

PUBLIC-PRIVATE PARTNERSHIPS

Funding unfunded NIH research applications



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Citation:

M. A. Dueñas, I. Bisceglia, J. Pannucci, Funding unfunded NIH research applications. *Sci. Transl. Med.* **8**, 331ed3 (2016).

10.1126/scitranslmed.aaf5604

THE BIOMEDICAL RESEARCH FUNDING ENTERPRISE PROVIDES THE INFRASTRUCTURE that leads to new medical products that impact global health. Throughout history, the long and successful tradition in the United States of investing in biomedical research involves funding support by government, nonprofit biomedical foundations, pharmaceutical and biotechnology companies, and other private funds. However, even with the current increased budgets to the National Institutes of Health (NIH), the National Science Foundation (NSF), and other government funding agencies, biomedical research is under continual budgetary pressures. As the world's largest government biomedical research funding agency, in 2015 the NIH reviewed 69,973 applications and funded 14,457, for an average funding rate of 20.7% (<http://scim.ag/fundrate15>).

Private biomedical foundations funded \$4.30 billion in biomedical research in 2012 (latest data available), a slight decrease from the \$4.46 billion invested in 2008 (<http://scim.ag/privatefunds12>). Likewise, Pharmaceutical Research and Manufacturers of America (PhRMA) member companies funded \$51.2 billion in research and development in 2014, a \$400 million decrease from 2013 (<http://scim.ag/PhRMA14>). U.S. government research funding declined from 57% (2004) to 50% (2012) of the global total, as did that of U.S. companies (50 to 41%), with the total U.S. (public plus private) share of global research funding declining from 57 to 44% (1).

Clearly, there is a surplus of high-quality applications that merit funding through alternate sources. To boost funding of promising biomedical research, Leidos—a national security, health, and engineering solutions company—in partnership with the NIH and patient advocacy organizations, is now supporting a new funding paradigm, called OnPAR (Online Partnership to Accelerate Research): a public-private partnership that seeks to provide a second funding opportunity for unfunded NIH research applications (<http://onpar.leidosweb.com/onpar/>). OnPAR will seek to match investigators' research applications to the specific research and development needs of nongovernment sources of funding.

How will it work? Biomedical research applications will still undergo the rigorous NIH peer-review processes. Once applicants have received their NIH funding notification, those that are unfunded and have scored within the 30th percentile (or scored well in programs that do not provide percentiles) will be invited to participate in the OnPAR review and funding process. These applicants will first be asked to submit their NIH-submitted public abstract through the OnPAR website. Abstracts will be reviewed and provided to OnPAR funding members when they align with the organization's research priority areas. Applicants selected by OnPAR funding members will then be asked to upload their full NIH application, scores, percentile, and summary statements. NIH will not provide any application material to OnPAR. Each funding organization member will review their chosen applications, may select some for funding consideration, and will negotiate final terms with applicants.

Research projects will be considered and funded by OnPAR funding organization members based on their specific research priority areas and requirements, as described on the OnPAR website and at each respective member's website. For the pilot project, funding organization members were selected to span different disease areas and based on varied foundation sizes, as well as their interest in and potential to fund using this novel approach. The organizations and their respective missions are:

- Adenoid Cystic Carcinoma Research Foundation: To coordinate and support research that generates translatable concepts for private industry and the NIH to advance into clinical practice.
- Breast Cancer Research Foundation: To prevent and cure breast cancer by advancing the world's most promising research.
- Children's Tumor Foundation: Drive research, increase knowledge, and advance care for the neurofibromatosis community.

- JDRF (previously Juvenile Diabetes Research Foundation): Accelerating life-changing breakthroughs to cure, prevent, and treat type 1 diabetes and its complications.
- Melanoma Research Alliance: To end suffering and death due to melanoma by collaborating with all stakeholders to accelerate powerful research, advance cures for all patients, and prevent more melanomas.
- National Alopecia Areata Foundation: To find a cure or acceptable treatment for alopecia areata, support those with the disease, and educate the public about the disease.
- Parent Project Muscular Dystrophy: To end Duchenne muscular dystrophy by accelerating research, raising voices in Washington, DC, demanding optimal care for all people with DMD; and educating the global community.

OnPAR currently consists of the partnership between Leidos and NIH. For this partnership, NIH will support the program by making eligible OnPAR investigators aware of this alternative funding pathway, and Leidos will develop the OnPAR processes and website and manage the program. Applicants may submit projects to OnPAR even if they do not fall within the foundations named above, as more members will be joining OnPAR. NIH will not share application materials directly with OnPAR; instead, applicants will submit directly to OnPAR according to the two-step submission process. There is no requirement to rewrite the NIH proposal, and OnPAR will only accept the full application that was submitted to NIH and the respective summary statement. There is no target to fund a specific dollar amount, number of projects, or type of grant. Each member organization, at its own discretion, will fund projects that align with their mission pending availability of funds.

Should this particular public-private partnership be successful, Leidos envisions expanding the partnerships within the United States and globally, to fund promising research projects that are top performers, but not funded through traditional government grant mechanisms. Leidos has had preliminary conversations with other government funding agencies that have a surplus of excellent research proposals that they cannot fund, and it will invite additional organizations to join OnPAR later in 2016, including U.S. and international government funding bodies. In addition, OnPAR is currently in discussions to include other private biomedical research foundations, pharmaceutical and biotechnology companies, and private funders, such as venture capital funds and private family foundations. OnPAR will eventually create a community of funders that can work together to advance biomedical research. Selected projects will follow the benchmarks of the funder and will be evaluated according to each member's guidelines.

Federal funding for biomedical research in the United States has fueled discoveries that have advanced our understanding of human disease, led to novel and effective diagnostic tools and therapies, and made our research enterprise an international paragon. OnPAR will provide access to a global spectrum of research projects from early discovery to translational and clinical research and to the high-risk, high-reward space that may just miss the cut-off level at federal funding agencies. The OnPAR pilot started this month and will include two cycles: applications submitted between May and September 2015 and applications submitted between September 2015 and January 2016. The number of applications that are funded by OnPAR members will determine the level of success of this program. OnPAR is providing an alternative paradigm to keep research moving forward for the betterment of families and communities, at home and globally, and we look forward to the participation of the greater scientific community in making this a successful funding endeavor by submitting their abstracts.

– **Martin A. Dueñas, Isabelle Bisceglia, and James Pannucci**

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Acknowledgments: We acknowledge S. Mills (NIH Office of Extramural Research) for her support of the OnPAR pilot project.

Science Translational Medicine

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Sci Transl Med **8**, 331ed3331ed3.
DOI: 10.1126/scitranslmed.aaf5604

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