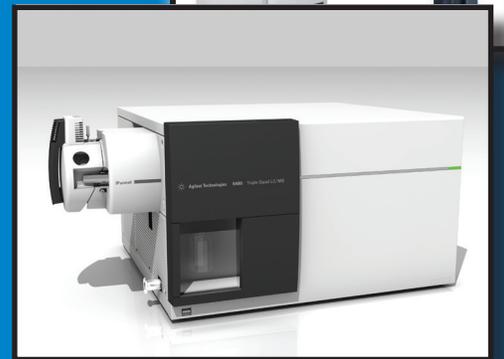# Shared Instrumentation: How to Win the S10 Grant

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Introduction

If you're looking to fund expensive instrumentation that you'll share with other principal investigators (PIs) and Program Directors (PDs), then you have only a select few grants to choose from. The best fit may be the Shared Instrumentation Grant Program (SIG) – commonly known as the S10. However, be aware that this grant has recently become even tougher to get.

The S10 grant provides funds toward purchasing or updating expensive shared-use instrumentation that's not typically supported by other funding mechanisms provided by the National Institutes of Health (NIH). The S10 will not cover instrumentation that you could get funded through your research project, program project or center grant programs. The grant supports the actual equipment only – it will not fund research activities to develop or improve instrumentation.

The S10 award is for a duration of one year only. You can request a single, commercially available instrument or integrated system that costs at least $100,000. The maximum funding amount for the S10 is $600,000, but you can seek the grant even if the instrumentation's cost exceeds the maximum amount – although you won't get more than $600,000 from the grant.

The NIH recently reassigned the S10 grant program to the Office of Research Infrastructure Programs (ORIP) in the Division of Program Coordination, Planning and Strategic Initiatives – before, the grant was under the now-defunct National Center for Research Resources (NCRR). Despite speculation that the NIH would do away with the S10 grant program, it is still alive and well. Yet, with this reassignment came a few changes, including reduced funding levels.

ORIP plans to allocate $43 million for S10 awards in fiscal year (FY) 2014, funding an estimate of 85 new grants. This funding is pretty well scaled back from past funding cycles. In FY 2012, the total awarded amount for S10 grants was nearly $67 million. The success rate that year was 18.5%, with 114 out of 615 applications receiving funding.

TIP:

Prepare for tougher S10 competition, as funding levels have decreased for FY 2014.

This reduction in funding is undoubtedly making the S10 increasingly competitive.

Though certainly not impossible to obtain, the S10 grant award's parameters are strict and you'll have to make your proposal even more convincing than ever to get your application to the top of the pile. Reviewers will scrutinize S10 applications with a keen eye for detail – and miss even one essential detail, and your proposal will be passed over.

There are, however, certain strategies you can use to get your application through the review process. First, you must pass all the stringent eligibility requirements, and then you need to craft a proposal that will impress reviewers and really stand out among the masses.

Eligibility: Make Sure You Qualify to Avoid Automatic Rejection

Unlike broad-based research grants from the NIH, the S10 has very strict eligibility requirements and exclusions. The funding mechanism will support only certain types of instrumentation, and the requirements for how you use the equipment are rather specific.

Do Not Try S10 to Support These Types of Instrumentation

The S10 grant supports a select list of instrumentation, restricting eligible equipment to only expensive shared-use instrumentation. The equipment can be domestic- or foreign-made.

But according to ORIP, you <u>cannot</u> use the S10 grant to support:

- New instrumentation development;
- General purpose equipment;
- Purely instructional equipment;
- Instruments used for clinical (billable) care;
- A single instrument with a base cost of less than $100,000;
- Multiple instruments bundled together to meet the $100,000 minimum;
- A series of complementary related instruments that share a common research focus;
- An assortment of instruments to furnish a research facility;
- Software – unless it's integral to the operation of a piece of equipment;
- Institutional administrative management systems;
- Clinical management systems; and
- Equipment for routine sustaining infrastructure, including standard computer networks, autoclaves, hoods and equipment to upgrade animal facilities.

So what kinds of instruments will the S10 actually support? Supported instrumentation include electron and confocal microscopes, protein and DNA sequencers, biosensors, nuclear magnetic resonance systems, mass spectrometers, and cell sorters, including:

- Liquid Chromatography/Mass Spectometry;
  - NMR Spectrometers;
  - X-Ray Diffractometers;
  - Inductively Coupled Plasma Mass Spectrometry (when applicable);
  - Gas Chromatography Mass Spectrometry; and
  - Fourier Transform Infrared Spectrometry.

Note: The NIH has also had a focus on the "-omics," such as proteomics and metabolomics.

The NIH actually provides a list of all the instrumentation allowable for the S10 grant program. If you don't find the instrument you desire on that list, ask the Program Officer (PO) if the equipment is allowable (see Resources section on page 23).

Pay attention: If you're looking to fund a "stand alone" computer system, such as a supercomputer, computer clusters and storage systems, that system must be solely dedicated to a broad community of NIH-supported PIs' research needs.

TIP:

Check the list of allowable instrumentation before you begin working on your S10 application.

Share & Share Alike: Who Can Use S10-Funded Equipment

When it comes to the proposed equipment's users, the S10 grant program has a "the-more-the-merrier" attitude. However, you must ensure that you're targeting the right kind of users. In your proposal, you must identify investigators who will use the requested instrumentation in two categories: "major users" and "minor users."

<u>Major Users:</u> Your major user group must contain no fewer than three PIs/PDs working on active NIH research grants.

The grant awards should be active throughout the S10 award period, but note that longer funding is better. Also, PIs with multiple NIH grants are particularly impressive in the eyes of reviewers.

Specifically, at least three major users must be on one of the following NIH research grants:

Code	Title	Description
DP1	NIH Director's Pioneer Award (NDPA)	To support individuals who have the potential to make extraordinary contributions to medical research. The NIH Director's Pioneer Award is not renewable.
DP2	NIH Director's New Innovator Awards	To support highly innovative research projects by new investigators in all areas of biomedical and behavioral research.
P01	Research Program Projects	For the support of a broadly based, multidisciplinary, often long-term research program which has a specific major objective or a basic theme. A program project generally involves the organized efforts of relatively large groups, members of which are conducting research projects designed to elucidate the various aspects or components of this objective. The grant can provide support for certain basic resources used by these groups in the program. A program project is directed toward a range of problems having a central research focus, in contrast to the usually narrower thrust of the traditional research project. Each project supported through this mechanism should contribute or be directly related to the common theme of the total research effort. These scientifically meritorious projects should demonstrate an essential element of unity and interdependence.
R01	Research Project	To support a discrete, specified, circumscribed project to be performed by the named investigator(s) in an area representing his specific interest and competencies.
R35	National Institutes of Health Outstanding Investigator	Activity code R35 is listed as 'Inactive' but was used to provide long-term grant support to investigators whose research competence and productivity are distinctly superior and who are highly likely to continue to perform in an outstanding manner.
R37	Method to Extend Research in Time (MERIT) Award	To provide long-term grant support to investigators whose research competence and productivity are distinctly superior and who are highly likely to continue to perform in an outstanding manner. Investigators may not apply for a MERIT award. Program staff and/or members of the cognizant National Advisory Council/Board will identify candidates for the MERIT award during the course of review of competing research grant applications in accordance with regular PHS requirements.
U01	Research Project— Cooperative Agreements	To support a discrete, specified, circumscribed project to be performed by the named investigator(s) in an area representing his specific interest and competencies.

After you've met the three-investigator minimum, you can include other major or minor users on other types of active NIH research grants, such as the P30, P41, P50, R03 and R21. Major users must require at least 75% of total instrument usage time.

Major users can be:
- Individual researchers;
- A group of investigators within the same department;
- Investigator groups from several departments at the applicant institution; and/or
- NIH extramural awardees from other nearby institutions.

Beware: Investigators on NIH training grants and contracts are not eligible.

Expert advice: Although NIH says you should have a minimum of three major users, you should really strive for eight to 10 users on the selected NIH research grants, advises **Timothy Bushnell, PhD,** the scientific and technical director of the flow cytometry core facility at the **University of Rochester.** The more PIs on NIH grants listed as users you have, the better.

__Minor Users:__ Basically, minor users are those researchers who don't fit the major user definition, Bushnell states. They may have funding, but not the NIH research grants – or they may be new investigators who don't have funding. In fact, including such early investigators is a boon to your S10 proposal. So you're highlighting these supplemental users "to show that the use and impact of use is more than just your user base of eight to 10 major researchers, but a larger dynamic impact," Bushnell notes.

Remember: But in terms of access to and usage of the instrumentation, be sure to promote preference to the major users, particularly those who are awardees of the select NIH research grants. The NIH research projects should account for at least 75% of instrument time.

STRATEGY:

Don't just go with the three-investigator minimum – make your proposal stronger by including at least eight to 10 NIH-supported users.

Is Your Organization/Institution Eligible?

Unlike the mandates for eligible users, organization eligibility requirements for the S10 are pretty broad-based. All public/state and private institutions of higher education are eligible to apply for the grant, as well as nonprofits with 501(c)(3) status. Non-U.S. entities or foreign institutions are not eligible, nor are any non-U.S. components of U.S. organizations.

The NIH doesn't have a limit on the number of S10 applications that a single institution can submit each year, but you do have to ensure that none of the requests are too similar. Most important, you cannot ask for two of the same instruments at your institution, or even at another university in your city.

> ⚠️
> **BEWARE:**
> You must make a truly compelling argument if you're requesting similar equipment as other S10 applications within your institution.

What to Do When You Have 'Special Circumstances'

For many applicants, not all the S10 requirements will fit perfectly. But don't let this discourage you from taking a shot at the grant. Here are some tips for overcoming "special circumstances:"

- **If you have no instrumentation or no expertise** — Demonstrate that you and other major users have taken courses through the manufacturer and third-parties on how to use the instrumentation. In addition, make sure you can show that you performed a demo of the equipment, preferably generating some preliminary data on one or more research projects related to your proposal. Finally, enlist experienced users of the equipment to serve on your advisory committee.

- **If you have lots of instrumentation** — Thoroughly describe why the other instrumentation is not accessible. For example, show how the existing instrumentation is at or slightly over its usage capacity (75% to 85%). Provide documentation of the usage with graphs and evidence from the researchers who are using this equipment.

- **If you're asking for new instrumentation** — Reviewers are often wary of funding brand-new instrumentation with little proven results or in-the-field testing. Again, you must demonstrate that you've demoed this equipment and generated preliminary data. You must also show that you've had thorough training on how to use the equipment effectively and for your specific purposes.

Proposal: Focus on Key Areas to Make Your Application Shine

As usual, you have some strict page limitations to follow for the S10 grant application. But you also have a wide range of information to include that's absolutely vital to winning the S10 grant award.

Follow this basic outline for your proposal formatting:

Proposal Item	What to Include	Line Number	Page Limit
COVER			
Descriptive Title	Must include the generic name of the requested instrument in your title	11	N/A
Proposed Project	Enter start date of 04/01/2014 and end date of 03/31/2015 (if you're applying for FY 2014 funding)	12	N/A
Estimated Project Funding	15a: Total Federal Funds Requested • (If instrument cost is more than $600,000, enter $600,000 on this line) 15b: Total Non-Federal Funds 15c: Total Federal & Non-Federal Funds	15	N/A
OTHER PROJECT INFORMATION			
Project Summary/ Abstract	• Write for a scientifically or technically literate audience working in the same or related fields as yours. • Provide a succinct, accurate description of the proposed work when disassociated from the application. • Describe the broad, long-term objectives and specific aims, highlighting the project's relation to health.	7	30 lines of text
Project Narrative	• Write in plain language that a general, lay audience can understand. • Describe the research's relevance to public health.	8	2 to 3 sentences
Bibliography & References Cited	For each major user, list only those publications that demonstrate the user's expertise in using the requested instrumentation.	9	N/A
Equipment	• Describe the equipment, including the manufacturer and model number. • Justify the model chosen by comparing its performance with other available instruments/models. • Justify any specific features and accessories. • Provide an itemized quote from a vendor.	11	N/A
Other Attachments	• In a single file, outline your Instrumentation Plan. • Arrange the Plan in the order specified, and use appropriate section headings.	12	N/A

Other Attachments – Instrumentation Plan

Component	Page Limit
Introduction	3 pages
Justification of Need	6 pages
Research Projects	• 6 pages per major user (3 pages is recommended) • 6 pages total for minor users
Summary Table(s)	6 pages total
Technical Expertise **Organizational/Management Plan**	6 pages total (for both sections)
Institutional Commitment **Overall Benefit**	6 pages total (for both sections)

Remember: The NIH enforces no overall page limitation for the Instrumentation Plan as a whole. Also, Letters of Support aren't included in the page limits.

As always with grant applications, you want to focus on the areas that reviewers will look at to assign your score and ultimately decide whether to fund your request. For the S10, here are the areas in your proposal that reviewers will scrutinize to score your application:

- Overall Impact/Benefit
- Justification of Need
- Technical Expertise
- Research Projects
- Administration
- Institutional Commitment

Show Enthusiasm for Overall Impact/Benefit:

Reviewers will want to see your enthusiasm – make sure this shines through in your application. For Overall Impact/Benefit, describe how the requested instrument will affect NIH-funded research (your major and minor users' research projects), as well as how it will contribute to your institution's long-term biomedical research goals.

WARNING:

Don't use the Appendix to get around the page limits of individual sections – doing so will <u>not</u> make reviewers happy with you.

REMEMBER:

If you don't show enthusiasm, reviewers will find your proposal boring – and possibly not worthy of funding.

To score high in this area, show the overall institutional benefit also in terms of staffing. For example, how will the new instrumentation help to recruit new investigators, train young scientists and help to retain current investigators?

For Overall Impact/Benefit, reviewers will want to generally learn:
- What's the instrument's potential benefit for the overall research community?
- What's the instrument's potential impact on NIH-funded research?

Most Crucial Part of Your Proposal: Justify Your Need

Justification of Need is perhaps the scoring item that reviewers will weigh heaviest when evaluating whether to fund your application. In this section of your Instrumentation Plan, you need to describe the requested instrument (again) and provide a clear justification for why the instrument and requested accessories or components are necessary.

You can even put this into a table format for clarity — here's an example:

PI	Project Title	NIH Grant(s) Impacted	Percent Use	Component/ Accessory
Alex Siddig	Understanding immune response in patients with conjunctivitis	R01 AI563 589	15%	Widget 1 Doodad 3
Gates McFadden	Hematopoietic interactions in B cell depleted patients with AML	R01 DK0587588 R01 AI123456	10%	Widget 2 Doodad 3 Doodad 4
Diana Muldaur	T cell subset response after immunization	R01 CA654321	10%	Widget 1 Widget 2 Doodad 3 Doodad 4
Robert Picardo	Development of novel expression vectors	R01 HL987654 R01 DE547896	10%	Doodad 4

According to Bushnell, you must include the following in your Justification of Need section:

- **An inventory of similar instruments in your area.** Include all similar instruments housed at your institution and at neighboring institutions, as well as those that are otherwise accessible. Then, explain why these instruments are not accessible or appropriate for your purposes. Get a letter supporting this position, Bushnell suggests.

REMEMBER:

Many of these letters can be taken with a grain of salt, so be honest.

- **Specify the current usage of existing instruments.** Define the capacity – including the hours, percent of use and downtime – for each existing instrument. Then, go on to provide a realistic estimate of usage for the requested instrument in very specific terms – not just defined in percentages of available time. Include:
    - Hours of use;
    - Setup time; and
    - Projected downtime.

- **Identify where the proposed instrument will be located.** Give the exact location of the requested instrumentation, and make sure that location is accessible for all major and minor users. Remember: A location within the existing core facility is the strongest choice.

TIP:

Be extremely specific in the usage time and where the instrumentation will be located.

Above all for Justification of Need, make sure you thoroughly and convincingly answer these questions:
- Is the equipment essential and appropriate?
- Can you clearly and adequately justify the need for the instrument?

Belabor Your Technical Expertise

You can have lofty ideas for utilizing a piece of equipment to assist in your research, but if nobody knows how to use that equipment, what good is it? Here, you must demonstrate that you and/or others at your institution have the technical expertise necessary to set up, run and maintain the requested instrument.

Who will operate the instrument? Who will train new users? Who will ensure that users operate the instrument safely? Who will be in charge of maintaining the equipment? You must include all these details.

Another element in the Technical Expertise section is addressing biosafety concerns. If using the requested instrumentation will create any potential biohazard issues, you need to touch on the procedures you'll implement and how you'll carry them out.

For Technical Expertise, reviewers want answers to these questions:

- Does your institution have the technical expertise to make effective use of the requested instrument?
- How well-qualified are you, the other participating investigators as well as any other assigned personnel to operate and maintain the instrument, conduct the projects, and evaluate the research results?
- How will you train new users?
- How will you implement biosafety procedures?

REMEMBER:

If you or any of the major/minor users have successfully used the requested instrumentation in past research projects, say so in the Technical Expertise section!

Connect the Instrumentation to the Research Projects

In the Research Projects section, you're basically outlining the instrumentation's essential role in the major and minor users' current or imminent research projects. For the minor users on active NIH research grants, you should include only a very brief summary of their research and the related need for the requested equipment. (Remember, you have only 6 pages total to cover all the minor users here.)

For your major users, however, you need to provide more detail. For each major user, focus on describing how the instrument will impact their research projects. Be concise, but also provide sufficient technical detail – preliminary data where necessary – to support why the instrument is appropriate for each major user's project and to demonstrate that the major users will effectively utilize the equipment. You will also need to show why the specific instrumentation you're requesting is superior to other methods for providing benefits to major users' research projects.

Remember to highlight what major user is going to use any component you're requesting. If a major user "requests an extra laser, or specific device, show the users who are going to need that – highlight that," Bushnell

advises. "It's really important to take a little bit of time to read through the projects by highlighting and emphasizing those areas that you need – where [major users are] using the equipment and what components they're required to use."

Important: You must get project descriptions and detailed information about each user's NIH-funded research project, and then review the materials. "Take some time to go through each of their programs," and study what each user has said about how the instrumentation and specific accessories or components meets their research needs, Bushnell stresses. "Highlight the need for the equipment and how this equipment will expand, speed up, broaden the horizons of research."

Although you have six pages for each major user, you should rearrange your Research Projects section if you have a large number of major users – exceeding Bushnell's suggested eight to 10. In this case, the NIH allows you to select a representative group of up to 10 major users and describe their research projects.

Make sure your Research Projects section convincingly answers these overarching questions:

- In what ways will research using the requested instrument advance the knowledge and understanding of the proposed projects?
- How will the instrument enhance the research project of each major user?

Reprieve: The one thing you don't need to worry about proving here is scientific merit in your proposal – this is erroneous. In fact, the NIH specifically instructs reviewers not to evaluate the scientific merit of the research project components on S10 grants, because these have already undergone peer-review.

REMEMBER:

Beware that the major users may not know what they need — your job is to carefully read what they're doing and ask questions about what they want to do.

Make a Plan & Show Reviewers that You're Prepared

Another key section upon which reviewers will base their scoring is "Administration" – comparable to the Organizational/Management Plan section of the Instrumentation Plan. Here, you need to show that you're well-prepared to manage and carry out the grant activities.

Who's the Boss? The NIH makes things a little easier when you're selecting the head honcho for the S10 award. The S10 doesn't require that specifically an NIH grantee serve as the PI/PD who assumes administrative and scientific oversight responsibility for the instrumentation. However, the PI/PD must be affiliated with the applicant institution.

The PI/PD in charge is responsible for:
- Requesting any no-cost extensions of the project period (if needed);
- Submitting the Final Progress Report 90 days after the project period's end; and
- Submitting annual equipment usage reports to the NIH for four years following the Final Progress Report.

Another key for Administration is the S10 grant program's requirement to form an advisory committee. The committee must include a "broadly-based" membership, including members with no interest in the instrumentation or conflicts of interest, so they can resolve disputes objectively.

Together with the PI/PD in charge, the advisory committee is responsible for developing guidelines concerning:
- Time allocation and maximum utilization of the instrument;
- Day-to-day management and safe operation of the instrument;
- Limiting access to the instrument to users whose projects have received approval from institutional human subjects, animal welfare or biosafety committees (if appropriate);
- Financial planning for the instrument's long-term operation and maintenance during the post-award period; and
- Recommending to the NIH the relocation of the instrument within or outside the institution (if necessary).

List the names and titles of the advisory committee members in this section. Describe all the nuts-and-bolts of how you'll use the requested instrumentation, including how you'll allocate time among major and minor users, attract new users, and manage access to the instrument. Detail your plan for managing access to the instrument when users' research projects involve human or animal subjects, or infectious or biohazardous materials.

The advisory committee should meet on a regular basis, such as once every quarter or twice each year, Bushnell says. Regular meetings will help the advisory committee to ensure proper maintenance of the instrumentation.

Best bet: "If it's a new technology to your institution, creating external experts is a plus that is looked on very favorably," Bushnell recommends. "So, if you know that you're going to buy a piece of equipment that very few people have experience with, it's a very high-end piece of equipment that there's not a lot of expertise in, bring in an outside expert."

Yet another item you must include in this section is your financial plan for operating and maintaining the instrumentation long-term. Explain how you'll meet the costs of keeping the instrument in working order, as well as the service and support personnel costs related to the equipment. "You want to potentially have three- to five-year projections indicating a long-term commitment," Bushnell says.

To nab a top score for the Administration criteria, make sure your proposal answers these questions:

- Is your plan for the management and maintenance of the requested instrument appropriate?
- Are the advisory committee members broadly based enough to oversee the use of the instrument for a wide range of biomedical investigators?
- How will you allocate research time among the projects?
- Are the sharing arrangements equitable?
- Do you have adequate policies to manage human subject, animal or biohazardous materials projects (if necessary)?

STRATEGY:

If you're requesting newer technology, include external experts in your advisory committee.

Demonstrate Institutional Commitment to Seal the Deal

Institutional commitment is very important in the S10 grant application, Bushnell notes. You need to show that your institution is willing to support the equipment that you're looking to purchase. You can demonstrate Institutional Commitment using a combination of several different methods.

First, show prior support of your core facility to demonstrate historical trends, Bushnell suggests. In addition, show that your institution is willing to dedicate and renovate (if needed) space for the equipment. If renovations are needed, include the plans for those renovations to show Institutional Commitment. Staffing support, service contracts and letters from senior administration are all very important here as well.

Specify: Define the institutional costs to your organization for running and maintaining the equipment. "A specific report saying the institution will support the service contract for this instrument for the next five years gives a much more firm commitment, especially with new equipment," Bushnell stresses. Get specific dollar amounts whenever possible.

For Institutional Commitment, reviewers will base their scoring upon:

- What evidence will you present of institutional commitment for continued support of the instrument's utilization and maintenance?
- Do you have the appropriate documentation (letters from institutional officials)?

Note: Include "Letters of Support" in Other Attachments and upload them as a separate file. Your Letters of Support should include not only the letters from institutional officials professing institutional commitment, but also letters from your biosafety committee if necessary.

TIP:

If your institution has no such facility, point to other situations where the university has shown support.

WARNING:

Don't skimp on Letters of Support when you're trying to demonstrate adequate institutional commitment.

What Other Items Reviewers Will Look At

Reviewers will score other items, although they may not carry as much weight as Overall Impact/Benefit, Justification of Need, Technical Expertise, Research Projects, Administration and Institutional Commitment:

- Period of Support: Is the requested period of support appropriate in relation to the proposed research?
- Biohazards: Are the proposed materials or procedures potentially hazardous to research personnel and/or the environment? If so, do you outline adequate protections?
- Budget: Is your proposed budget reasonable? (Budget evaluation won't affect your impact score.)

Strategies: Heed the Do's & Don'ts that Could Make or Break Your Proposal

Aside from the basic eligibility requirements and proposal components that you need to wade through, you can employ a few "secret weapons" in your application process. Certain strategies – and costly mistakes – can literally make or break your chance at S10 funding.

Avoid These Proposal-Killing Mistakes

There are certain mistakes that you can make in your S10 grant application that will trigger a rejection of your proposal, sometimes without any review at all. By all means, avoid these pitfalls:

- **No Itemized Quote(s).** Not providing itemized vendor quote(s) is perhaps the biggest mistake you can make in your S10 application. Applications that don't include quotes won't be reviewed. The itemized quotes should accompany a detailed budget breakdown of the instrumentation and accessories, including tax and any import duties. You must scan the vendor quote and include it in a single attachment with the equipment description.

- **Don't Copy Vendor Descriptions.** Describe the requested equipment specifically, and don't just copy the vendor descriptions – use your own words, Bushnell says. Include the manufacturer's information, the model and all the descriptive details of each component or accessory you're requesting. If you're too vague about the equipment you're requesting, reviewers won't push your application forward.

- **Don't Neglect Biosafety.** You must identify and address any biohazards associated with using the requested instrumentation. You must also include a letter from your institution's biosafety officer or committee, Bushnell explains.

- **Avoid Requesting Not-So-Necessary Accessories.** Keep in mind that although some of your major and minor users might really lobby for certain components or accessories, that doesn't mean you must include them in your application. You need to make sure that any quoted instrument components are truly needed by at least half of the users. Requesting a myriad of non-essential accessories can turn off reviewers from your entire application.

- **Don't Skimp on Your Major Users.** Make your descriptions of major users "succulent," Bushnell advises. Be sure to highlight major users' expertise in using the requested instrument, as well as how the new instrument will enhance their research.

BEWARE:

If you forget to include itemized vendor quotes, NIH will reject your proposal without even reviewing it.

Follow Expert Tips to Get the Edge

Some tips that you'll hear about the S10 are more obvious than others. And yet some strategies will not just ensure that your application will make it to a reviewer's hands, but further ensure that your proposal will soar well above the others. Heed these tips to make your S10 proposal shine:

- **Justify All Accessories.** You must not only describe any requested accessories or components, but also specify which investigators need each component, Bushnell stresses. Also, at least half of the users should have a justified need for each accessory. (Note: In the past, the requirement was that at least three major users must need each component or accessory.)

- **Present a Strong Management Plan.** Sound financial planning and solid technical expertise can help you to build a strong management plan, according to Bushnell. Having a thorough plan for training and recruiting new users is also essential. Reviewers need to see that you've thought ahead and planned well for maximizing usage of the requested instrumentation.

- **Include a Data Management Plan.** If you want to really "wow" reviewers, include a Data Management Plan (not required) in your Organizational/Management Plan, Bushnell suggests. This will demonstrate to reviewers that you're really thinking ahead – and planning very thoroughly.

    > Many instruments allowable for the S10 grant generate a tremendous amount of new data, Bushnell explains. "So a cohesive plan to manage the data is a positive aspect. It's not required, but it shows that you've thought in full not only how you can get the instrument, but what are you going to do with the information that comes from it." For example, will you archive the data? How will you ensure that investigators have access to the data?

- **Focus on Institutional Support.** Reviewers tend to place a lot of emphasis on Institutional Commitment – they want to know that your institution is committed to supporting the instrument's upkeep well beyond the award period. Institutional support is critical to S10 success, and your institution must be receptive and supportive of the new instrument, Bushnell says.

- **Tout Training and Outreach.** Remember that long-term support of the instrumentation requires new users, Bushnell notes. Getting the most out of a new instrument demands robust training. So you must detail in your proposal how you'll recruit new users and train existing ones, such as lecture series, online training and/or technical support/consultation.

STRATEGY:

Get a leg up on your competition by including a Data Management Plan in your S10 proposal.

Comparison: How the S10 Stacks Up Against Other Instrumentation Grants

There are two other funding mechanisms in the federal grant world that are comparable to the S10. The NIH administers the High-End Instrumentation Program (HEI), and the National Science Foundation provides the Major Research Instrumentation Program (MRI). Both have many similarities and differences when compared with the S10.

Grants:	S10	HEI	MRI
Funding Minimum/ Maximum:	$100,000 to $600,000	$750,000 to $2 million	$100,000 to $4 million
Cost Sharing:	None	None	30% of total project cost
Program Funding Available:	$43 million	$20 million	$90 million
Projected Awards:	85	15	175
Award Project Period:	1 year	1 year	Acquisition- up to 3 years Development- up to 5 years
Award Limit Per Organization:	None	None	3
Focus:	Purchase or upgrade of a single item of expensive, specialized, commercially available instrumentation or integrated system by a group of NIH-supported investigators	Purchase of a single major item of equipment for biomedical research use by a group of NIH-supported investigators	Acquisition OR development of shared major instrumentation; integrate research with education to enhance research training
Types of Allowable Instrumentation: (Examples)	• Electron and confocal microscopes • Protein and DNA sequencers, biosensors • Nuclear magnetic resonance systems • Mass spectrometers • Cell sorters • X-ray diffractometers	• Structural and functional imaging systems • Macromolecular NMR spectrometers • High-resolution mass spectrometers • Cryoelectron microscopes • Supercomputers	• Microscopes • Spectrometers • 3D imaging systems • Cyberinstrumentation • Nano/Micro-fabrication • Testbeds • Genome sequencers • Telescopes/detectors • Remote/autonomous sensors • Sub-atomic particle detector/array • Particle image velocimetry • Wet lab instruments

CONCLUSION

The S10 grant may be difficult to get, but it's certainly worth your best efforts if you're looking to purchase expensive, shared instrumentation for your research. You need solid backing by your institution and a good pool of like-minded investigators. You also need to have all the ammo in your grant-writing arsenal to push all the right buttons with reviewers.

With a few tricks and strategies – and avoiding a few big pitfalls – the S10 grant award is well within your reach. Here are some resources to help you work through your application and post-award processes:

<u>**Resources:**</u>

S10 Program Announcement

http://grants.nih.gov/grants/guide/pa-files/PAR-13-008.html

List of Allowable Instrumentation

http://dpcpsi.nih.gov/orip/diic/instru_fixed_equip_s10.aspx

NIH Office of Research Infrastructure Programs (ORIP)

http://dpcpsi.nih.gov/orip/index.aspx

S10 Grant Program Frequently Asked Questions

http://dpcpsi.nih.gov/orip/diic/shared_instru_faqs.aspx

SF 424 Research and Related Forms

http://grants.nih.gov/grants/forms.htm

High-End Instrumentation Grant Program (HEI)

http://dpcpsi.nih.gov/orip/diic/high_end_instrumentation.aspx

Major Research Instrumentation Grant Program (MRI)

http://www.nsf.gov/od/oia/programs/mri/

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