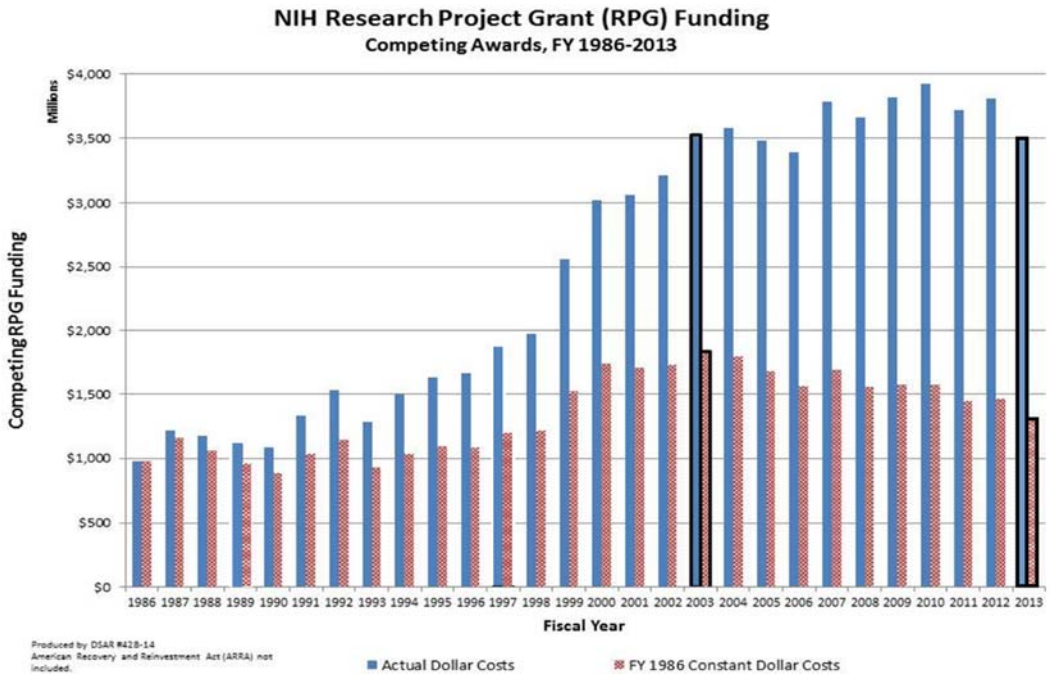
PREFACE

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 state of biomedical research in the U.S. Investigators have never had more opportunities to improve human health, while, at the same time, they have never had greater difficulty meriting the funds that they need to capitalize on those opportunities.

The authors of a 2014 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), characterized the current era as one of "hypercompetition" for grant funds. In their view, the underlying cause, at least in part, was an ever-expanding number of investigators who need research grant support. At the same time, the base of support for biomedical research had been decreasing. The graph below shows that 25% fewer funds (normalized to 1986) were available in constant dollars (short bars) to support NIH Research (R) Project Grants (RPGs) in 2013 compared to 2003 – just ten years earlier (adapted from https://nexus.od.nih.gov/all/2014/10/28/retention-of-first-time-r01-awardees/).



Things have fortunately improved somewhat since 2013. Between 2013 and 2020, the average size of awards in current dollars increased by 28.4%, and the average award size in constant dollars (normalized to 1998) between 2013 and 2018 increased by 5.4% (FY2019 and FY2020 constant dollars were not available as of this writing). Also, the graph on the next page shows that the number of unique applicants (tall bars) competing for RPGs has stabilized since 2015 after a steady increase since 2003 (https://nexus.od.nih.gov/all/2021/ 05/17/how-many-