Concept Clearance – Reissue of the Shared Instrumentation Program

The NIH's Shared Instrumentation Program was established in 1982. That year, 23 grants were awarded for spectrometers, electron and light microscopes, cell sorters, molecular analyzers, biomedical imagers, and computer systems. Over the years the program has grown, but its essentials remain. Title 42 U.S. Code §283n describes the Program as supporting state-of-the-art, commercially available instruments, to be used on a shared basis to enable and enhance NIH-funded research. Without the Program's support, such advanced and costly instruments would not be available to most researchers. Cost-sharing towards the purchase of the instruments is not required, but the grantee institutions are obligated to support long-term maintenance and continued operation of the awarded instruments. An internal advisory committee must oversee the use of each instrument, including its sharing arrangements.

The Shared Instrumentation Program uses the S10 funding mechanism; over the years this mechanism became synonymous with the Program, which is known to many as the S10 Program. ORIP is the only NIH unit using the S10 mechanism and equivalently supporting the S10 Program. An S10 award is given for one year to acquire, install, and make the instrument available to the users.

The S10 Program supports all scientific instrumentation technologies that can be adequately justified. The largest numbers of requests are for biomedical imagers, optical microscopes, and mass spectrometers, as each of these technologies has a wide range of applications. In all cases, scientific questions drive the request for a specific technology and its desired implementation. Whenever practical, instruments are placed in institutional core facilities to ensure broad access. In some situations, the placement of an instrument in a specific academic research center provides a better environment for the advancement of the technology and its adoption for wide usage.

Because of the S10 Program's trans-NIH scope and impact, ORIP's location of the Program within NIH organizational structures is best suited to promote its goals. Applicants must demonstrate how the use of a new instrument would improve the execution of specific NIH-funded research projects. A typical application lists over 15 NIH active research grants that need advanced modern instrumentation for the conduct of more innovative, more accurate, and more robust experimental protocols, and the creation of more insightful and more complex data. Over 1500 names of individual investigators are listed in the annual portfolio of S10 grants. Over 500 NIH Program Officers oversee these research grants that come from all NIH Institutes and Centers. These numbers illustrate one dimension of the NIH-wide influence and benefits of the S10 Program.

Currently, ORIP publishes annually 3 Funding Opportunity Announcements (FOAs), with somewhat different requirements regarding types of requests and management of instruments. Allowable award budgets are in the range of $50K - $2M. The number of submissions remains stable from year to year at about 400 applications. About 110 instruments are awarded each year. Issuing FOAs annually allows ORIP staff to promptly respond to changes in NIH's extramural policies and practices. In the last 7 years, 181 different academic and research institutions in 44 states and DC received S10 awards. Over 5,000 high-impact publications acknowledging the use of S10 instruments demonstrate their use and prominence. Based on data in newly submitted applications, previously awarded instruments are operational, well-maintained, and well-used for the 5-year period of ORIP's oversight or longer.

The S10 Program's long-term investment, funding acquisition of state-of-the-art scientific instruments, is indispensable for the conduct of NIH-funded biomedical research. ORIP requests concept clearance from the Council of Councils to continue support for the Shared Instrumentation Program.