Grant Proposals for NIH

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National Institutes of Health (NIH)

- Nation’s **major** medical research agency
- Funds science that leads to **health** advancement
- Located in Bethesda, MD
- Most funding distributed to academic researchers in the United States

NIH supports research to improve health...

- Current annual budget of over $28 billion
- More than 80% goes to extramural research
  - Over 50,000 competitive grants
  - 325,000 scientists
  - 3000 universities
How NIH Supports Research…

- Researchers write proposals for funding
  - What is the scientific question?
  - Why is this a good idea?
  - How will the experiments be done?
  - What will be the impact on science & medicine?

- Proposals are reviewed
  - Peer-reviewed by scientists to ensure high quality
  - Reviewed by NIH officials and public members for applicability to scientific or health priorities
Grant Mechanisms
Research Projects

R01    Research Project
R03    Small Research Grant
R21    Exploratory/Developmental Grant
R15    Academic Research Enhancement Award (AREA)
R43, R44 Small Business Innovation Research Grant (SBIR)
P01    Research Program Project
Grant Mechanisms
Fellowship & Research Career Programs

F31, F32
Postdoctoral Individual National Research Service Award (NRSA)

K22, K01
Career Transition Award (NIAID), Career Transition Award (NCI)

K08
Clinical Investigator Award

K23
Mentored Patient-Oriented Research Career Development Award
Medical Breakthroughs...

- Often come from unrelated areas of basic and clinical science
- Are based on many years of generating fundamental knowledge
- Scientists solve different pieces of the puzzle over time
Scientific Method

- Observations
- Questions
- Hypotheses
- Experiments
- Data analysis
- Interpretations and conclusions
Research Plan of a Grant Application

A. Specific Aims
B. Significance and Innovation
C. Approach
Specific Aims Page – Content

1. Identify the gap in our knowledge
2. Identify why the gap is important (significance)
3. State the hypothesis to be tested
4. List the specific aims (objectives) to test the hypothesis
5. Briefly summarize the experimental approach for each aim
5. List aim and summarize the approach for each aim
Specific Aims Page – Tips

- One page
- Concise, clear and logical
- Not overly technical language
- Aims should be related but not interdependent
- A polished gem!
Specific Aims - Common Concerns

1. The hypothesis is not clear
2. The rationale is weak
3. The problem is not significant
4. The experimental design is weak
5. The proposal is driven by technology rather than a scientific question
6. The proposal is a “fishing expedition” – experiments without a clear scientific question
7. The proposal is sloppy (mistakes and typos)
Research Plan of a Grant Application

A. Specific Aims

B. Significance and Innovation

C. Approach

- Repeat aim title
- Rational
- Experimental design
- Conclusions, limitations, potential pitfalls, alternative approaches
- Methods
Review of your proposal

• ~120 study sections
• 60-100 grant / study section
• Study section rosters (about 20 people) can be found at:
  http://www.csr.nih.gov/Roster_proto/sectionI.asp
• Each grant has about 3 reviewers
• All study section members score the grant 1-9
• Choose a study section that has goals consistent with your proposal
  http://www.csr.nih.gov/Roster_proto/sectionI.asp
  http://grants1.nih.gov/grants/award/award.htm
What criteria do the reviewers use?

- Significance
- Approach
- Innovation
- Investigator
- Environment
- Impact
What if your first grant is not funded?

- Learn from it and succeed - a majority do
- Study criticism in pink sheet
- Decide if problems are reparable
- Attend diligently to each criticism
- Keep a positive tone and attitude in addressing criticism
Remember

There is no grantsmanship that will turn a bad idea into a good one, but…….

There are many ways to disguise a good one

William Raub, Past Deputy Director of NIH
References

- [http://www.ninds.nih.gov/funding/write_grant_doc.htm](http://www.ninds.nih.gov/funding/write_grant_doc.htm)
- [http://deainfo.nci.nih.gov/EXTRA/EXTDOCS/gntapp.htm](http://deainfo.nci.nih.gov/EXTRA/EXTDOCS/gntapp.htm)
- [http://sciencecareers.sciencemag.org/](http://sciencecareers.sciencemag.org/)
Resources

- National Institutes of Health
- National Science Foundation
- Library of Congress
  [http://thomas.loc.gov](http://thomas.loc.gov)
- NIAID Home Page
Resources

- Hints for Writing Successful NIH grants by Ellen Barrett. [http://chroma.med.miami.edu/Ellens.how.to.html](http://chroma.med.miami.edu/Ellens.how.to.html)


- How to Ask for a Research Grant by Janet S. Rasey. In Writing, Speaking, and Communication Skills for Health Professionals. Yale University Press. Pg 91-117