Preparing Your First NIH Proposal

November 18, 2020
Agenda

• Preparing for a successful submission
• Submission process
• Components of a proposal and RDS resources
• Developing a proposal outline
Preparing your submission

When is the right time to submit?

Balance between:

• Getting your lab started/keeping the work going
• Submitting at the most optimal time
  • Submit when you think the application will be the most competitive

Consider:

• Your publication record
  • Papers must be published/in press (not submitted)
  • Do these papers pertain directly to the aims?
• Your preliminary data
• Feasibility (Scope vs. Budget vs. Timeline)
• Collaborators
Preparing your submission: Do’s

• Dig into the guidelines
• Contact your program officer
• Organize your narrative and yourself
• Write persuasively
• Start early with UO internal processes
• Read examples of funded grants (but don’t be limited by them)
Preparing your submission: Don’ts

- Write as you would for a scholarly article
- Presume the reviewers have the same knowledge as you
- Turn in a proposal without another pair of eyes on it
- Wait until the last minute to work on administrative elements of the proposal
Most common reasons behind unfunded proposals

- Lack of new or original ideas
- Diffuse, superficial or unfocused research plan
- Lack of knowledge of published relevant work
- Lack of experience in the essential methodology
- Uncertainty concerning the future directions
Most common reasons behind unfunded proposals

• Questionable reasoning in experimental approach
• Absence of acceptable scientific rationale
• Unrealistically large amount of work
• Lack of sufficient experimental detail
• Uncritical approach
Timeline for successful submission

<table>
<thead>
<tr>
<th>Months Prior</th>
<th>PLANNING</th>
<th>WRITING</th>
<th>SUBMITTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

**Assess yourself, field, & resources**

Brainstorm; research idea; call NIH staff

Set up own review committee; determine human & animal subject requirements

Outline application structure; write your application

Get feedback; edit & proofread

Meet institutional deadlines

Receipt Date
Refining your idea

1. Define the niche you are systematically trying to develop
2. Collect and critically analyze background information
3. Generate a preliminary idea that is pertinent to your research problem
4. Assess your idea’s potential for success and modify as necessary
5. Seek constructive criticism
6. Refine idea to maximize potential impact
Refining your idea

Heilmeier Catechism

• What are you trying to do? Articulate your objectives using absolutely no jargon.
• How is it done today, and what are the limits of current practice?
• What is new in your approach and why do you think it will be successful?
• Who cares? If you are successful, what difference will it make?
• What are the risks?
• How much will it cost?
• How long will it take?
• What are the mid-term and final “exams” to check for success?
Submission Process

Who is responsible for what?

PI
• Overall proposal development
• Interfacing with other parties (i.e. RDS, SPS, DGA) to ensure submission

RDS
• Resources, checklists for PI
• Draft letters
• Edit and review proposal components

DGA
• EPCS
• Budget development
• ASSIST interface

SPS
• Sponsor system registration
• Reviews for overall compliance
• Support for DGA activities when needed
• Submits and accepts the award
## Grant Components: Ancillary

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>Modular vs. Detailed</td>
<td>DGA/SPS</td>
</tr>
<tr>
<td>Budget Justification</td>
<td>Modular vs. Detailed</td>
<td>RDS template</td>
</tr>
<tr>
<td>Biographical Sketches</td>
<td>5 pages</td>
<td>NIH template</td>
</tr>
<tr>
<td>Facilities &amp; Other Resources</td>
<td>No page limit</td>
<td>RDS templates and boilerplate</td>
</tr>
<tr>
<td>Equipment</td>
<td>No page limit; can be combined with Facilities</td>
<td>RDS templates and boilerplate</td>
</tr>
<tr>
<td>Letters of support</td>
<td>No page limit; must include for consultants and significant contributors</td>
<td>RDS can help draft</td>
</tr>
<tr>
<td>Assignment Request Form</td>
<td>Indicate institute and study section preference; key words; COI</td>
<td>NIH template</td>
</tr>
</tbody>
</table>
## Grant Components: Ancillary (if applicable)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consortium/contractual arrangements</td>
<td>Documents for subawards</td>
<td>DGA/SPS</td>
</tr>
<tr>
<td>Cover Letter</td>
<td>Required for late applications, K grants, etc.</td>
<td>RDS template</td>
</tr>
<tr>
<td>Foreign Justification</td>
<td>If foreign subaward</td>
<td>RDS template</td>
</tr>
<tr>
<td>Facilities &amp; Other Resources</td>
<td>No page limit</td>
<td>RDS templates and boilerplate</td>
</tr>
<tr>
<td>Diversity eligibility certification</td>
<td>Depends on FOA</td>
<td>RDS templates</td>
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</table>
# Grant Components: Scientific

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Aims</td>
<td>1 page; MOST important component of the proposal</td>
</tr>
<tr>
<td>Research Strategy</td>
<td>6 or 12 pages for most proposals</td>
</tr>
<tr>
<td>Project Summary</td>
<td>30 lines of text</td>
</tr>
<tr>
<td>Project Narrative</td>
<td>2-3 sentences</td>
</tr>
<tr>
<td>Bibliography</td>
<td>Include PMCID numbers for your publications</td>
</tr>
<tr>
<td>Authentication of Key Biological and/or Chemical Resources</td>
<td>~1 page</td>
</tr>
<tr>
<td>Resource Sharing Plan</td>
<td>My DMP Tool</td>
</tr>
<tr>
<td>Human Subjects (clinical v. non-clinical v. justification for using human specimens data)</td>
<td>RDS template and examples</td>
</tr>
<tr>
<td>Vertebrate Animals</td>
<td>RDS template</td>
</tr>
<tr>
<td>Multiple PI Leadership Plan</td>
<td>RDS template and examples</td>
</tr>
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</table>
Grant Components: Scientific

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1 page response to reviewer critique</td>
<td>PI</td>
</tr>
<tr>
<td>Progress Report Publication List</td>
<td>Required for renewals only</td>
<td>RDS template</td>
</tr>
<tr>
<td>Select Agent Research</td>
<td>For particular biosafety considerations</td>
<td>RDS template</td>
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Research Strategy Outline

- Significance
- Innovation
- Approach

Represent 40% of your score
Research Strategy Outline

**Significance:** Extend and validate the assertions you make in the first paragraph of your aims
- Importance of the problem to be addressed
- Rigor of the prior research supporting the aims*
  - Aim 1 (literature & prelim data)
  - Aim 2 (literature & prelim data)
- Significance of expected research contribution

*Relatively recent shift to incorporate preliminary data within aims; not the only way to present your early results*
Research Strategy Outline

**Innovation:** New and relevant departure from the status quo that addresses an important, NIH-relevant problem, thereby enabling new, NIH-pertinent horizons to be reached that otherwise would like have remained unattainable

- **Part 1:** diplomatically frame status quo
- **Part 2:** statement of innovation (in our opinion)
- **Part 3:** describe how what you are proposing will break down barriers that have prevented others from reaching the “new horizons” you envision
Research Strategy Outline

**Approach:** Make reviewers WANT to read the details

Each Aim: re-state verbatim

**Introduction:** objective, working hypothesis, approach, rationale, expectation (1/4-1/3 of page)

**Research Design:** Rigorous experimental design for robust and unbiased results; consideration of relevant biological variables;

**Expected Outcomes:** highlight ROI

**Potential Problems & Alternative Strategies**

**Timeline and Benchmarks for Success**

**Future Directions**
# Early Career Reviewer Program

| Career Advancement | • Help emerging researchers advance their careers by exposing them to experience in peer review that may make them more competitive as applicants |
| Training           | • Educate qualified scientists without prior CSR review experience to develop critical and well-trained reviewers |
| Broaden Review     | • Enrich the existing pool of reviewers by including scientists from less research-intensive institutions |
Work with RDS

Contact us for supporting the development of your proposals.

Research Development Services
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rds@uoregon.edu