Electronic Application Note: While NIH moves to electronic applications, use either the PHS 398 or the FOA's electronic application package depending whether the grant type you are applying for has made the transition to electronic application. See the Transition Timeline on the Electronic Submission page.

Takes you through the PHS 398 forms and shows how to respond to events after application. You can review the original tutorial, and other tutorials.

Table of Contents

• Focus Your Application
  o Before You Start Writing
  o Don't Propose Too Much
  o Address NIH Review Criteria
  o Write a Strong Application
    ▪ Write to Your Audience
    ▪ Be Persuasive, But Be Careful of Being Too Innovative
    ▪ Balance the Technical and Nontechnical
    ▪ Make Life Easy for Reviewers
    ▪ Know These Review Problems and Solutions
    ▪ More Common Problems Cited by Peer Reviewers
  o Organizing, Writing, and Formatting
    ▪ Master the 398
    ▪ Plan and Organize Effectively
    ▪ Write, Edit, and Proof Like a Pro
    ▪ Edit Before Sending in Your Application
  o Two More Points: Signatures and Appendices

• The NIH Grant Application: Section by Section
  o Introduction
  o Develop Your Research Plan
    ▪ How Will You Organize Your Research Plan?
    ▪ Specific Aims
    ▪ Background and Significance
    ▪ Preliminary Studies/Progress Report
    ▪ Research Design and Methods
      ▪ General
      ▪ Approach
      ▪ How Will You Deal With Results?
      ▪ Address Requirements for rDNA Research
    ▪ Human Subjects
      ▪ Is it Human Subjects Research?
      ▪ If the Answer Is Yes for Human Subjects
• Reviewers Look at More Data for Human Subjects
  ▪ Vertebrate Animals
  ▪ Select Agent Research
  ▪ Bibliography and References Cited
  ▪ Multiple PI Leadership Plan
  ▪ Consortium and Contractual Agreements
  ▪ Resource Sharing
  ▪ Consultants
  o Application Contents Other Than the Research Plan
    ▪ Form Page 1: Face Page
    ▪ Form Page 2: Abstract and Other Items
    ▪ Form Page 3: Table of Contents
    ▪ Plan Your Budget
    ▪ Create Your Budget
    ▪ Prepare the Biographical Sketches
    ▪ Don't Confuse Research Support with Current and Pending Support
    ▪ Develop Current and Pending Support Information
    ▪ Describe Your Resources
    ▪ Limit Your Appendix, Complete Other Pages
  o After You've Finished Writing
• Send NIH Your Application
  o Write a Cover Letter
  o Your Application Is Assigned to an Institute and Study Section
    ▪ Request an Institute
    ▪ Request a Study Section
  o When Your Application Is Due, How to Send It
  o Avoid Having Your Application Returned
  o Hearing Back After Sending in Your Application
  o Call If You Are Not Satisfied With a CSR Assignment
  o You May Be Able to Send in Additional Data
• What to Do If You Did Not Succeed
  o If Your Score Was Not Fundable or You Were Not Scored
  o Ask: Is It Fixable?
  o Call Your Program Officer for Feedback
  o Assess How Serious the Problems Are
  o Summary Statements Have Their Limitations
  o If You Were Not Scored, You May Be Able to Revise
  o Common Fixable Problems
  o Not Fixable or More Difficult Problems
  o If Problems Are Fixable, You Have Several Options
    ▪ Option 1
    ▪ Option 2
Before You Start Writing

Before you start writing your application, do some planning. It generally takes three to six months to write a grant application, and another nine months or so from the time you send it in till you get funded. Check with your institution’s business office to see what deadlines it has -- you'll need to get the business official's signature before you send your application to NIH. Allow time for your own internal review and time to make the edits from it.

Next find out what documentation you'll need to prepare -- any special requirements, e.g., research animals or human subjects. See Define the Documentation You'll Need for more information, including details on submitting a data sharing plan and a plan for sharing model organisms.

One way to make sure your planning and feedback are adequate is to put together your own review committee before you write your application. Ask a few senior colleagues to be on it, and share your ideas with them while you're still in the concept stage. After you've agreed on a project, draft a short description of your specific aims and discuss these with the committee. This strategy will give you input early on and help you make sure you're writing and organizing effectively. And be sure to have the committee review the application after you're finished writing.

For tips for new investigators, go to Advice for New Investigators.

Additional Resources

- PHS 398 Application Form
- Laws Relevant to NIH
- Preparation Timeline
- Receipt to Review Timeline
- When to Contact an NIAID Program Officer
- CRISP database of biomedical research projects funded by the U.S. Public Health Service
- Before You Begin checklist
- Documentation checklist
- Previous tutorials, Grant Application Basics and How to Plan a Grant Application
- Next tutorial, How to Manage Your Grant Award
- Other tutorials available on our All About Grants page
- Data Sharing Policy SOP
- Sharing Model Organisms SOP
Don't Propose Too Much

Sharpen the focus of your application. Novice applicants often overshoot their mark, proposing too much. Make sure the scale of your hypothesis and aims fits your request of time and resources. Reviewers will quickly pick up on how well matched these elements are. Your hypothesis should be provable and aims doable with the resources you are requesting.

For tips for new investigators, go to Advice for New Investigators.

Additional Resources

- Develop a Solid Hypothesis
- Research Plan Specific Aims
- Before You Begin checklist
- New PI Applicant checklist

Address NIH Review Criteria

Peer reviewers use only standard NIH review criteria for investigator-initiated applications. Initiatives may have a few additional criteria to meet the needs of the initiative.

Investigator-initiated review criteria

1. **Significance.** Does this study address an important problem? If the aims are achieved, how will scientific knowledge or clinical practice be advanced? What will be the effect of these studies on the concepts, methods, technologies, treatments, services, or preventions that drive this field?

2. **Approach.** Are the conceptual or clinical framework, design, methods, and analyses adequately developed, well integrated, well reasoned, and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternative tactics?

3. **Innovation.** Is the project original and innovative? For example: Does it challenge existing paradigms or clinical practice or address an innovative hypothesis or critical barrier to progress in the field? Does the project develop or use novel concepts, approaches, methods, tools, or technologies?

4. **Investigators.** Are the investigators appropriately trained and well suited to carry out this work? Is the work proposed appropriate to the experience level of the principal investigator and other researchers? Does the investigative team bring complementary and integrated expertise to the project (if applicable)?

5. **Environment.** Does the scientific environment contribute to the probability of success? Do the studies benefit from unique features of the scientific environment or subject populations or use useful collaborative arrangements? Is there evidence of institutional support?

Though you’ll want to address NIH's review criteria in your application, their relationship to your score is complex.

Reviewers are told to keep the five criteria in mind, yet the final priority score they assign is more likely to reflect a judgment of overall merit. In practice, reviewers use their experience to get a sense of how your application stacks up against the science in the field, using a hypothetical standard of excellence for your field of science. This is similar to a dog show, where breeds are judged for ‘best of breed,’ and different breeds do not compete with each other.

So there's not a one-to-one relationship between how your application measures up to the review criteria and your score. Further, adherence to the criteria varies by review committee. The take-home message is: though review criteria are an important assessment tool you need to take into account, writing a high-quality application with a persuasive argument for why NIH should fund you is the surefire route to getting funded.

An application does not need to be strong in all review criteria to warrant a high priority score, though all the criteria can affect your score. For example, reviewers may assign an outstanding score to a proposal for important work that
is not innovative but is essential to move a field forward.

Though innovation is one of the review criteria, it can be harder to gain reviewer acceptance if your ideas are outside the mainstream of thought, especially if you're a less experienced applicant.

Additional Resources

- Peer Review Outcomes
- Initial Peer Review assesses Quality of the Application
- Research Plan: Planning checklist
- Review Criteria SOP

Write to Your Audience

Your application has two audiences: the majority of reviewers who will probably not be familiar with your techniques or field and a smaller number who are. To succeed in peer review, win over the primary reviewer, who will act as your advocate in guiding the group's discussions. Peer reviews work this way because time is limited and discussions are short.

Your objective is to write and organize your application so the primary reviewer can readily grasp and explain what you are proposing. During the discussion, the other reviewers will ask the primary reviewer questions about your application, and they'll also skim it during that time (and possibly before the meeting as well). Most likely, they will read only your abstract, significance, and specific aims. But all reviewers are important because each reviewer gets one vote.

Additional Resources

- At the Peer Review Meeting: Basic Layout of Initial Peer Review
- Research Plan: Process checklist

Be Persuasive, But Be Careful of Being Too Innovative

Capture the reviewers' attention by making the case for why you should be funded. Tell reviewers why testing your hypothesis is worth funding, why you are the person to do it, and how your institution can give you the support you'll need to get it done. Another approach is to write your application as if you were teaching your audience about it. Like a Scientific American article, include enough background information to enable an intelligent reader to understand your proposed work.

The innovation criterion can be tricky to factor into your proposal. Beware of being far outside the mainstream of thought. If your proposal is highly innovative, you'll need to make a very strong case for why you are challenging the existing paradigm and have data to support your innovative approach.

Additional Resources

- NIH Has Five Review Criteria
- Research Plan: Planning checklist
- Research Plan: Process checklist
Balance the Technical and Nontechnical

You'll need to balance technical and nontechnical writing, especially in your specific aims. Why? First, most reviewers will just scan your application, and second, they may not be familiar with your field or methods.

One way to organize technical and nontechnical information is to keep the parts of the application most reviewers will likely read -- abstract, significance, and specific aims -- simple and nontechnical, and get technical and detailed only in the methods section. Your methods section will need to spell all your experiments out in fine detail.

Another approach is to include both technical and nontechnical information throughout your application. For example, you could begin each paragraph simply and then progress to more complex information, or you could alternate paragraphs that have less and more technical information. To be safe, be sure to include both broader, less technical descriptions as well as more technical information in the most widely read sections.

Be very careful with highly technical material. Some reviewers may be better informed about your field than you. To succeed, you will have to be at least as savvy as the savviest reviewer in the group. Leave out anything that's not critical. The more you put in, the more information there is for reviewers to fault or disagree with.

Additional Resources

- At the Peer Review Meeting: Basic Layout of Initial Peer Review
- Research Plan Specific Aims
- Research Plan Background and Significance
- Background and Significance checklist
- Specific Aims checklist

Make Life Easy for Reviewers

Peer review puts a big burden on reviewers, so they truly appreciate an application that is neat, well organized, and easy to read. To keep reviewers on your side, make your application super user friendly. Here's how:

Label all materials clearly. Make it easy for reviewers to find information.

Keep it short and simple. Start with basic ideas and move progressively to more complex ones. State the key points directly, and write basic concepts as nontechnically as possible. You may want to use Scientific American as a model for the level of writing to use for your nontechnical parts.

Guide reviewers with graphics. A picture is worth a thousand words, probably more. Graphics can help reviewers grasp a lot of information quickly and easily, and they break up the monotony of hundreds of pages of text each reviewer contends with.

Edit and proof. Your presentation can also make or break your application. Though reviewers assess science, they are also influenced by the writing and appearance of your application. If there are lots of typos and internal inconsistencies in the document, your score can suffer.

Additional Resources

- Plan and Organize Effectively
- Writing: General checklist
- Writing: Presentation of Information checklist
- Writing: Mechanics checklist
- Writing: Editing and Proofreading checklist
Know These Review Problems and Solutions

Avoid the main traps applicants fall into. Reviewers are knowledgeable, experienced scientists, but they can't know everything.

Problem: They may not get the significance of your proposed research.
Solution: Write a compelling argument.

Problem: They may not be familiar with all your methods.
Solution: Write to the nonexpert in the field.

Problem: They may not be familiar with your lab.
Solution: Show them you can do the job.

Problem: They may get worn out by having to read 10 to 15 applications in detail.
Solution: Write clearly and concisely, and make sure your application is neat, well organized, and visually appealing.

Additional Resources

- Research Plan: Process checklist
- Writing: Presentation of Information checklist

More Common Problems Cited by Peer Reviewers

Below we list the most common reasons cited by reviewers for an application's failure to gain an award. Review this list and make sure none of these items apply to your idea.

- Problem not important enough.
- Study not likely to produce useful information.
- Studies based on a shaky hypothesis or data.
- Alternative hypotheses not considered.
- Methods unsuited to the objective.
- Problem more complex than investigator appears to realize.
- Not significant to health-related research.
- Too little detail in the Research Plan to convince reviewers the investigator knows what he or she is doing, i.e., no recognition of potential problems and pitfalls.
- Issue is scientifically premature.
- Over-ambitious Research Plan with an unrealistically large amount of work.
- Direction or sense of priority not clearly defined, i.e., experiments do not follow from one another and lack a clear starting or finishing point.
- Lack of focus in hypotheses, aims, and or Research Plan.
- Lack of original or new ideas.
- Investigator too inexperienced with the proposed techniques.
- Proposed project a fishing expedition lacking solid scientific basis, i.e., no basic scientific question being addressed.
• Proposal driven by technology, i.e., a method in search of a problem.
• Rationale for experiments not provided, i.e., why they are important or how they are relevant to the hypothesis.
• Experiments too dependent on success of an initial proposed experiment. Lack of alternative methods in case the primary approach does not work out.
• Proposed model system not appropriate to address the proposed questions.
• Relevant controls not included.
• Proposal lacking enough preliminary data or preliminary data do not support project's feasibility.
• Insufficient consideration of statistical needs.
• Not clear which data were obtained by the investigator and which reported by others.

Additional Resources

• Research Plan: Planning checklist
• Preliminary Data checklist
• Design and Methods checklist

Master the 398

Make sure you follow all instructions. Beware: NIH strictly enforces formatting requirements and may return improperly formatted applications! Don't risk having your application returned because you exceeded the page limits or used an improper font or font size.

Know your page limits -- 25 pages for the Research Plan of an R01 application. See Table 1, Page Limitations and Content Requirements of the 398 for others. Only sections a-d of the Research Plan count toward the page limit. Thus, the biosketches and information about human subjects, animals, literature, consortium arrangement, and consultants do not.

Font size and spacing requirements are strictly enforced.

• You must use Arial, Helvetica, Palatino Linotype or Georgia typeface and a font size of 11 points or larger.
• A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.
• It can't average more than 15 letters per inch, though fewer may be better.
• Use no more than 6 lines per vertical inch -- don't squeeze lines together.
• Paper must be 8½ by 11 inches; margins, at least one-half inch.
• Font size in figures and tables may be smaller but must be easily readable.
• There are other specifications, for example, the document must not be permanently bound and, except the appendix, it must be photocopy-ready (black and white, no glossy paper). Read the 398 for details.

The 398 includes a list of definitions used in the document. Also note that it's a living document that is continually being revised. If you need help writing or formatting your application, call an SRA in either CSR or NIAID.

Additional Resources

• NIAID Programs and Staff
• CSR Study Section Rosters
• Writing checklists
Plan and Organize Effectively

Organize your application to effortlessly guide reviewers through it. For example, they expect the Research Plan to be organized exactly as described in the 398 instructions, so label sections accordingly: A. Specific Aims, B. Background and Significance, etc.

Within that structure, pick one of several methods of organization for different sections of the application, or combine them effectively. You can organize by:

- Order of your experiments in the methods section.
- NIH review criteria.
- More and less technical material.

You can also make it easy for the reviewers to find material by using strong paragraph headers and an abundance of graphics and tables. Such items help organize and illustrate your ideas. Graphical timetables for experiments can effectively illustrate their flow and timeframes. Include any overlap, and show what you will do if you get a negative result. Your graphics can illustrate timetables and flow charts of planned experiments, showing alternatives depending on experimental results as well as the staff and resources needed at each stage.

Additional Resources

- Plan Your Application
- Writing checklists

Write, Edit, and Proof Like a Pro

Make it easy for the reviewers -- they'll appreciate it! All the basic concepts you learned in English (or other language) writing classes apply to writing an NIH grant. These basic techniques will help keep your writing streamlined and well organized so reviewers can readily glean the information. If you could use a writing refresher, we've recapped the basic principles below.

- Start with an outline. Follow the organization you carefully thought out in the previous section.
- Write a topic sentence for each main topic. Then write a topic sentence for each sub topic in the outline.
- Make one point in each paragraph. This is key to creating text that's easy to read. State the point in the topic sentence, usually the first sentence, and support it with additional information in the subsequent sentences. Paragraphs have two functions: they aggregate information point by point and they break up the page, creating much-needed white space. Keep them short.
- Divide the document into sections and subsections. This organizes your text and, together with paragraph headers, creates white space. Reviewers are human. If it looks too hard to read, they're much less likely to read it. Huge blocks of uninterrupted text are depressing to look at. If you don't believe it, see this bulleted list with no formatting.
- Include bullets and lists. They draw attention to key facts and create a visual break.
- Use short sentences with a basic structure: subject, verb, object. Breakup long, involved sentences and paragraphs. Keep sentence average to 20 words or less. Keep subject, verb, and object together at the beginning of the sentence.
- Include transitions. At the beginning of a new paragraph or concept, make a transition to your next point by
relating it to your previous discussion. Use words such as furthermore, additionally, in other words, in another area, in contrast, following the same path, and moving to the next stage to show some relationship between the ideas.

- **Keep related ideas and information together**, e.g., put clauses and phrases as close as possible to-preferably right after the words they modify.
- **Use strong, active verbs** -- they are the workhorses of effective sentences. For example, write "We will develop a cell line," not "A cell line will be developed."
- **Use verbals instead of abstract nouns**. Turn abstract nouns ending in 'ion' and 'ment' into verbs. For example, say 'creating the assay leads to...' rather than 'the creation of the assay leads to...'
- **If writing is not your forte, get help.**

**Additional Resources**

- Writing checklists

**Edit Before Sending in Your Application**

Edit out redundant words and phrases. Make sure the writing is concise and informative. Get outside opinions on the writing and presentation. Sloppy work will suffer in review: reviewers feel that if the application is sloppy or disorganized, your research may be as well.

Cross check all data and information for consistency. After you're finished, leave it for a few days, then go back and read it again. You'll probably find a lot more errors.

Highlight and review your conclusions. Is there any way your supporting facts might lead a reader to different conclusions? If so, revise your work so there's no room for argument (or reconsider your conclusions).

Make sure you've supported all facts with citations.

Edit and proofread thoroughly. Make sure your work is letter perfect. If you cannot meet the application deadline comfortably, consider delaying to the next receipt date.

Proofread several times on different occasions, and have others proofread as well, including nonscientists with strong English skills. After the content is final, check for typos and grammatical mistakes, omitted information, and errors in figures and tables.

**Additional Resources**

- PHS 398 Application
- Preparation Timeline
- NIH's Standard Postmark/Submission Dates and Review and Award Cycles
- Writing: Editing and Proofreading checklist

**Two More Points: Signatures and Appendices**

1. **Signatures.** Effective May 10, 2006, PI signatures are not required on grant applications. Instead, PIs must provide a signature assurance before each submission. For more on this, see the April 7, 2006, Guide notice.

2. **Appendices.** In the March 28, 2006, Guide notice, NIH tweaked its March 16 announcement on how to submit
publications in appendices. Here are the key points. Changes to the previous notice are in bold:

- **Link if you can** -- as long as the grant type allows publications in the appendix.

- **Publications in press** -- for both paper and electronic applications, link to a *publicly available* journal article or NIH PubMed Central identification number.

- **Publications without an online journal link** -- for electronic applications, submit the entire article as a PDF attachment. *If using a paper PHS 398, include a printed copy.*

- **Manuscripts accepted for publication** -- same as above.

- **See if the grant type allows publications** -- for both paper and electronic applications, check the NIH Guide announcement.

As always, never include manuscripts not accepted for publication.

**Colored or glossy materials.** Include only information that will photocopy well since your application will be photocopied before it is sent to reviewers. If you have colored or glossy materials, put them in the appendix -- reviewers get originals of those. All graphs and charts not on glossy paper go in the Research Plan, not the appendix. Do not paste photographs into the application.

**Additional Resources**

- [Writing: Presentation of Information checklist](#)

**Grant Application: Section by Section Introduction**

*Instructions* in the official grant application, PHS 398, house a lot of information you'll need to read to complete your application, including links to forms. Some instructions are general, and some are specific to a section. This guide does not reproduce that information.

On the PHS 398 Web site, you can download the forms in two formats, MS Word and PDF. If you have a slow connection, you may want to download individual forms; if your connection is fast, you can download all the forms in a single file.

**Note:** Effective May 10, 2006, PI signatures are not required on grant applications. Instead, PIs must provide a signature assurance before each submission. For more on this, see the April 7, 2006, *Guide notice, NOT-OD-06-054*. For other changes to the PHS 398, read *Guide notice, NOT-OD-056*.

**Develop Your Research Plan**

Creating a top-quality Research Plan is critical to your application's success in peer review. Your plan describes what you are proposing to do, why it's important, and how you will do it. Following the 398, your Research Plan will have four main sections: a. Specific Aims, b. Background and Significance, c. Preliminary Studies/Progress Report, and d. Research Design and Methods.

You should design your research to answer the question posed by your hypothesis. Throughout, you will give enough detail to convince the the primary, secondary, and tertiary reviewers:

- Your hypothesis is sound and important.
- Your aims are logical and feasible.
- You understand potential problems.
- You can analyze the data.

There is no required form or format for the Research Plan -- use the continuation page of the 398 or plain paper with
appropriate margins and headers. Be sure to number all pages. The 25-page application limit applies only for items ad. Remember to include a data sharing plan and a plan for sharing model organisms, if applicable. For more information on both plans, including where to place them in your application, see the Data Sharing Policy SOP and the Sharing Model Organisms SOP.

Read the PHS 398 grant application kit carefully to make sure you are including all needed sections and are complying with formatting requirements.

Additional Resources

- Research Plan Instructions
- Develop a Solid Hypothesis
- Don't Propose Too Much
- Research Plan checklists
- NIH Data Sharing Policy Web site
- NIH Model Organisms for Biomedical Research Web site

How Will You Organize Your Research Plan?

Think about how to organize your Research Plan. You'll need to give reviewers guideposts by organizing effectively. For the bigger picture organization, use the section letters and headers in the 398 instructions. Then depending what works best for you, fine tune the next level by organizing your material either by review criteria, the order of your experiments, more and less technical material, or a mixture of these approaches. Make sure you coordinate the sections so they progress logically.

No matter how you organize, you will list all experiments you plan to do for each specific aim, showing start and stop points for each one. Also, you should tell reviewers what staff you'll need to accomplish your aims. Be sure to correlate the time you indicate it takes to complete the experiments with the budget and personnel you are requesting.

For maximum effectiveness, include graphical timetables to illustrate the flow and timeframes for your experiments. In decision trees, show any overlap among them and what you plan to do if you get a negative result.

To save time and space, you can use well-known references for the more technical material. If a citation is known in your field, reviewers will be familiar with it, so you can leave out details related to it.

Don't put anything in your research you don't plan to do! Keep it streamlined. The more you put in, the greater your chances of making a mistake.

Additional Resources

- Research Plan Instructions
- Don't Propose Too Much
- Write to Your Audience
- Balance the Technical and Nontechnical
- Bibliography and References Cited
- Research Plan checklists

Specific Aims
Your **specific aims** are the objectives of your research project, what you want to accomplish, and your project milestones. Write this section for audiences, primary reviewers and other reviewers, since they'll all read it. Choose aims reviewers can easily assess. Your aims are the accomplishments by which the success of your project is measured. Recommended length of this section is one page.

A common mistake new applicants make is being too ambitious. You should probably limit your proposal to three to four specific aims.

Design your specific aims and experiments so they answer the question posed by the hypothesis. Organize and define your aims so you can relate them directly to your research methods.

Begin this section by stating the general purpose or objectives of your research. You may want to organize it in outline form: specific aim 1, specific aim 2, etc.

If you are applying for more than one grant, make sure the specific aims differ.

**New investigators:** If you're a first-time investigator, you may need help in designing your project to ensure that your approach will enable you to analyze your data, test your hypothesis, and achieve your goals. You'll need to provide detailed information on such items as sample size estimates, sampling and research design, data definitions, and analytic models. You may want to seek advice on the technical and analytical aspects of the project. And make sure your [Research Plan](#) gives enough detail that reviewers can assess your design and your ability to carry out the project.

### Additional Resources

- [At the Peer Review Meeting: Basic Layout of Initial Peer Review](#)
- [Develop a Solid Hypothesis](#)
- [Write to Your Audience](#)
- [Don't Propose Too Much](#)
- [Balance the Technical and Nontechnical](#)
- [Organizing, Writing, and Formatting](#)
- [Research Design and Methods](#)
- [Specific Aims checklists](#)

### Background and Significance

Remember that this is one of the three sections likely to be read by all the reviewers, so you'll write this section in non-technical terms for the broader audience. It's important that you convey the significance of your research and how it relates to the betterment of public health. Recommended length of this section is two to three pages.

In the Background and Significance section, reveal you are aware of opportunities, gaps, and roadblocks in your field. Show reviewers your intimate familiarity with the field and knowledge about research being done, referring to all relevant scientific literature. If you leave out an important work, reviewers will assume you're not aware of it.

Use this section to convey the breadth of your knowledge of your field and highlight why you are uniquely qualified to do the research. While you can refer to unpublished work, including information learned through personal contacts, make sure the literature you note here is also in your [Bibliography and References Cited](#) section.

Tell the reviewers how your work suits the NIH mission to improve health through science - just moving science forward is not enough. Tie your science to curing, treating, or preventing disease. When reviewing your application, reviewers will judge the likelihood that your research can make an impact on public health.
Additional Resources

- Research Plan Instructions
- At the Peer Review Meeting
- Develop a Solid Hypothesis
- Don't Propose Too Much
- Balance the Technical and Nontechnical
- CRISP database of biomedical research projects funded by the U.S. Public Health Service
- Background and Significance checklists

Preliminary Studies/Progress Report

By providing preliminary data, you build reviewer confidence you can handle the technologies, understand the methods, and interpret results. Preliminary data will help show you have the expertise to do the job. Recommended length of this section is six to eight pages.

Interpret preliminary results critically. Give alternative meanings to the data to show you've thought the problem through and will be able to meet future challenges. If you don't do this, the reviewers will.

Include enough information to show you know what you're talking about. The more complex the project, the more data needed. Tell them how your early work prepares you for the new project.

Though you may include publications of others, focus on your own preliminary data or unpublished data from your laboratory. When using results from other labs, make sure it's clear which data are yours and which emanated from others.

For tips for new investigators, go to Advice for New Investigators.

Additional Resources

- Preliminary Data checklist

Research Design and Methods

When reviewers judge your application your Research Design and Methods section has the most weight. This section describes the experimental design and procedures -- how you will perform the research. Think carefully about how to organize it. You may want to divide your Research Design and Methods section into a description of your research and your methods, placing the methods section last. Another option is to organize this section by the five NIH review criteria. There is no recommended page length to this section, though you must stay within the 25-page limit of the Research Plan sections a to d.

It's helpful to create a graphical timetable showing how and when you will accomplish your aims, including any overlap of experiments and alternative paths. Use flow charts and decision trees to show paths of experiments and how they progress, including paths that show alternatives -- what you will do if you get negative results. You can use the same graphics you created to plan the project to present it in the application.

Additional Resources

- Plan and Organize Effectively
- Address NIH Review Criteria
Specific Aims

Design and Methods checklists

Research Design and Methods: General

Make sure reviewers can find items easily, so organize this section to correspond to your specific aims. This part should give details: specify animal models, exposure times, reagents and how you will get them, statistical analysis methods, etc.

While you may assume reviewers are experts in the field and familiar with current methodology, they will not make the same assumption about you. It is not sufficient to state, "We will grow a variety of viruses in cells using standard in vitro tissue culture techniques." Reviewers want to know which viruses, cells, and techniques; the rationale for using a system; and exactly how the techniques will be used. Details show you understand and can handle the research.

Cite references wherever possible. If a technique is well known, the citation is enough. One caveat: Though detail is important, do not give more information than is needed to state your case. Reviewers will look for flaws and penalize you heavily for them. Don't give them ammunition by including anything in the application you don't plan to do.

Remember that if your proposal is highly innovative, you'll need to make a very strong case for why you are challenging the existing paradigm and have data to support your innovative approach.

Note: If you gather additional data between the time you send in the application and the date of the review, you may be able to send it to the SRA of the study section reviewing your application. Call the SRA to find out whether this is possible and the deadline. Policies vary among study sections.

Additional Resources

- At the Peer Review Meeting: Basic Layout of Initial Peer Review
- Write to Your Audience
- Be Persuasive, But Be Careful of Being Too Innovative
- Balance the Technical and Nontechnical
- Organizing, Writing, and Formatting
- Bibliography and References Cited
- Design and Methods: General checklist

Research Design and Methods: Approach

After you give an overview of the type of research you propose, defend your choice of study design. Be sure to state the expected outcome of your research.

Next, list each set of experiments in the same order as your specific aims, linking your experiments to the aims so reviewers can see how you will achieve them. Anticipate reviewers' questions about the feasibility of what you propose, e.g., how you will gain access to reagents, equipment, or study populations. Describe sources if reagents or equipment are not generally available. If collaborators will provide them, include letters from the sources in the appendix.

Make sure the experiments are in a logical sequence, flowing from one another with clear starting and finishing points. Show a timeline for experiments. And take care you are proposing a realistic level of work for the allotted time. Estimate how much you expect to accomplish each year of the grant and state any potential delays you can
You'll also want to ask yourself: Are your procedures feasible and within your competence? You'll have to convince reviewers you chose the right methods. If your methods are innovative, state why you chose them and how you will avoid technical problems. If you're working with hazardous materials, your application must state what special facilities are available to protect the environment and staff. Describe the precautions you will take in handling the materials and the training people involved have had in safe practices.

In this section, you'll discuss any limitations of each approach and how they may affect your results and data. Call attention to potential difficulties you may encounter, propose alternatives. You'll want to tell reviewers what you will do if your results are negative, how this will also advance the field, and what you will do next. Discuss in detail your methods for gathering and interpreting data and making sure your experiment can yield statistically significant results.

If you or your collaborators have publications showing your use of the proposed methods, put them in the appendix. Your appendix may include only published manuscripts or those accepted for publication. Write it in more detail if you have little published experience in a method.

To fill in expertise, rely on consultants. State how collaborators or consultants will fit into the work. List them as key personnel, and provide biosketches.

Reviewers expect to see supporting data. Where appropriate, include well-designed tables and figures that have accurate and informative titles. Label the axes and include legends. Reviewers will look for discrepancies between your data and text. Check and double check to avoid glitches.

Make sure you reference all the methods and concepts you've used in the Bibliography and References Cited, of the Research Plan.

Additional Resources

- Design and Methods: Approach checklist

Research Design and Methods: How Will You Deal With Results?

To succeed, your application must convince reviewers you'll be able to interpret your results. You can do this by revealing your understanding of the complexities of the subject and breadth of knowledge of your field.

Show you are aware of the limits to -- and value of -- the kinds of results you can expect based on current knowledge of the subject. State the conditions under which your experimental data would support or contradict your hypothesis and the limits you will observe in interpreting results. You should also define the criteria for evaluating the success or failure of a test.

Describe your statistical methods for analyzing the data you plan to collect. When evaluating your approach, peer reviewers will want to assess your methods of data analysis and power calculations as well as your justification for your proposed sample size. Well-designed statistical methods will impress reviewers favorably. Consider getting a statistician involved early to advise you on sample sizes and the amount of data you'll need to collect.

Additional Resources

- Problems Cited by Reviewers
- Design and Methods: Results checklist

Research Design and Methods: Address Requirements for rDNA Research
If you're using recombinant DNA, the rules are complex -- different types of work call for different application procedures. To figure out what to do, a good place to start is by contacting your biosafety officer and institutional biosafety committee. Most institutions require approval of your proposal by this committee. Depending on the nature of the project, NIH may require this approval as well as Recombinant DNA Advisory Committee, NIH director, or other approvals.

For details on approval processes, see section III of the guidelines of the NIH Office of Biotechnology Activities. Also see the 398 Section III, Other Information M. rDNA and Human Gene Transfer Research.

You can also call the NIH Office of Biotechnology Activities for help at 301/496-9838 and find more contact information on the OBA Web site, including a news list serve for subscribers.

Additional Resources

- rDNA Requirements checklist

Human Subjects: Is It Human Subjects Research?

If you're studying materials from identifiable people, your work probably qualifies as human subjects research, even if you're not seeing patients. NIH defines human subjects research as research involving living persons with whom an investigator directly interacts, intervenes, or obtains identifiable, private information.

Our advice: try to avoid this area. If your research comes under the NIH definition, you will need to fulfill a host of application and reporting requirements. Some research using human tissue is exempt, e.g., if the samples are from people who cannot be identified. See our list of exemptions in our glossary.

Also, see the decision trees reviewers use to determine whether your research involves human subjects and what is required if it does.

If you must conduct human subjects research, get help in applying from your business office and experienced grantees. If you are not conducting human subjects research, indicate "Not applicable" in this section of the Research Plan.

If you’re not studying human subjects but your collaborators are, you’ll still need to make sure the assurances are in place.

Additional Resources

- Human Subjects
- How to Write a Human Subjects Application
- Human Subjects (General) checklist

If the Answer is Yes for Human Subjects

If your project studies human subjects or samples, read the human subjects section of the 398 carefully. Follow all instructions to the letter and get more information on the Web at sites listed below.

You'll also need to follow Institute-specific procedures and requirements. In May 2005, NIAID launched a two-step approach to funding investigator-initiated clinical trials: a Clinical Trial Planning Grant (R34) followed by a Clinical Trial Implementation Cooperative Agreement (U01). R34s give PIs funds to prepare a) materials NIAID needs to determine a project's feasibility and b) documentation for applying for a U01.
The R34 is mandatory beginning with the October 1, 2005, receipt date, or September 1 for AIDS applications. For more information, go to Investigator-Initiated Clinical Trial Planning and Implementation Grants.

You must also fulfill requirements outlined in the NIAID Clinical Terms of Award.

In the latest update, the PHS 398 expands reporting and inclusion requirements to include the following key features.

- Description of how you will protect subjects from research risks
- Plans to include
  - Women
  - Children -- include expertise to study children, suitability of your facilities, and how you will recruit enough children
  - Minorities
  - Analyses capable of showing intervention differences between men and women and between minorities and non-minorities for phase III trials
- Data and safety monitoring plans
- Data sharing plans -- mandatory if you’re requesting $500,000 or more in direct costs. See the Data Sharing Policy SOP for more information.
- Mandated reports
- Benefits to public health
- Documentation for select agents, if applicable. See NIAID Select Agent Terms of Award on our Biodefense Resources page.

If you fail to include required documentation, you can face dire consequences, e.g., NIH may not review your application. Also, NIAID will not make an award until your institution's assurances are on file with the Office for Human Research Protections.

To cut your risks, leave reviewers no questions about what you propose to do. Clearly show how you will include diverse populations and protect subjects from study-associated risks. Also state the benefits of the study to the patients and the public health.

Additional Resources

- Human Subjects
- Glossary -- including a definition of what constitutes human subject research
- How to Write a Human Subjects Application
- NIAID Clinical Terms of Award -- NIAID-specific requirements
- Title 45 CFR Part 46 -- legal basis for human subjects requirements
- Human Subjects Research Plan checklist

Reviewers Look at More Data for Human Subjects

In addition to the regular review criteria, clinical research applications are also reviewed for:

- Adequacy of plans to include both genders, minorities and their subgroups, and children as appropriate to the research goals. Reviewers will also assess plans to recruit and retain subjects.
- Reasonableness of the proposed budget and duration in relation to the proposed research.
- Adequacy of the proposed protection for humans, animals or the environment, to the extent they may be
adversely affected by the research.

- Adequacy of the proposed plan to share data, if appropriate. For more information, see the Data Sharing Policy SOP.

Inadequately addressing these issues will negatively affect your priority score, while failure to address them may result in your application not being reviewed.

Additional Resources

- Human Subjects
- How to Write a Human Subjects Application
- Human Subjects (General) checklist

Vertebrate Animals

As with human subjects, applicants must also provide assurances that research animals are treated properly as well as state the benefits of the research to humanity. When preparing your application, read the Vertebrate Animals section of the PHS 398, which lists five elements your application must describe. If you are not conducting vertebrate animal research, indicate "Not applicable" in this section of the Research Plan.

Reviewers will also assess the adequacy of proposed protection of animals, to the extent they may be adversely affected by the research.

You'll need to obtain Institutional Animal Care and Use Committee approval of your project. Don't send it with your application; we'll ask you for it just-in-time, at the time of award.

NIAID cannot issue an award until your institution files its assurance with the NIH Office of Laboratory Animal Welfare. For more information, call OLAW at 301/496-7163 or email olaw@od.nih.gov, or contact your institution's business office.

Additional Resources

- Vertebrate Animals
- How to Write an Application Involving Research Animals Tutorial
- OLAW PHS policy on the Humane Care and Use of Laboratory Animals Tutorial
- What Investigators Need to Know About the Use of Animals
- Health Research Extension Act of 1985, Public Law 99-158

Select Agent Research

Does your proposed research involve using select agents? If so, you'll have to provide information for each performance site, including:

- Which select agents will be used, how, and where.
- Status of each domestic institution's registration with either CDC or APHIS.
  - If the performance site is a foreign institution, provide the name of the country where select agent research will be performed. Additional information will be required at the time of award. See the Select Agent Awards SOP for further details.
• A description of all facilities where select agents will be used.
  o Provide procedures for monitoring the possession, use, and transfer of select agents.
  o Describe plans for appropriate biosafety, biocontainment, and security and incident response of the select agents.

Paper applications

If you are using a PHS 398 paper application, create a heading for this section (Section G) entitled "Select Agent Research" and place it immediately following the Vertebrate Animal section.

Additionally, you must describe biocontainment resources at each performance site in the Resources section.

Electronic applications

If you are applying electronically, include the section for select agent research in the PHS 398 Research Plan component, found in the "Mandatory Documents" box; see Mandatory and Optional Forms.

To add your document, go to the line for Select Agent Research and click "Add Attachment."

Note that you must describe biocontainment resources at each performance site in the "Facilities & Other Resources" section of the Research and Related Other Project Information form, another mandatory document.

Read the instructions

Whether you are using a paper or electronic application, be sure to read the instructions (see links below) and any additional requirements specified in a program announcement or request for applications.

Additional Resources

• NIAID Select Agent Awards
• Biodefense Research Questions and Answers
• NIAID Select Agent Policy for Foreign Institutions Questions and Answers
• PHS 398 instructions
• SF 424 instructions
• April 7, 2006, Guide notice
• June 22, 2006, Guide notice

Bibliography and References Cited

In this section, you'll want to refer to the literature thoroughly and thoughtfully but not to excess, listing all publications supporting your hypothesis and methods. The publication list need not be exhaustive, probably less than 100 of the most relevant citations. There is no page limit to this section.

Each citation must have the names of all authors (not et al.), name of the book or journal, volume number, page numbers (not first page only), and year of publication.

Citations show reviewers your breadth of knowledge of your field. Research proposals do not fare well when applicants fail to reference relevant published research, particularly if it indicates that the proposed approach has already been attempted or the methods were found to be inappropriate for answering the questions you've posed.
Additional Resources

- How Will You Organize Your Research Plan?
- Research Design and Methods: General
- Cited Literature checklist

Multiple PI Leadership Plan

Note: NIAID is not participating in NIH's multiple PI pilot program, so you won't use this section until the multiple PI option opens to all application types, planned for January 2007.

If you're proposing a project that involves multiple principal investigators, you must provide a leadership plan that addresses several items, such as:

- Roles and responsibilities of each PI, including who will serve as the Contact PI, i.e., the person who will be the liaison with NIH and disseminate information to the other PIs.
- Process for making decisions on scientific direction and allocating resources.
- Procedures for resolving disputes.
- Publication and intellectual property policies.

Since there are no page limits, be thorough. Peer reviewers will consider the quality of your leadership plan and will judge whether it promotes sufficient coordination and communication among all the PIs.

For more on what you should include and how your information should be presented, see the example project leadership plans.

Additional Resources

- NIH Multiple Principal Investigators Web site

Consortium and Contractual Agreements

If you're working closely with an investigator from another institute, you'll need a consortium agreement, an agreement of collaboration between two institutions.

Briefly describe any consortium or contractual arrangements, stating the roles of the people or organizations involved. The business offices of both organizations will transact a formal agreement in a letter describing research roles and their understanding of the arrangement. Put the letter in the appendix.

Make sure the information in this section matches that on the Modular format page. You must separate consortium facilities and administrative costs from other direct costs.

Also, be sure to include all key personnel and other significant contributors on form page two and in the biosketches.

Resource Sharing

NIH requires two plans for sharing, a plan for sharing model organism resources, and a data sharing plan. One difference between them is that the data sharing plan is only required for applications requesting more than $500,000.

Describe your plans -- or justification for the absence of such a plan -- in the Research Plan of the PHS 398.
count toward the page limit. As appropriate, other sections of the application may further describe either topic.

For more information on writing a sharing plan, see frequently asked questions on the NIH Model Organisms for Biomedical Research Web site and examples of sharing plans on the NIH Model Organism Sharing Policy Web site.

The data sharing plan requires sharing the final data set (identifiers removed) through your institution, no later than the acceptance for publication of the main findings. For more information, see the Data Sharing FAQ and the Final NIH Statement on Sharing Research Data in the February 26, 2003, NIH Guide. To see how this is done, go to our Sample Data Sharing Plan.

Additional Resources

- Data Sharing Policy SOP
- Sharing Model Organisms SOP

Consultants

Careful selection and addition of consultants can add credibility to your application and greatly improve its quality. You should rely on consultants to help in areas where you're short on expertise. Consultants should be credible, and the best are known experts in their field.

Include a letter describing the willingness of an investigator to participate as a consultant to your project and what their role will be. It's a good idea to send your consultants a sample letter they can return to you with their signature. That way, the letter will contain all the information you need, and they'll probably return it to you faster.

Be sure to list your consultants as key personnel and provide biosketches in the application.

Additional Resources

- Consultant checklist

Application Contents Other Than the Research Plan

Congratulations! You have completed the hardest part of your application, the Research Plan.

Now, you're ready to tackle the forms. Keep in mind that key personnel, resources, and consortium information appears in more than one form. Make sure the information is consistent. For workers, you'll list your key personnel in form page 2 and the biosketches, but you list all personnel in your modular budget justification page.

NIH gives you the forms in PDF and MS Word formats, which you can fill out and print for your application. For PDF, you'll need to buy software such as Adobe Acrobat to be able to save your data; for MS Word, you may be able to save the form in your word processor. In the PDF version, you can access the 398 instructions for a form by opening the plus sign next to its title. NIH also provides some examples of filled out forms, such as the biosketches and modular budget.

Grants.gov is testing an electronic SF 424 Application for Federal Assistance, which collects a subset of the data needed for the PHS 398.

Form Page 1: Face Page

You will complete parts of your face page, and your business office will prepare other parts, for example, facilities and administrative costs and other financial information. Visit the people in your business office early to see what
information they are inserting and how much time they’ll need to review, add required information to, and sign your application. You must have this signature before you send it to NIH.

As for your signature, it is not required as of May 10, 2006. Instead, you’ll provide a signature assurance that your institution will keep on file. For more on this, see the April 7, 2006, Guide notice, NOT-OD-06-054. For other changes to the PHS 398, read Guide notice, NOT-OD-056.

Make your title specific and detailed. Stay within the 81-character limitation (this includes spaces).

If your application is a revision, do not change the title. If you are applying for more than one award or already have one or more grants, make sure the title of your application is unique.

If you're a new investigator, don’t forget to check the new investigator check box.

Additional Resources

- Face page form
- Face page instructions
- Preparation Timeline
- What to Do If You Did Not Succeed

Form Page 2: Abstract and Other Items

After you have finished writing your Research Plan, write your abstract in the box marked "Description." Make your abstract a clear, succinct summary of your project. The NIH referral officer depends on your abstract and title to assign your application to a peer review panel and to an IC. The abstract must fit into the box on form page 2.

In your abstract, state your hypothesis, specific aims, and objectives and why they are important and innovative. Keep in mind that, if your application is funded, your abstract becomes public information in CRISP, so don't include proprietary or confidential information.

For the reviewers, you should note the importance to your field, while outlining your method for accomplishing your goals. It also must have two to three sentences written in lay language that describe your project's potential contribution to public health.

In addition to the abstract (Description), complete the other four sections.

- **Performance Sites.** List all sites where the work will take place. This must match the information in the Resources Format Page, which details which facilities are completing which aspects of the project.

- **Key Personnel.** List all key persons involved with the project and briefly state their role. Begin with the principal investigator, then list in alphabetical order all other people who are contributing substantively and measurably to the research, including consultants. Each person listed should have a biosketch, which goes on the biographical sketch format page.

- **Other Significant Contributors.** List any investigators who are committed to the project with an indefinite level of effort. You will need to include their biosketches, but not current and pending support information.

- **Human Embryonic Stem Cells.** Check "yes" or "no" to indicate whether your research involves human embryonic stem cells. If so, include the Human Embryonic Stem Cell Registry number for the stem cell line.

Additional Resources

- Form page two
- Form page two instructions
Form Page 3: Table of Contents

Complete the table of contents, Form page 3, when you're finished writing everything. Double check to make sure all items and page numbers correspond to those in the body of the application.

Additional Resources

- Form page three
- Form page three instructions

Plan Your Budget

Prepare your budget after you have written your Research Plan and have a good idea of what the costs of your project will be. Your best strategy is to request only enough money to do the work. Reviewers keep on the lookout for reasonable costs and will judge whether your request is realistic and justified by your aims and methods. Significant over- or under-estimating suggests you don't understand the scope of the work. Reviewers will read the percentage of effort you've listed for each key person and will judge whether the figures are in sync with their expectations, based on the research proposed.

As a rule of thumb for calculating your costs, figure salaries will be 60 to 80 percent of the total request, rounded up to the nearest $25,000. Make sure your PI's salary takes into account the mandatory cap, which changes every fiscal year. Check our Budget page, the NIH Guide, or your business office for the latest figure.

As a new investigator, you should request less than $250,000, so you'll most likely prepare a modular budget. With a modular budget, you request funding in increments of $25,000, provide few details, and budget for the entire funding period. Go the modular route for a research project grant (R01), small research grant (R03), exploratory/developmental grant (R21), or academic research enhancement award (R15) application requesting less than $250,000, unless you're responding to an RFA or PA that asks for a detailed budget. For guidance on how much money and time to request, see Decide Award Type, Amount, and Duration.

One major difference between modular and traditional grants is modular grants do not get annual inflation-based budget increases. This means you'll have to build all funding needs you foresee into the request and plan for the cost of the entire project when applying. Generally people request the same number of modules each year, except for special needs such as equipment.

Additional Resources

- NIH's modular Web page
- RFAs and PAs May Have Special Requirements
- Budget checklist
New PI Applicant checklist

Create Your Budget

After you've determined your budget in increments of $25,000, fill in the top box of the form with the requested budget for each year and total budget. Then list personnel and consortium information under their own headers.

Review the modular budget format page (same modules) or modular budget format page (variable modules) in the 398 as examples of the level of detail to include. Under the personnel header, state the percent effort each worker will give to the job for all workers getting paid under the grant, not just the key personnel. Don't include other significant contributors. Briefly state the responsibilities of each person in enough detail to justify his or her level of effort.

Level of effort is not a percentage of the project, so the list will not add up to 100 percent. For example, if you are spending 100 percent of your time on the project and so is another investigator, both your level of effort levels will be 100 percent.

Though you don't give details for most items, such as reagents or travel, figure all your costs into your modular budget. One exception: you do specify salaries and costs, rounded to $1,000, for consortium arrangements. Under a separate header, list consortium facilities and administrative costs following the example in the 398.

If the number of modules you are requesting varies in any year, describe why in a separate section on your Budget page (see the NIH modular budget format page for an example). For example, if you'll need to purchase equipment costing more than $25,000, create a separate module for it, and make it a one-time request so it's not added to your base amount.

Though you should avoid asking for expensive equipment unless you absolutely need it, if you do, justify it well in the separate section. If you've listed equipment as available in the Resources section, don't request funds for it, unless you can explain why. Reviewers check such things. They'll delete the funds, and your credibility will suffer. It's also best not to ask for anything that can appear to be extravagant, such as a lot of travel.

If you are requesting more than $250,000, prepare a detailed budget using form page 4 and form page 5.

Prepare the Biographical Sketches

Here's your opportunity to showcase the knowledge and skills of the key personnel and other significant contributors you listed on Form page 2. In the biosketches, each person has a four-page total limit. In April 2006, NIH eliminated the two-page subsection limit for sections A and B. For more information, read the Guide notice.

In this key section, reviewers look carefully to see whether the PI and staff have enough experience with the techniques to execute the Research Plan. List all staff, professional and nonprofessional, even when you're not requesting a salary paid from the grant monies. Four pages is standard, though you may submit fewer. Regardless of length, biosketch must contain all three sections listed below.

Beginning with the PI, fill out the boxes at the top of the format page with names, titles, and educational history.

Then create these headers, following the Biographical Sketch Sample in the 398:

A. Positions and honors
B. Selected peer-reviewed publications
C. Research support

For A, give employment history in chronological order, including dates, places, nature of position, professional
experience, and honors.

For B, list relevant publications in chronological order -- titles and complete references (include all authors). Include accepted manuscripts but not those that are submitted, unaccepted, or in preparation.

For C, list research support either ongoing or completed during the past three years in order of relevance to the project. State the aims of all past and current related research of key personnel and other significant contributors and state their role. It's OK if beginning investigators haven't had research support. This isn't the same as current and pending support; see Don't Confuse Research Support with Current and Pending Support.

Do not include any pending support in that part of the application. See the biographical sketch sample form as an example of what this section looks like.

Additional Resources

- Biosketch form
- Biosketch instructions
- Application Contents Other Than the Research Plan
- Form Page 2: Abstract and Other Items
- Consortium/Contractual Arrangements
- Biosketches checklist

Don't Confuse Research Support with Current and Pending Support

Though they sound similar, these parts of the application are very different. As part of the biosketch section of the application, research support highlights accomplishments of everyone listed on Form Page 2: Abstract and Other Items, including Significant Contributors. It's used by reviewers for the "investigator" review criterion.

In contrast, current and pending support lets NIH make sure the research you are proposing is not already being paid for, which is illegal. You send your current and pending support information for Key Personnel (but not Significant Contributors) to NIH just before we're ready to make an award. For more on what constitutes current and pending support, see the Current and Pending Support instructions.

Additional Resources

- Prepare the Biographical Sketches

Develop Current and Pending Support Information

To get an award from NIAID, you'll have to show that no other organization is supporting the research you've outlined in your Research Plan. It's illegal for us to fund a project already paid for, even if the grant is not from NIH. You must let NIH know of any support you or any of your key personnel have as of the time you send in the current and pending support information, not the time you applied, so we can be sure we have the most up-to-date information. If you have no current and pending support, enter 'none.'

If you are applying for more than one grant, point out in your application and in your cover letter that there's no overlap between them, and make sure the specific aims differ. You cannot send the same application to more than one PHS agency at the same time with few exceptions -- contact your business office for details. In addition, you cannot commit more than 100 percent effort to all your support. For example, if you are spending 50 percent of your time on one grant, you cannot spend more than 50 percent on other grants concurrently.
Overlap issues identified in current and pending support may justify reducing your award. A good case in point: if you list Howard Hughes Medical Institute as current and pending support, we will adjust your funding level since HHMI pays 100 percent of salary and fringe benefits.

Create this section with your application but don't send it in until asked, just-in-time. If you do, NIH may return the application to you with no review. State your research support at the time you are asked to send in your current and pending support information, not the time you applied, and include pending support.

Use the filled out Current and Pending Support sample form NIH gives you as an example. Create subheads -- Active, Pending, and Overlap -- showing dates, granting organization name, funds, a one-sentence description of the project, and the percentage of your time spent on each award.

Additional Resources

- Current and Pending Support instructions
- Develop Your Research Plan
- Current and Pending Support checklist

Describe Your Resources

In this section of your application, you'll need to convince reviewers you have the equipment, space, staff, and facilities to conduct the research. Reviewers must judge whether your project is worth the American taxpayer's investment. If your science is elegant but you don't have the resources to carry it out, they'll probably recommend NIH put its money elsewhere. To succeed in peer review, you'll need to convince reviewers your institution can provide the support you need and does not demand excessive amounts of your time.

State essential resources such as animal facilities or sophisticated equipment. If you are at a well-known research institution, you don't need to spell out basic items such as electricity or basic lab equipment. But if you are at an unknown research institution, do write all this out.

Make sure the resources you list match the Performance Sites section of form page 2. Here you'll spell out which facilities are completing which parts of the project. Use headers from the Resources form sample page that are appropriate to your research.

Additional Resources

- Resources instructions
- Form page two
- Form page two instructions
- At the Peer Review Meeting
- Address NIH Review Criteria
- Create Your Budget
- Resources checklist

Limit Your Appendix, Complete Other Pages

Don't use the appendix as a dumping ground for everything you couldn't fit in the application. A good concept to keep in mind is 'less is more.' The more non-essential information you give reviewers, the more likely they are to find a problem or something they disagree with. For example, if you have a paper that's been accepted for publication, it's safer to include a copy of the letter approving its publication rather than the paper itself. Put only necessary
documents in the appendix -- those mentioned in other sections, such as your letters from collaborators.

Also, remember that only the primary reviewer will get to see the appendix -- it's not copied for the other reviewers. See the instructions for preparing the appendix.

Other pages you will need to complete are the checklist and personal data. If you're responding to an RFA, fill out the RFA label form. These are self-explanatory.

**After You've Finished Writing**

After you've finished writing, put the application aside. In a few days, read and check it again. You'll probably find lots of errors you overlooked before.

As part of your review, try looking at your application from the perspective of a peer reviewer. Is the material well organized with all elements easy to find? How would you rate it using NIH's five review criteria? Did you explain the significance of the work to scientific research progress and public health? Did you explain how your proposal is innovative? Did you make a strong case for the qualifications of the researchers and institutional support?

How about the writing and appearance? Are there topic sentences that clearly state each main point? Is the application visually appealing, with white space and elements such as bullets to break up and organize the text?

Next, conduct your own peer review. Get opinions from colleagues in your field who are successful grant writers, preferably people who have been members of NIH study sections. The more critical they are, the better. It's better to know the problems before you send in your application than learn about them from the peer review. Also have non-experts in the field read the application to make sure it's clear and understandable. Give your reviewers at least two weeks. Then, allow yourself a full week to incorporate their suggestions.

**Additional Resources**

- Write, Edit, and Proof Like a Pro

**Write a Cover Letter**

It's a good idea to include a cover letter with your application. Your cover letter should include any of the following information that applies to your application:

- Application title.
- PA or RFA, if you're responding to an NIAID initiative.
- Request of assignment and referral to an institute and study section.
- List of people who should not review your application and why.
- Disciplines involved, if multidisciplinary.
- Involvement of human subjects or select agents.
- Statement that the application was previously submitted in response to an RFA or PA.
- Statement that you've enclosed the required institute approval documentation for a grant over $500,000.
- In your cover letter, you can request that your application be reviewed by a particular IRG or study section in the CSR and an IC that might fund it.

Always make sure your competitors are not in a position to be your reviewers! In your cover letter, include the names of people you don't want to review your application, e.g., a competitor or someone with whom you have a long-standing scientific disagreement. Give the reasons for your objections but focus on the positive where possible, for
example, by stating the skills needed to review the application.

For multidisciplinary work, state the disciplines involved. This helps CSR properly assign your application, if you are not requesting assignments.

If you are responding to a PA or RFA and were not funded, you can send in an amended application as an investigator-initiated R01. In the cover letter, say you are doing this and include any revisions recommended by the study section.

Additional Resources

- When to Contact an NIAID Program Officer
- 398 Section II: Submission and Review of Your Application
- Initial Peer Review Assesses Quality of the Application
- RFAs and PAs May Have Special Requirements
- Cover Letter checklist

Your Application Is Assigned to an Institute and Study Section

After you mail your application to CSR, what happens next? First, CSR will give it a unique ID. Next, your application is assigned to a peer review group and an institute for possible funding. You can request these assignments, or CSR referral officers will use NIH referral guidelines to determine where your application will go.

Log in to the NIH Commons to see your assignments, which should be ready approximately six weeks after CSR receives your application. NIH does not mail assignment notifications.

If CSR gave you an assignment you're not happy with, you can request a change. See Call If You Are Not Satisfied With a CSR Assignment.

Requesting institute and study section assignments is a viable option. However, many people hesitate to do so because they feel they'll do it wrong. A few years ago, we looked at the data and found this is not true. In our study, CSR honored 80 percent of requests to a study section and 87 to 100 percent of requests to an IC.

Additional Resources

- Application Process Flowchart
- Receipt to Review Timeline
- When to Contact an NIAID Program Officer
- Funding Decision Flowchart
- CSR's Scientific Areas of Integrated Review Groups
- At the Peer Review Meeting

Request an Institute

Before applying, talk to a program officer and do some research on the Web into the scientific areas each IC funds. You can improve your chances of getting an award by requesting assignment to an IC interested in your application, one with a favorable payline, or both.

Paylines vary among NIH ICs, so a percentile not fundable in one institute may be fundable in another. You'll want to
check which institutes are appropriate for your application and find out about their paylines. If you feel NIAID would be the best home for your application, request assignment here. See what areas of science NIAID supports. And check our paylines and those of other institutes. Their Web sites are listed on the NIH home page. Then, contact a program officer to find out whether we may have a special interest in your application.

Paylines can be somewhat deceiving. Bigger institutes generally have more money. NIAID sets a conservative funding cutoff point, called the payline, at the beginning of each fiscal year. But at end of the fiscal year, we fund some of our deferred grants, and the payline goes up.

Another way to boost your funding chances is to get your application assigned to more than one institute, so you'll have a backup: if the primary institute doesn't fund it, the secondary might. Obviously, the topic has to be relevant to both institutes' scientific programs. However, there's lots of overlap among ICs. For example, if you're studying immune-mediated processes of type I diabetes, you could be funded by NIAID or NIDDK. We generally award applications in basic immunology; NIDDK funds more disease pathogenesis. However, it's not black and white. A dual assignment could give you a chance of getting an award from either institute.

Additional Resources

- Dual Assignments SOP
- When to Contact an NIAID Program Officer
- How Funding Is Decided
- Request an Institute checklist

Request a Study Section

Having your application assigned to the right study section can help make sure the right people review your application and exclude your competitors. You can request either an IRG or a study section. Asking for an IRG lets you choose a group of study sections that may be friendly to your type of research; whereas specifying a study section lets you seek or exclude potential friends and enemies. NIH generally honors such requests. Even if you're a new investigator, consider requesting an assignment if you're comfortable doing so.

Frame your request in positive terms. Say that a study section has several people who are interested in your area and qualified to judge your work. Never suggest reviewers. If you do, they are immediately disqualified! (This approach is sometimes used as a strategy for avoiding a reviewer!)

Gathering the information to make an informed request takes work, but many investigators feel it's worth it. Spend no more than an hour or two researching the interests of each study section to see where your application would best fit in and looking at review rosters to see who is on the committees.

Call the SRA for help in determining which study section is appropriate. Seek familiar names, and try to find a group that would appreciate your ideas. If the area seems right but you don't recognize any of the names, read their papers to see if their work is similar to yours. If they seem to be working in very different areas or likely have competing world views, go elsewhere.

For example, if your approach is functional genomics, you don't want to be reviewed by a study section populated by cellular and molecular biologists. The level of kinship of the study section to your own work will also help guide how technically detailed you should write your application.

A word of warning: it's not easy to tell who will review the application because many are now reviewed by fluid ad hoc special emphasis panels.

After you receive the assignment but before a review, you can check the committee's roster on the Web. At that point, you can call the SRA if there is a major problem, for example, a conflict of interest or no one on the committee is competent to review the application. To request a change, see Call If You Are Not Satisfied With a CSR Assignment.
It is often better to defer the review than be reviewed by the wrong reviewers.

Additional Resources

- Overview of the Application Process
- When to Contact an NIAID Program Officer
- CSR's Submission and Assignment page
- CSR's Scientific Areas of Integrated Review Groups
- CSR's Study Section Rosters page
- CRISP database of biomedical research projects funded by the U.S. Public Health Service
- Write a Strong Application
- How Funding Is Decided
- Request an Institute Review Group checklist

When Your Application Is Due, How to Send It

Get your application in on time. NIH strictly enforces due dates.

For awards that have not made the transition to electronic application through Grants.gov, your application must be postmarked by the due date unless there are major extenuating circumstances. See the section below on late applications.

Include a proof of the mailing date, either a legible postmark or a dated receipt from a commercial carrier or the U.S. Postal Service. Always get a return receipt. You cannot hand deliver your application.

For awards that have made the transition to electronic application, use the deadline in the funding opportunity announcement. Be sure to use the latest version of the grant application forms.

Most applications are due three times a year; R01s are due February 1, June 1, and October 1. AIDS, small business, and some other types have different due dates. Go to the Standard Postmark/Submission Dates Review and Award Cycles for all NIH receipt dates. If a deadline lands on a weekend, it moves to the next business day.

Applications responding to initiatives must be postmarked one week before the receipt date. If you're not sure about the deadline, call an NIAID program officer.

Here are the rules for late applications:

- The NIH Center for Scientific Review (CSR) and NIAID's Scientific Review Program may accept an application late if there is a valid reason. See the August 11, 2006, Guide notice for the NIH late application policy.
- Valid reasons include NIH technical problems, natural disasters, personal tragedies, and service on an NIH study section. To learn more about acceptable reasons for being late, see the examples in the Guide notice.
- When submitting a late application, you must include a cover letter describing the reason for the delay. See Write a Cover Letter for tips.
- Neither organization guarantees it will accept a late application, and both have a limited window for receiving them.

Depending on who conducts the review, some practices differ:

- CSR review (for most investigator-initiated applications) -- follows the NIH late application policy. NIH also
issues guidance after natural disasters in the Guide.

• **NIAID review practices that differ from NIH's**
  o We **MAY** accept a late application responding to a request for applications (RFA) or program announcement reviewed in an institute (PAR).
    ▪ Disregard the statement in the NIH policy, "NIH will not consider accepting late applications for the Special Receipt Dates for RFAs and PARs."
    ▪ NIAID got approval for this practice from the director of NIH CSR Division of Receipt and Referral.
    ▪ NIAID makes decisions about late applications on a case-by-case basis. Contact the scientific review administrator listed in the RFA or PAR to discuss your situation.

**Submitting your application**

**Paper submissions.** See the PHS 398 instructions for specifics of sending in your application, including how to copy it and how many copies to send. Mail it to:

Center for Scientific Review
National Institutes of Health
6701 Rockledge Drive, Room 1040 - MSC 7710
Bethesda, MD 20892-7710 (or 20817 for express or courier service)

**Electronic submissions.** Read the instructions in the NIH Guide and the funding opportunity announcement. Find guidance in the Submitting Electronically section of our How to Succeed With Electronic Application tutorial.

**Additional Resources**

• [Application Process Flowchart](#)
• [Grant application guide](#) in your [grant application package](#) (for electronic application)
• [Applying for a Grant](#) questions and answers, especially [Grant Application -- Electronic -- Submitting and Validating](#)
• [Receipt to Review Timeline](#)
• [398 Section II: Submitting Your Application, Instructions](#)
• [When Applications Are Due](#)
• [Funding Timeline](#)

**Avoid Having Your Application Returned**

NIH may return your application to you for various reasons without a review.

• Including information you are supposed to submit "just-in-time," i.e., when NIH requests it. Applies to current and pending support and several items for human subjects research: certification of IRB approval, OHRP assurance type and number, and the letter stating all key personnel have been trained in protecting human subjects.
• Insufficient human or animal documentation, including missing data, assurances, or other required documentation (be sure to complete PHS 398 sections e and f of the Research Plan).
• No preapproval documentation or data sharing plan for an application requesting more than $500,000. For information, see the Big Grants SOP and the Data Sharing Policy SOP.
• No documentation of approval for select agents.
• Detailed rather than modular budget if requesting less than $250,000, for investigator-initiated R01, R03, R21,
or R15 awards.

- Improper formatting, including font size and margins.
- Hand delivered.
- Does not meet RFA or PA requirements, if responding to an initiative. (This is decided by NIAID program staff when they receive a copy of your application.)
- Contact of reviewer by applicant.
- Lack of business official's signature. Institutions must have PI signature assurance on file.
- Except where indicated, CSR determines you are noncompliant when receiving your application, or reviewers do so at the peer review.

Additional Resources

- Application Process Flowchart
- Receipt to Review Timeline
- When to Contact an NIAID Program Officer
- NIH Standard Postmark/Submission Dates Review and Award Cycles
- Send NIH Some Materials "Just-in-Time"

Hearing Back After Sending in Your Application

Whether you've requested a scientific review group and institute or had CSR make these assignments, you should know within six weeks where your application has been assigned. You can get this information through the NIH Commons. You'll need to get this information through the NIH Commons since NIH doesn't mail assignment notifications.

If you don't see your assignments within six weeks, call the NIH Referral Office at 301/435-0715.

Additional Resources

- Receipt to Review Timeline

Call If You Are Not Satisfied With a CSR Assignment

If you are not happy with the assignment made by CSR to a study section or institute, call the SRA to discuss an alternative. Then state the rationale for the change in a letter you fax to CSR at 301/480-1987. Below is an example, sent to us by the CSR referral officer, of the rationale for an acceptable and an unacceptable request.

Acceptable: "The focus of allergy and immunology study section (ALY) reviewers seems more on structural biology of molecules of immunologic importance. Since my application proposes to develop new antibodies for phase I human studies, the clinical perspective of reviewers on the experimental immunology study section (EI) is critical to appreciate the approaches taken."

Not acceptable: "I don't want ALY but want EI instead."

If this does not resolve the problem, you can appeal to CSR's director of receipt and referral at 301/435-0715.

Additional Resources
You May Be Able to Send in Additional Data

If you've gathered additional data between the time you sent in the application and the review, you may be allowed to send it late. Call your scientific review administrator (SRA) to find out the deadline; these procedures vary among study sections.

Your SRA can also tell you whether you need to send in any supplemental information. However, be aware that reviewers are under no obligation to review late material, and it could reflect either positively or negatively on you.

For information about submitting a late application see When Your Application is Due, How to Send It.

Call the SRA if you discover your application has problems such as missing pages you identified after submission.

- For investigator-initiated research applications, call the Center for Scientific Review's general phone number, 301/435-0715.
- For submissions responding to request for applications (RFA) or program announcements reviewed in an institute (PAR), contact the SRA listed in the announcement.

Keep in mind, these tutorial pages are aimed at researchers conducting a basic NIH research project grant, the R01. To learn more about RFAs and PARs, see the RFAs, RFPs, and PAs questions and answers page.

If Your Score Was Not Fundable or You Were Not Scored

What if you submit a grant application to NIH and it does not get funded? You're in good company! Competition has become increasingly tough, and it is very common not to succeed at the first attempt. The good news is that more people succeed on their second try than on their first, and still more succeed on their third attempt. Over half of NIH applicants eventually get funded.

Still, when you hear the news, you'll probably feel angry at being rejected, and you may feel that some of the criticism from the reviewers is off the mark. It very well may be. Wait until you can address the matter calmly and objectively before deciding what to do next. Sending an angry letter to a study section or an institute would not be productive.

You'll probably want to try again -- revising and resubmitting is the next logical step. Because success falls off rapidly after the third try, NIH lets you submit an application up to three times: the initial submission and two revisions.

Even if you haven't succeeded after two revisions, you can submit a new application that keeps the best components of the old one. For more information, see You Can Revise Twice -- and Still Get Another Try.

Additional Resources

- Peer Review Outcomes: Reviews Yield Tangible Results
- Second-Level Review Yields Four Possible Outcomes
- If the Application is Unscored, Has Risks, Lacks Information
Ask: Is It Fixable?

Your unfunded application's review yielded one of three potential results:

- Fixable problems
- Fatally flawed
- Lack of reviewer enthusiasm (dull topic)

Before you can decide what to do, you need to determine whether the application's faults are fixable and how appropriate the reviewers were. Spend some time analyzing the results and gathering as much feedback as you can from the summary statement, your program officer, and senior investigators at your institution. If the problems are fixable, it's worth revising the application.

Additional Resources

- When to Contact an NIAID Program Officer

Call Your Program Officer for Feedback

After you've received your summary statement, read it carefully several times. Then, call your program officer to see if you can get more feedback from the review. Program staff often attend review meetings as observers. If the NIAID program officer was at the review meeting, he or she may be able to give you more insight into the discussion, for example, the general feeling reviewers seemed to have about the application or points not addressed in the summary statement.

Call your program officer if your application received a percentile that is not fundable within the payline to see if you are being recommended for an R56-Bridge award.

Additional Resources

- When to Contact an NIAID Program Officer
- At the Peer Review Meeting
- Know What a Summary Statement Means
- R56-Bridge Award SOP

Assess How Serious the Problems Are

To begin figuring out whether to revise your application or start over with a new idea, you'll have to assess the nature of the problems the reviewers noted at the initial peer review. Read the summary statement carefully and analytically, keeping in mind that it is not an exhaustive critique.

It's a paradox, but faint praise can be a worse sign than abundant criticism. You should be concerned if reviewers had no major criticisms of your application but you still got an unfundable score. Often this means reviewers were not enthusiastic about your idea. If this is the case, revising won't help. You need to start over with a new idea. They may not state this explicitly, mostly out of politeness. Same for your program officer -- it's hard to bear bad news. However, if you do get this feedback, don't shoot the messenger. It's better to find out at this stage than to keep trying with a
doomed idea.

Surprisingly, it's usually a good sign if reviewers pointed to lots of fixable problems. It often shows they are interested in the idea and are indicating it's worth revising. Ask your program officer for more feedback on the level of reviewer enthusiasm.

Additional Resources

- Know What a Summary Statement Means

Summary Statements Have Their Limitations

You can correct all the problems in the summary statement and still not get a fundable score. Why? A summary statement is not an exhaustive critique of your application, and it's not meant to be a teaching tool. Instead, it hits the highlights as far as the review progressed. Reviewers spend up to 10 to 15 minutes discussing your application. Once they've found a 'fatal flaw,' they stop discussing the application. The flaw could be something as simple to correct as not protecting the safety of lab workers or animals or it may be a truly fatal flaw such as an unprovable hypothesis.

Once the reviewers stop discussing the application, their feedback ends, and you have no way of knowing what else they may have found had they continued. Further, the next review may have new reviewers who may view your project differently.

Additional Resources

- When to Contact an NIAID Program Officer
- At the Peer Review Meeting: Basic Layout of Initial Peer Review
- Peer Review Outcomes: Reviews Yield Tangible Results
- Know What a Summary Statement Means

If You Were Not Scored, You May Be Able to Revise

If your application was not scored, it doesn't mean it was necessarily a terrible application. Some unscored applications may be higher quality than others that received a score. Because they don't benefit from a full review, it's much harder to get a sense of the reviewers' appraisal of the merit of an unscored application. So if your application was not scored, you'll have to do even more sleuthing to figure out what to do next.

Just as is the case for a reviewed application, your unscored application could have had a fatal but fixable flaw that reviewers felt put it in the lower half of the applications they scanned before the review. Your task is to figure out the seriousness of the problems. Read the reviewers' critiques carefully, and get advice from your program officer and experts in your institution.

Additional Resources

- When to Contact an NIAID Program Officer
- If the Application Is Unscored, Has Risks, Lacks Information
- Revising checklist

Common Fixable Problems

Problem: Poor writing.
Solution: Rewrite, get help.

Problem: Insufficient information, experimental details, or preliminary data.  
Solution: Assess what's missing; add it to the Research Plan.

Problem: Significance not convincingly stated.  
Solution: Beef up that section; show importance to NIAID mission, public health.

Problem: Research not shown to be feasible by the proposed staff.  
Solution: Get consultants with the required expertise.

Problem: Insufficient discussion of obstacles and alternatives approaches.  
Solution: Write what you'll do if you get negative results or an approach doesn't pan out; include decision trees.

Problem: Reviewers are not interested in the subject.  
Solution: They are not the proper peers; request a different review group.

Not Fixable or More Difficult Problems

- Philosophical issues, e.g., the reviewers do not believe the work is important (assuming they are qualified to make that decision).
- Hypothesis is not sound or not supported by data presented.
- Work has already been done.
- Methods proposed were not suitable for testing the hypothesis.

If Problems Are Fixable, You Have Several Options

Once you've determined whether your problems are fixable, you have four options.

You can:

1. Revise the application and resubmit it to the same study section.
2. Revise the application and resubmit it to a different study section.
3. Create a "new" application out of the original one and request a new study section.
4. Create a truly new application.

To gauge whether an application would be considered "new" or revised, use this rule of thumb: if you revise more than 50 percent, it's a new application. If less, you must follow the rules for a revised application.

Additional Resources

- When to Contact an NIAID Program Officer
- Revising checklist

Option 1: Revise and Resubmit to the Same Study Section

If reviewers thought your basic idea was interesting and important but found fixable problems, the application is likely
worth revising. Revising allows you to retain most of your original application, while addressing the reviewers' concerns.

Revising and resubmitting to the same study section can be advantageous. The study section must look at the application in the context of their critiques, so this approach works well if you can readily answer their concerns.

This route is the most common one and works well when the points of contention are limited. Discuss each of the reviewers' points one by one, and show clearly in the text where you have made changes, for example, using brackets, indents, or some other marker (not color because the application is photocopied). Include any new data, and strengthen the application wherever possible.

Additional Resources

- Revising checklist

Option 2: Revise and Resubmit to a Different Study Section

Follow the advice for option 1, but also request a change of study section if you had major reservations about the reviewers' understanding of your proposal. See Option 1 for more on revising.

Did your study section's interests match those of your application? Were the members comfortable with your methods? If not, it was the wrong group. Look for a study section that best matches your topic and approach and request CSR to assign your application there.

Frame the request in positive terms, even if you believe there was a problem with one of the reviewers. For example, say that another study section has several people on it who are interested in your area and qualified to judge your work. State the reasons for the request, e.g., lack of interest, differing philosophies, such as a molecularly oriented review group reviewing a clinical application. Always suggest an alternative study section.

However, never suggest reviewers. Though you may request a new study section, NIH is not obligated to honor your request, though it usually does.

Additional Resources

- Overview of the Application Process
- When to Contact an NIAID Program Officer
- Request a Study Section
- Revising checklist

Option 3: Revise, Request a New Study Section, and Create a "New" Application

If the study section missed the point of your application but you feel secure about the proposal, consider requesting a new study section and creating a "new" application.

Going this route, reviewers will not see your summary statement from the original study section, so you get a fresh start. You'll need to change the grant title and revise some of the aims. Changing the title is key so when your application is logged in, the NIH computer doesn't recognize it. But beware of just changing the title and not revising the application. If your application ends up with the same study section -- which can happen -- committee members will probably recognize it and be angry if it's not significantly changed. This is also against the rules. Be sure to include any new data in your revised application, and strengthen it where you can. See Option 2 for more on finding and requesting a study section.
Talk with your program officer for more advice on executing this approach.

Additional Resources

- Overview of the Application Process
- When to Contact an NIAID Program Officer
- Request a Study Section

Option 4: Create a Truly New Application

If the problems were serious, rethink your idea. Propose a new concept, keeping what material you can salvage from your previous application.

Get advice. Ask someone in your institution who is experienced in grantsmanship and not involved in your proposed research to review your application and summary statement and help you with revision plans.

Even if you salvage parts of the original application, always use a new title so that NIH's electronic system doesn't mistake the new application for the old one.

Additional Resources

- When to Contact an NIAID Program Officer
- Previous tutorials, Grant Application Basics and How to Plan a Grant Application
- Next tutorial, How to Manage Your Grant Award
- Other tutorials available on our All About Grants page

Should You Appeal?

Though you can appeal a review if you feel it was seriously flawed, in most cases we recommend revising and resubmitting your application instead. Appeals almost always end up with the applicant revising and resubmitting the application anyway. If you appeal, you go through a lengthy appeals process and end up doing what you would have done in the first place, so why waste the time?

In any case, you can appeal only for defects in the review procedure, for example, conflict of interest or bias, not differences of scientific opinion. If you want to appeal, call your program officer; read more in our newsletter article about the appeals process.

Additional Resources

- When to Contact an NIAID Program Officer

You Can Revise Twice -- and Still Get Another Try

Most applicants don't succeed on their first try, so they revise and apply again. This often pays off -- many people succeed on their second or third try. NIH allows you two revisions.

But what if you still haven't succeeded? You can stay in the game by revising the application significantly, which can include keeping the best parts of the old one. This strategy lets you start fresh with a clean slate: your old summary
statements will not accompany the application.

You'll need to give your Research Plan a thorough overhaul as well as give the application a revised abstract and a new title so NIH recognizes it as new. You'll have to do more than just change the title, though -- NIH will not accept applications with only minor changes.

When revising, be sure to address advice from the previous reviews. Assess your application's strengths and weaknesses. Capitalize on your strengths, and throw out or revise the parts reviewers felt were weak. Look particularly at your specific aims, and make sure they line up with your hypothesis. Keep in mind that if several years have elapsed since you submitted the application, the reviewers' comments may no longer be relevant.

Even if you salvage parts of the original application, always use a new title so that NIH's electronic system doesn't mistake the new application for the old one.

As always, talk with a program officer for more advice.

**Additional Resources**

- [Overview of the Application Process](#)
- [Send NIH Your Application](#)
- [Peer Review Outcomes](#)
- [What to Do if You Did Not Succeed](#)
- [Revising checklist](#)

**Respond to Reviewers' Comments**

Once your application has been through review, you're playing by new rules. You are now required to address all the concerns from the last review in your revised application. Reviewers will check to make sure you did. Help them find what's new by clearly marking all new text using visual aids such as arrows, indents, bars in the margin, bolding, or change of type. Don't use color to indicate changes because it won't photocopy.

That said, your compliance is not a guarantee of success. Reviewers are not wedded to the previous reviewers' critiques and can raise new criticisms or even disagree with previous comments.

Read and reread the summary statement. Identify the problems. Talk with your program officer and experienced grantees to get advice. Though you must revise items mentioned in the summary statement, you aren't limited to those items. Your PO may be able to give you more insight into the discussion at the review meeting.

You must respond to the comments and suggestions of the reviewers point by point, even if you disagree with them. If you disagree, explain why and provide additional information if needed. Even better, change your proposal. For example, if a reviewer does not like an approach, propose a different one, even if you don't necessarily agree. Be sure to include any new preliminary data you have gotten since the review.

If you responded to an RFA or PA and were not funded, you can submit a revised application as an investigator-initiated R01.

**Additional Resources**

- [Receipt to Review Timeline](#)
- [When to Contact an NIAID Program Officer](#)
- [Know What a Summary Statement Means](#)
Include a Revision Introduction

When you send in a revised application, you must include a three-page introduction to the Research Plan as part of the application. The three-page introduction does not count toward the application page limit. In it, you respond to reviewers’ comments by describing how you have substantially changed the application and addressed the criticisms outlined in the summary statement. You can also add any new findings you have since you sent in the initial application or make additional revisions you feel would be helpful. See the PHS 398 for other instructions.

Additional Resources

- PHS 398 Instructions on Revised Applications
- When to Contact an NIAID Program Officer
- Know What a Summary Statement Means
- Summary Statements Have Their Limitations
- What to Do If You Did Not Succeed
- Revising checklist

Why You Still May Not Get Funded

You can correct all the problems in the summary statement and still not get a fundable score. Why? First, a summary statement is not meant to be an exhaustive critique of your application. If overall enthusiasm for the proposal is low because it's seriously flawed, no amount of revising will help, even if you address the points in the summary statement.

Also, when you make changes, you risk introducing new problems. Finally, scientific review group membership changes. Your application may be seen by new reviewers who may have different views of your project. So even if you've tackled all the issues in the summary statement, the reviewers may come back with new ones.

Your best way to deal with this is to get lots of help and feedback so you send NIH the strongest application possible. Consider the reviewers comments to be invaluable, but go ahead and get a thorough critique from peers and mentors. And talk to the program officer for more feedback.

If you still don't get funded after the second try, try again! NIH allows you to revise and resubmit the application for review two times within two years of the first application.

Additional Resources

- When to Contact an NIAID Program Officer
- Know What a Summary Statement Means
- Summary Statements Have Their Limitations
- What to Do If You Did Not Succeed
In Conclusion

We hope these pages have helped you. If you have questions that weren't answered here, please contact an NIAID staff member for assistance.

This site is part of NIAID's outreach to its extramural research community. Let us know how you liked the site and what other information or resources you'd like to see online by filling out our feedback form or emailing Maya Hadar directly.

Links to Other Resources

Federal funding

- Catalog of Federal Assistance
- NIH CRISP -- searchable database of biomedical research projects funded by the U.S. Public Health Service

Grant Writing

- Elements of Grant Writing -- Corporation for Public Broadcasting Elements
- Proposal Writer's Guide -- University of Michigan

Center for Scientific Review

- CSR
- Submission and Assignment Process
- Guide for Assigned Reviewers' Preliminary Comments on R01s
- Review of New Investigator R01s Guidelines for Reviewers
- Guidelines for Review of Grant Applications
- What Happens to Your Research Project Grant Application After It Is Received for Peer Review
- CSR Scoring Procedures
- Review Procedures for Scientific Review Group Meetings
- CSR Meeting Schedules for Scientific Review Groups

NIH

- NIH modular grants page
- NIH
- NIH Instructions to Reviewers for Evaluating Human Subjects Research
  - See also applicant requirements (go to page 2)