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Abraham Levy, Ph.D.

Director, SIG and High End Programs
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NIH Office of the Director
6701 Democracy Blvd.
Bethesda, MD 20817

Dear Dr. Levy,

Attached is the response of the Association of Biomolecular Resource Facilities (ABRF) to the NIH Request for Information: Shared Instrumentation Grant Program (S10), Notice Number: NOT-OD-14-104. This response was compiled by the ABRF Core Administrators Network - Coordinating Committee (CAN-CC) and the ABRF Executive Board (EB). We appreciate the opportunity to respond to this RFI. Please let us know if you have any questions about this feedback. We would be happy to contribute in any additional ways that might be useful to the NIH towards the formulation of a plan to improve the S10 program.

Sincerely,

Dr. William G. Hendrickson, Ph.D.
ABRF President

For the ABRF Executive Board, including William Hendrickson (University of Illinois, Chicago), Chris Colangelo (Yale University), George Grills (Cornell University), Timothy Hunter (University of Vermont), Anoja Perera (Stowers Institute for Medical Research), Brett Phinney (University of California, Davis), Paula Turpen (University of Nebraska Medical Center), and Frances Weis-Garcia (Memorial Sloan-Kettering Cancer Center)

And for the ABRF Core Administrators Network - Coordinating Committee (CAN-CC), including Julie Auger (University of California, San Francisco), Philip Hockberger (Northwestern University), Susan Meyn (Vanderbilt University Medical Center), Connie Nicklin (University of Florida), Susanna Perkins (University of Massachusetts Medical School), Paula Turpen (University of Nebraska Medical Center), Andrew Vinard (University of Miami), and Amy Wilkerson (The Rockefeller University)

**Association of Biomolecular Resource Facilities (ABRF) Response to
NIH Request for Information: Shared Instrumentation Grant Program (S10)
Notice Number: NOT-OD-14-104**

The Association of Biomolecular Resource Facilities (ABRF) supports the NIH in its stated goals for the Shared Instrumentation Grant (SIG) Program as described in the recent Request for Information (NOT-OD-14-104). With a diverse membership that represents a wide research community, the ABRF welcomes the opportunity to provide suggestions for improving the effectiveness of this essential program.

ABRF is a unique association comprising over 700 members from around the world, working in the support of shared resource core facilities and research biotechnology laboratories. Our members represent over 340 core facilities, laboratories and administrative offices in government, academia, research, industry and commercial settings, and are involved in the support and application of a broad spectrum of cutting-edge biotechnologies. The ABRF is a 25-year old organization and a member of the Federation of American Societies for Experimental Biology (FASEB). Thus, the ABRF is well positioned to provide suggestions for improvement to the SIG program.

Many of our members' core facilities rely heavily upon the SIG program as a mechanism for replacement or expansion of technical platforms to support researchers both at their institutions and at outside institutions. Recognizing that with the rising cost of new instrumentation — should the S10 budget remain flat — the number of S10 awards must decrease, ABRF is extremely supportive of efforts and actions that will ensure that these NIH awards are well invested and broadly beneficial. To that end, the NIH should consider revising the maximum allowable budget allocation, the requirements for eligibility, and aspects of the terms for instrument administration and institutional support.

Budget

One strong recommendation with regard to the budget allocation is to increase the maximum amount allowed under the SIG program to \$750K. This would close the inexplicable gap between the current maximum amount allowed under the SIG program and the minimum amount allowed under the High-End Instrumentation (HEI) program. Due to this \$150K gap in the funding level of these NIH grant programs, most researchers and institutions find it very challenging to fund equipment costing \$600-750K. It is in this price range that many advanced optical imaging systems, multi-color cell sorters, mass spectrometers, next generation sequencing, and robotic liquid handling systems cost. These types of instruments are commonly located in institutional core facilities as shared equipment, in largest measure due to the broad need and prohibitive cost of these platforms. Acquisition of critical instruments in this price range would be markedly facilitated if their cost was fully covered by the S10 program. As an alternative to raising the maximum allowed under the SIG program to \$750K, the NIH might consider closing this \$150K gap through a combination of raising the maximum allowed under the SIG and lowering the minimum allowed under the High-End Instrumentation Grant Program.

Eligibility Requirements

In addition to optimal instrument operation, instrument utilization is critical to the cost-effectiveness of the S10 program. To this end, we suggest that the NIH consider modifying the requirements of the major and minor user groups. In this time of declining NIH funding, investigators often combine funding sources to create a matrix that fully supports their biomedical research programs. If NIH were to revise the eligibility requirements to allow investigators who have other sources of federal support for biomedical research to be considered major or minor users, instrument utilization and sustainability might be improved.

For example, if two of three major users have NIH-funded projects in their last year of funding, then they may not need to occupy 35% of the instrument capacity (and may not therefore generate 35% of the user fees). In this scenario, users with biomedical research programs funded by other federal sources could take advantage of the available instrument capacity. Typically, well-established core facilities have a diverse user base rather than just a few major users; thus, this scenario may more closely reflect today's biomedical research environment. For such cores, letters of support from the core facility advisory committees and information about the core facility management and operations as well as the numbers of users, may be more relevant to evaluating the potential effective use of the requested instrumentation than the list of individual PI users and their sources of funding.

Instrumentation

We encourage the NIH to consider a broader range of projects be eligible for S10 funding. For one example, expanding the S10 program to allow proposals for computational infrastructure that may be used by non-NIH funded users as well as NIH-funded users, or for another example, to allow for proposals for the purchase of specialized data analysis software tools (whose cost can easily exceed the minimum S10 budget level), would significantly expand the impact of the S10 program. We suggest that the S10 program, in addition to funding the acquisition of instruments, should support the cost of the implementation, validation and optimization of instruments acquired with S10 funding. We also encourage the NIH to expand the scope of the S10 program to allow for instrument development – similar to aspects of the NSF Major Research Instrumentation (MRI) program. Proposals that include these expanded S10 categories would enable and support research across multiple disciplines and would make the SIG program a driving mechanism for discovery and innovation.

Research Projects

We suggest that the majority of research projects (75%) should align with the mission of the NIH and thus be biomedical in nature, but may be funded by other federal, foundation or even appropriate commercial sources.

Instrument Administration and Institutional Support

This section of the S10 program is the most critical in regards to meeting the goals of the SIG program as outlined in the RFI. Placement of equipment purchased with S10 awards in institutional core facilities or similar shared resource centers is the best way to ensure wide access, optimal instrument operations and cost-effective use, for the following reasons:

Core facility personnel, including directors, managers and technical staff have the expertise and the assigned responsibility to set up, run and maintain cutting-edge instruments. These people are trained in the use of the requested technology and operate the instruments on a regular basis. They are responsible for training new users and ensuring that equipment performance is the best possible and that the technology is operated safely and effectively. For these reasons, preference should be given to applicants that will integrate the equipment into a centralized core facility. Full-time core facility directors should be encouraged to submit applications as PD/PI. Furthermore, we recommend that the SIG program explicitly encourage institutions to consider core facility directors, including those who may have non-tenured appointments, to be eligible to submit S10 applications as PD/PI. While the NIH cannot dictate individual institutional faculty policies, such S10 guidelines would help raise awareness of the need to support and recognize the contributions of professional non-tenured scientists in establishing and operating effective shared resources, which in turn would facilitate the proven and effective approach of using core facilities for access to specialized scientific equipment funded through the SIG program.

Centralized core facilities are specifically created for and provide the best opportunity for the broadest access for users. A defining feature of institutional core facilities is that they are “open to all.” In general, institutions subsidize the direct cost and bear the full indirect cost of a core facility. Most institutions have established advisory committees for their cores as a means of obtaining broad input from their research community regarding current and future needs for instruments and technologies available through core facilities. Often the institution actively promotes the use of the cores through outreach and marketing, to increase awareness of the core instruments and services in the research community. An academic department or individual PI is unlikely to have sufficient resources to provide the broad support for and use of an S10 funded instrument that is typically provided by core facilities.

Sustainability is one of the most difficult issues faced by core facilities. Few institutions have a pool of instrument users sufficiently large to generate enough revenue through user fees alone to support the operational, personnel, maintenance and service costs of major equipment. Institutional support is critical, especially with the purchase and implementation of new technology. It is appropriate that the current S10 FOA guidelines require applicants to provide a detailed four year financial plan, including institutional commitment to back up this plan over five years. Institutions generally require such planning for core facility operations and therefore core facilities directors are generally well qualified to develop the plans required in an SIG application.

It is also appropriate that applicants provide a short descriptive narrative of the institution's summary of instrument performance of all previous S10 awards to the institution for instruments awarded or installed within the last five years. For S10 applications that propose to upgrade or replace equipment originally acquired through the S10 program, we suggest that a strong emphasis should be placed on evaluation of the use of technology obtained by prior S10 awards, particularly in regards to utilization of prior S10 funded technology that is similar to that currently requested.

Lastly, since the generation of sound data depends on optimal instrument use, we recommend that the technical expertise and credentials of the instrument operators be required in the S10 application. In addition, a plan for professional development of technical staff should be addressed in S10 proposals.

Other Comments

We suggest that just as diversity in the membership of a core facility's advisory committee helps ensure that the interests of many different users are represented, diversity in the membership of the SIG review panel should be a major consideration for the S10 program. Review panels that include instrument users, operators and administrators would help ensure that awards go to institutions that can effect optimal operation and sharing of instruments in a cost-effective manner. The ABRF membership is a good place to find technical experts in operations and also administrators that specialize in the management of shared research core facilities. These individuals would make excellent grant reviewers.