Writing a Successful Grant Application

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Objectives

- Describe the elements of a successful grant application
- Provide the tools needed to assemble the application
- Highlight common mistakes and how to avoid them
- Discuss the final check of the application

Elements of a Successful Grant Application

- Topic is creative and exciting
- Project has a well-defined research plan
- Information is presented in clear language
- Guidelines of grant application kit are followed

Starting the Process

Before you begin….

Think About the Big Picture

- Make sure the timing is right
- Form an interdisciplinary team early
- Vet your ideas with colleagues and mentors
- Assess organizational resources and collaborators

Think About the Big Picture

- Know the competition
- Determine the best mechanism
- Review funding announcements and guide notices
- Discuss your concept with Program Directors
- Set a timeline

Basic Questions Reviewers Ask

- Does the study have merit?
- What is the potential impact?
- How novel is the proposed work?
- Is the hypothesis/research question valid, and is there evidence supporting it?

Basic Questions Reviewers Ask

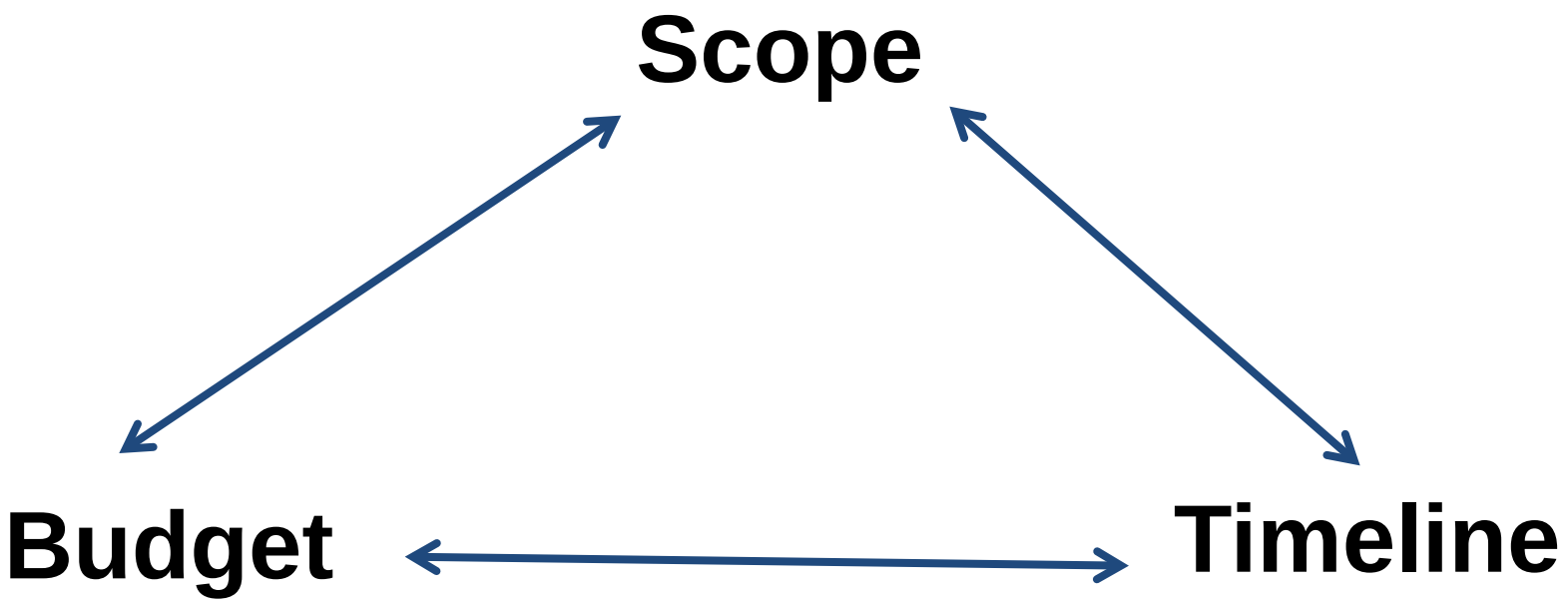
- Are the aims logical?
- Are the procedures well designed?
- Are the investigators qualified?
- Is the environment conducive to the research?

Developing the Hypothesis/ Research Question

- Strong and important to the field
- Testable
- Provide a strong rationale
- Consider alternative hypotheses
- Not a method in search of a problem
- Avoid a “fishing expedition”

Assembling Your Application.....

Is it Feasible?



Research Plan Sections

- Specific Aims
- Research Strategy
  - Significance
  - Innovation
  - Approach
- Introduction (required for a resubmission)

Specific Aims

- Should be highly focused
- Relate directly to the hypothesis/ research question
- Can be assessed by reviewers

Research Strategy Section

- Significance
- Innovation
- Approach

Research Strategy: Significance

- Should demonstrate the importance of the work
- Should demonstrate how the research will advance the field or improve clinical practice
- Consider the longer term, bigger picture impact of the research

Research Strategy: Innovation

- Should seek to shift paradigms
- Build upon existing research
- Develop new theories, tools, approaches
- Accelerate and/or strengthen research

Research Strategy: Approach

- Why this approach?
- Limitations of approach
- Include sufficient details
- Describe statistical methods
- Well-designed tables and figures
- Project timeline

Preliminary Studies

- Should support hypothesis/research question to be tested
- Consist of publications and/ or unpublished data
- Demonstrate how early studies will be expanded in scope
- Include manuscripts in press (if not publically available)

Other Considerations

- Human subjects
  - Data Safety Monitoring Plan/ Board
  - Targeted/Planned Enrollment Table
- Vertebrate animals
- Literature cited
- Consortium/Contractual arrangements/ Consultants
- Biosketches/Personal Statements

Biographical Sketch

- Personal Statement added
- Briefly describe why your experience and qualifications make you particularly well-suited for your role in the project

Other Considerations

- Budget
  - ≥ $500K
  - > $350K
- Appendices (see NOT-OD-10-077)
- Letters of Collaboration/Support
- Facilities and Resources (Environment)
- Page limits/Format specification

The Multiple PI Option

- Use when project requires a team approach
- New Investigator status will be applied to multi-PI applications when all PIs qualify as New Investigators
- Serving as a PI on a multiple PI grant is equivalent to serving as a sole PI on a grant

Common Mistakes

Common Mistakes: Specific Aims

- Too ambitious
- Unfocused aims/unclear goals
- Limited aims/uncertain future directions

Common Mistakes: Significance

- Will not advance science
- Lack of compelling rationale
- Incremental and low impact research

Common Mistakes: Innovation

- Does not advance research or clinical practice
- Is not new
- Does not generalize

Common Mistakes: Approach

- Too little or too much detail
- Not enough preliminary data to establish feasibility
- Feasibility of each aim not shown

Common Mistakes: Approach

- Little or no expertise with approach
- Lack of appropriate controls
- Not directly testing hypothesis or asking appropriate research questions

Common Mistakes: Approach

- Experiments not directed towards mechanisms
- No discussion of alternative models or hypotheses
- No discussion of potential pitfalls
- No discussion of interpretation of data

Common Mistakes: Investigator

- No demonstration of expertise or publications in area of proposed research
- No collaborators recruited
- No letters from collaborators

Common Mistakes: Environment

- Little demonstration of institutional support
- Insufficient resources to conduct the study

After you write it….

The Final Review

- Check for typos and grammatical errors
- Ask someone outside of your project team to review it
- Hold a mock review panel
- Think about the questions you would ask if you were a reviewer

Inclusion of a Cover Letter

- NIH recommends a cover letter
- Indicate the primary Institute that may be interested in your research
- Indicate expertise needed to review your study

http://cms.csr.nih.gov/ResourcesforApplicants/Submission+And+Assignment+Process.htm

Components of a Cover Letter

- Application title
- Funding Opportunity (PA/RFA)
- Request assignment to an Institute or Scientific Review Group. NIH makes final determination
- Disciplines involved, if multidisciplinary

Final Thoughts

- Presentation is key
- Leave yourself enough time
- Know the field
- Know the competition
- Make sure project is feasible
- Be clear, concise, comprehensive

Useful Websites

- SF424 Application Guide:

  http://grants.nih.gov/grants/funding/424/SF424_RR_Guide_General_Adobe_VerB.pdf

- Frequently Asked Questions about NIH Grants:

  http://era.nih.gov/ElectronicReceipt/faq.htm

- Research Involving Human Subjects:

  http://grants.nih.gov/grants/policy/hs/

- Center for Scientific Review:
  http://www.csr.nih.gov/