Writing a Successful Grant Application

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• 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
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?
• 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?

- **Scope**
- **Budget**
- **Timeline**
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
• 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
• 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
• 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
• 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
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....
• 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

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: 

- 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/