


The ABCDs of NIH R01s

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2 November 2006



The slide features a dark blue background with yellow text. At the bottom, there are several logos: 'rle AT MIT', 'EECS', 'Athinoula A. Martinos Center for Biomedical Imaging', 'HST', and 'Harvard-MIT Health Sciences & Technology'.

Questions from Students

- How do you come up with an original research idea and become knowledgeable to apply for a grant while meeting faculty member responsibilities?
- best way to present your research?
- how to ensure a full pipeline of grants?
- How to find out what the sources of funding are? Do they change?
- What are the available resources for editing a grant before submission?
- Do you pitch something you would love to work on, are passionate about, and that you believe will bear fruits, or do you pitch something hot that will please the reviewers?
- Grants available to grad students?
- What are the current trends in grant approval? Areas? Clinical trials?
- Coming up with original questions when they overlap with your current advisor's?

Outline

- What does NIH want?
- How does the investigator respond?
- Examples of R01 grants
- Student Questions
- Open back-and-forth

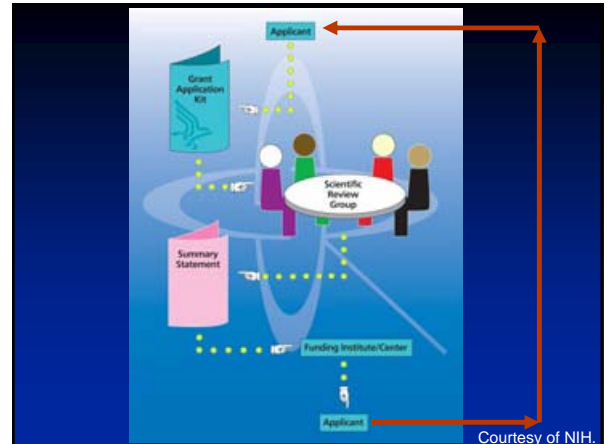
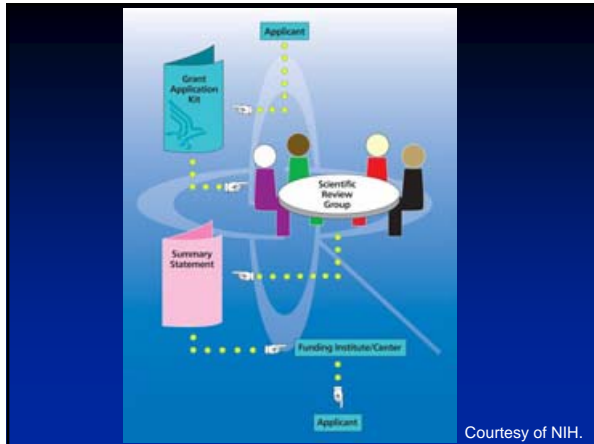
Information

www.nlm.nih.gov/ep/Tutorial.html

What does NIH want?

The Goal of NIH-supported Research

“... advance our understanding of biological systems, improve the control of disease, and enhance health.”



Review Criteria

- Significance
- Approach
- Innovation
- Investigator
- Environment

Significance

- Address important problem?
- Advance scientific knowledge?
- Effect on the field?

Approach

- Are design, methods, and analyses adequately developed, well-integrated, and appropriate to the aims of the project?
- Does the applicant acknowledge potential problem areas and consider alternative tactics?

Innovation

- Does the project employ novel concepts, approaches or method?
- Are the aims original and innovative?
- Does the project challenge existing paradigms or develop new methodologies or technologies?

Investigator

- Is the investigator 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?

Environment

- Does the scientific environment in which the work will be done contribute to the probability of success?
- Do the proposed experiments take advantage of unique features of the scientific environment or employ useful collaborative arrangements?
- Is there evidence of institutional support?

How does the investigator respond?

NIH

- A – Specific Aims
- B – Background and Significance
- C – Preliminary Data
- D – Methods

R01

- 25 pages
- \$250K/year direct costs
- 3-5 years

Get this across ...

- Your hypothesis is sound and important.
- Your aims are logical and feasible.
- You understand potential problems.
- You can analyze the data.

A – Specific Aims

- ~ 1 page
- State your objectives, what you want to accomplish, and your project milestones

A – Specific Aims

- Do not confuse specific aims with your project's long-term goals
- Specific aims are what you plan to accomplish by the end of the grant

A – Specific Aims

- Being too ambitious is a common mistake
- Limit your proposal to three to four specific aims

A – Specific Aims

- Design your specific aims and experiments so they answer the question posed by the hypothesis
- Make sure the hypotheses are testable!

B – Background and Significance

- ~ 2-3 pages
- Convey the significance of your research to
 - increasing scientific knowledge
 - improving public health
- Reveal you are aware of opportunities, gaps, and roadblocks in your field

B – Background and Significance

- Show reviewers your intimate familiarity with the field and knowledge about research being done, referring to all relevant scientific literature

B – Background and Significance

- Tie your science to curing, treating, or preventing disease
- On success ... Significance ...

C – Preliminary Data

- show that you have the expertise to do the job
- focus on your own preliminary data or unpublished data from your laboratory

D – Research Design and Methods

- Describe how you will perform the research
- Use a timetable
 - how and when you will accomplish your aims

D – Research Design and Methods

- Spell out in detail what you are going to do, how you are going to do it, and your criteria for success
- Discuss other possible outcomes and contingency plans

D – Research Design and Methods

- Provide statistical analysis

Examples of Grants

Nov 1st – Resubmission Date

Slides removed due to copyright restrictions.
Example of a grant in progress.

Questions

From Students

How do you come up with an original research idea and become knowledgeable to apply for a grant while meeting faculty member responsibilities?

Good Question

Original ideas & Juggling time

- I suspect original research ideas happen prior to getting a job
- Evolution of your previous work
- Natural cycle

Best way to present your research?

Presentation

- Keep in mind what the reviewers want
- Stick to the prescribed format
- Consult with elders

How to ensure a full pipeline of grants?

Pipeline

- First get one grant
- Start early for 2nd one
- Use collaborators – safety net

How to find out what the sources of funding are? Do they change?

Funding Sources

- NIH
 - R01s for Individual Investigators
- My field: Other sources limited
 - Overhead limitations
 - Limits on scale & scope

What are the available resources for editing a grant before submission?

Secretaries & Competent Writers

- Self
- Important to organize structure
 - Consult with senior people
 - Filling in is easier than starting from scratch

Do you pitch something you would love to work on, are passionate about, and that you believe will bear fruits, or do you pitch something hot that will please the reviewers?

Please Others or Yourself?

- Only do interesting work
- “love to work on, are passionate about, ... bear fruit”
 - Defines success

Grants available to grad students?

Grad Student Grants

- ?
- Postdoc -> Faculty transition
 - K99/R00
- Training Grants
 - US Citizens

**What are the current trends in grant approval?
Areas?
Clinical trials?**

Trends & Outlook

- Down
- Funding levels static, more applicants, lower yield

**Coming up with
original questions
when they overlap
with your current
advisor's?**

Overlap with Advisor?

- Talk to the advisor
- All work builds on past progress

Open for Questions ...

**Thank you
for your attention**