Grant Writing for Success

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Objective: Help You Secure Funding for Research

What is available?
How to get some?

Anthony M. Coelho, Jr., Ph.D.
NIH Review Policy Officer 7 years
Scientific Review Administrator and Chief - Clinical Studies and Training Review Section - NHLBI 7 years
Peer Reviewer 12 years
NIH Funded Investigator 18 years
DOE Funded Investigator 8 years
Other Agency and Private Funding

My Research Experience:

- Role of Diet, Exercise and Stress on Blood Pressure Regulation, Atherosclerosis and Cardiovascular Disease.
- Effects of Exposure to Electric and Magnetic Fields on the Central Nervous System

Collaborators and Co-Investigators
2 Biological Anthropologists
2 Biostatisticians (and support staff)
2 Experimental Psychologists
3 Cardiovascular Physiologists (and labs)
3 Pathologists (and labs)
3 Lipid Biochemists (and labs)
1 Nutritionists
1 Exercise Physiologist (and lab)
2 Electrical Engineers (and support staff)
3 Veterinarians (and support staff)
Lots of technicians, Post-docs, Consultants

Good Grantsmanship Principles for Success:

- Understand the Agency Mission
- Understand Peer Review
- Secure collaborators for areas in which you lack experience and training
- There are no competitors in science, there are only potential collaborators.
- Grant writing is a learned skill
- Grantsmanship is a full time job
- You are in control of your life
Understanding the Agency Mission:

- NIH mission is based and defined in law
- Appropriations bills define expectations
- NIH must report to Congress that it has complied with the legislative expectations
- NIH reports to Congress on success
- NIH funding dependent on success and compliance with the legislative mandate
- NIH success based on the success of the scientists it supports
- NIH wants you to be a successful scientist
Grant writing is a learned skill

- Writing grant applications, standard operating protocols and manuals of procedures that get approved are learned skills
- Writing manuscripts that get published in peer reviewed journals is a learned skill

Grantsmanship is a full time job.
Good Idea

SIGNIFICANT?
• Does it address an important problem?
• How will scientific knowledge be advanced?

INNOVATIVE?
• Builds upon or expands knowledge base
• Capable of making a difference

UNDERSTANDABLE?

Are These Good Ideas?
• Develop a vaccine to prevent HIV infection
• Develop a method to prevent HIV from replicating or mutating
• Produce a drug that will raise HDL and lower LDL without any toxic side effects
• Produce a drug that will lower blood pressure without any side effects
• Study the human genome

Are These Ideas Understandable?
What if you thought of these ideas in 1952? 1962? 1972? Are they still Good Ideas?
• Develop a vaccine to prevent HIV infection
• Develop a method to prevent HIV from replicating or mutating
• Produce a drug that will raise HDL and lower LDL without any toxic side effects
• Produce a drug that will lower blood pressure without any side effects
• Study the human genome

Good Timing
• Will the idea be understood by others?
• Does it build upon existing knowledge?
• Does it build upon similar ideas?
• Do you have preliminary data?
• How will the idea be received?

Good Timing is NOT
“I plan on submitting a grant application in two weeks can you tell me who might be a good program person for me to speak with before I send my application in?”

Good Presentation
Organize the Application
• What do you want to do?
• Why do you want to do it?
• How are you going to do it?
• What is the expected outcome?
• Why is it a good thing?
Good Presentation: Organize the Application

- Develop a logical outline (presentation sequence)
- Use Section Heading - help reviewers "find things"
- Use both major and minor section headings
- Make it easy for reviewers - Don’t make them work
- Use a detailed table of contents
- Do everything to help reviewers:
  Understand your idea,
  Why it is important and
  Why it is reasonable and feasible

Good Presentation: Address Review Criteria:

- Significance
- Approach
- Innovation
- Investigator
- Environment

(1) SIGNIFICANCE:
- Does this study address an important problem?
- If the aims of the application 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 preventative interventions 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 the project challenge existing paradigms or clinical practice; address an innovative hypothesis or critical barrier to progress in the field?
- Does the project develop or employ novel concepts, approaches, methodologies, tools, or technologies for this area?

(4) Investigator:
- 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)?
Good Presentation: Address Review Criteria

(5) Environment:
• Does the scientific environment in which the work will be done contribute to the probability of success?
• Do the proposed studies benefit from unique features of the scientific environment, or subject populations, or employ useful collaborative arrangements?
• Is there evidence of institutional support?

Good Reviewers

Reviewer → Good Reviewer
• Organize and make reviewers “Happy”
• Make it easy for them to understand things
• Make it easy for them to find things
• Make it easy for them to be your advocate
• Don’t make them “work hard”

Factors Involved in Reviewer Assignment
• Abstract
• Specific Aims
• Methods Section
• Self Referral Letter - request specific study section
• Research the background of the review committee
• Letter to SRA recommending types of reviewers

TYPES OF REVIEWERS NOT NAMES OF REVIEWERS

Good Reviewers

Know who the potential reviewers are and do what you can to control the selection process.
Self Referral Letter - request specific study section
• Research the background of the review committee
  • CRISP Database
  • Rosters of Committees
• Letter to SRA recommending types of reviewers

TYPES OF REVIEWERS NOT NAMES OF REVIEWERS

Good Luck

The consequence of:
• Good Ideas
• Good Presentation
• Good Timing
• Good Reviewers
• Good Grantsmanship

COMMUNICATE WITH NIH

• Program Staff
• Review Staff
• Grants Management Staff

Improve your luck by preventing problems before they happen
COMMUNICATING WITH NIH
Before Submitting, Call Institute Program Staff
• Assess scientific interest and match
• What do they want to fund?

Submit Your Application With a Cover Letter
• Institute interest
• Study Section Interest - Charter

COVER LETTER
• Suggest Key Areas of Expertise Required
• Do Not Suggest Specific Reviewer Names
• Suggest Institute(s) For Potential Funding
• Suggest Study Section(s) For Review

COMMUNICATING WITH NIH
CONTACTS WITH REVIEW STAFF
Scientific Review Administrator answers
• Questions about the review process
• Format and structure of application
• “Oops” missing material or late material

COMMUNICATING WITH NIH
AFTER REVIEW, CONTACT PROGRAM STAFF
Institute Program Administrator
• Questions about the discussion of your application (after you have summary statement)
• Scores and percentiles
• Questions about the fundability of application

REVISE & RESUBMIT
Do Not Appeal Review Outcome
NIH Appeal Outcomes:
1. Council Denies Appeal (bad outcome)
2. Council Accepts Appeal: Original Application and Letter of Appeal is sent to the Same Study Section for a second examination and evaluation (bad outcome)
3. Council Accepts Appeal: Original Application be sent to a new Study Section but without the Letter of Appeal (bad outcome)

REVISION COVER LETTER
• For Revisions, Indicate Review History
• Request Same Or Different Study Section
• Provide Justification for your request
• Don’t be Argumentative ! Never!
• Don’t be Abrasive ! Never!
Q: What if you know that you are “Right” and the reviewers are "Wrong", is it appropriate to argue your position in your resubmission?

A: NO!

**Remember**
- An application for funding is not about the facts of your completed research.
- It is about ideas and potential research.
- Never be Argumentative!
- Never be Abrasive!
- Do not do longterm damage to yourself.

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**REVISING & RESUBMITTING**

- Write a Clear Introduction Section
- Address All Criticisms Thoroughly
- Respond Constructively
- Accept the Help of Reviewer Comments
- Don’t Be Argumentative!
- Don’t be Abrasive!

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**REVISING & RESUBMITTING**

- Update Preliminary Results
- Remember that Properly Revised applications can received fundable scores and subsequent $$
- Maintain communications with Scientific Review Administrator and Program Administrator

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**DO’S AND DON’TS**

- Do Pursue original science. This is an area that study sections are most concerned about.
- Do Provide a well focused research plan.
- Do not let your ideas wander from the main theme.

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“This application is characterized by ideas that are both original and scientifically important. Unfortunately the ideas that are scientifically important are not original and the ideas that are original are not scientifically important.”

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“In addition to proposing a research design that is a fishing expedition, the applicant also proposes to use every type of bait and piece of tackle known to mankind.”
DO’S AND DON’TS (2)

• Provide a critical approach to project.
• Discuss potential problem areas and alternative approaches.
• Never assume that the reviewers will know what you mean.
• Always be explicit about what you want the reviewers to know and what they need to know.

DO’S AND DON’TS (3)

• Read the application instructions carefully.
• Read the application instructions carefully.
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DO’S AND DON’TS (4)

• Read the application instructions carefully.
• They may seem overwhelming but the effort is worth it and could spell the difference between success and failure.
• Supply sufficient detail.
• Stay within the page limitations.
• If you don’t understand something in the instructions ask for help.
• Call the SRA call the PA.

DO’S AND DON’TS (5)

• Do Secure collaborators for areas of research in which you lack experience and training.

DO’S AND DON’TS (6)

• Secure collaborations for areas of research in which you lack experience and training.
• “Independent Researcher” does not mean that you working in isolation.
• “Independent Researcher” does mean that you set the direction of the research
• Don’t give the impression of being intellectually “Isolated”.

Point of View

• There are no competitors in science,
• There are only potential collaborators.
DO’S AND DON’TS (7)
- Prepare a reviewer friendly application.
- It should be well organized and clear.
- Tables and figures should be easily viewed.
- Do not hand-draw structures.
- Do not photoreduce your application to an unreasonable size.
- Remember that Reviewers work late at night.

DO’S AND DON’TS (8)
- Do not be overly ambitious.
- Project a realistic amount of work.
- Provide a thorough literature search.
- Be sure you have found key references.
- Know your Reviewers - do literature searches of committee members.
- Minimize typographical errors.

DO’S AND DON’TS (9)
- If you are a new investigator, ask for 5 years.
- The sentiment at NIH is to award sufficient time and funds for new investigators to establish their programs.
- Make sure that you have collaborators who can compensate for your deficiencies and who and add credibility to your innovative ideas.
- Don’t appear intellectually isolated.

DO’S AND DON’TS (10)
- If your application is a renewal or supplement request, be aware that study section members will not have the benefit of your previous application but rather only the previous summary statement.
- Be sure to explain your progress carefully in the current application.
- Publish, Publish, Publish - be productive.

BEFORE YOU SUBMIT AN APPLICATION
- Show your application to a colleague
- Show your application to a colleague who knows little to nothing about your area of research and ask them if they understand
  - What you are proposing to do?
  - How you are proposing to do it?
  - Why you are proposing to do it?
- If they do not understand Revise until they do
- Get feedback on clarity
- Get feedback on scientific merit

AFTER YOU RECEIVE SNAP-OUT MAILER
- Contact the SRA who is listed on the mailer if there are potential problems of IRG assignment.
- Avoid additional material in support of your application,
  - Speak to the SRA first.
  - Keep the material brief - 1 to 3 page letter.
  - Send it at least one month before the review committee meeting.
  - Better yet Do NOT submit additional material
AFTER REVIEW IS OVER

• The Program Administrator at the Institute to which your proposal was assigned is the new contact point. Wait for the Summary Statement.
• Address any concerns on review to them.
• Appeal letters are appropriate only if review was flawed (legal and procedural).
• More constructive use of your energy is amending and resubmitting the application and incorporating reviewer comments.
• Do not take the review comments personally.

IF YOU RESUBMIT

• Answer previous critiques completely.
• Supply an introduction section which explains the changes you have made.
• Leave your irritations with the review out of your resubmission.
• Don’t argue or be hostile.
• You will not be help yourself if you force the study section into a defensive posture.
• Accept Reviewers comments and suggestions as helpful and incorporate them in your revision.

Resources

Sources

Funding Opportunities

Sites with important information:

http://grants.nih.gov/grants/index.cfm
http://grants.nih.gov/grants/welcome.html#admission
http://deainfo.nci.nih.gov/funding.htm
http://deainfo.nci.nih.gov/extras/dean/docs/grantrevprocess.htm
http://www.niaid.nih.gov/ncn/glossary/default.htm

Glossary of Confusing NIH Terms

Also see our Acronym List.
DO NOT write the application for Yourself unless you are going to fund it yourself

You MUST convince the entire review committee and the funding agency.

Rule #3

You must satisfy the needs of reviewers and the needs of the funding agency.
Rule #4
Reviewers are never wrong, Reviewers are never right; they simply provide an assessment of material that you provided in your application.

Rule #5
Comments in the summary statements are never about you as a person. The comments are about the material that you provided in your application and the way in which you provided the information.

Rule #6
The comments in the summary statements only list some of the weaknesses not all of the weaknesses. When you revise your application use the time as an opportunity to improve the entire application.

Rule #7
Always contact NIH staff before you submit an application and preferably when you are in the planning stages. Make sure that you give yourself and the NIH staffer enough time to work with together.

Q. Do I really have to contact NIH before I submit an application?

A. Only if you want to get funded!
   • Always contact program staff during application development
   • Must contact & IC staff prior to a submission if you want them to agree to accept the application for any investigator-initiated competitive applications with ≥$500,000 direct cost for any single year
   • Request must be at least six weeks before deadline

Rule #8
DO NOT write the application for the “Specialist”
You MUST convince the entire review committee
Rule #9
Secure Collaborators for areas of research in which you lack experience and training and who can complement you. Let them help you prepare the best possible application.

Rule #10
Secure a mentor or mentors who can help you succeed.
Who is a good Mentor?

EXAM Question
What are the Elements of the Formula Grant Success?

Grantsmanship
*Knowing + Understanding
• What to do
• How to do it
• When to do it
• What to do when things don’t go as planned
*Being willing to do what is needed
*Doing it- doing what is needed
Understanding Peer Review

NIH GRANT$
Formula for Grant Success

Thank You