



# NIH Grantsmanship: Background and Significance

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# On line resources

NIH Grantsmanship Site:

<http://www.niaid.nih.gov/ncn/grants/write/index.htm>

AHA Grant Writing Tips:

[http://www.heart.org/downloadable/heart/1133366256870Grantwriting\\_Tips.pdf](http://www.heart.org/downloadable/heart/1133366256870Grantwriting_Tips.pdf)

# General Comments

- Find out in advance as much as possible about the potential reviewers.<sup>1</sup>
- Study section rosters can be found at:

<http://www.csr.nih.gov/Committees/rosterindex.asp>

1. Inouye SD and Fiellin DA, Ann Int Med 142:274 2005

# A typical grant reviewer



# A typical study section



# General Comments

- Make your grant easy to read.
  - Tell a story.
  - “It would be good if your (husband)/ wife can understand.”<sup>1</sup>
  - “Err on the side of starting off simple. Write the engineering part for the surgeons and the clinical piece for the engineers.”<sup>1</sup>

1. Rob Gorman, CT Surgery, UPenn

## Font

Use an Arial, Helvetica, Palatino Linotype or Georgia typeface and a font size of 11 points or larger. (A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.)

Type density, including characters and spaces, must be no more than 15 characters per inch.

Type may be no more than six lines per inch.

Use black ink that can be clearly copied.

Print must be clear and legible.

## Page Margins

Use standard size (8 ½" x 11") sheets of paper.

Use at least one-half inch margins (top, bottom, left, and right) for all pages, including continuation pages.

# Formatting of Sections

- Make it easy for reviewers to find key points within the story:
  - **Bold face type**
  - Underlining
  - Outline
    - a (aims), b (background), c (preliminary data), d (methods)
    - d.1, d.1.1, d.2 etc
- There is nothing worse than pages of text without headings and/ or figures.

# Formatting of Paragraphs

- 1 main idea per paragraph
- Use topic sentences
- Use transitions (e.g., *however, in contrast, next, although, nevertheless, likewise, etc*)
- End paragraphs with closing sentences.
- Examples:
  - These studies demonstrate the importance of....
  - These studies provide important background for this study in...
  - The proposed project will build on this previous work, [or will address limitation in the previous work by \_\_\_\_\_ ]...

# General Comments

- “Don’t use jargon” <sup>1</sup>
- “Avoid abbreviations unless used repeatedly.” <sup>1</sup>
- If multiple abbreviations are necessary provide a list of definitions.

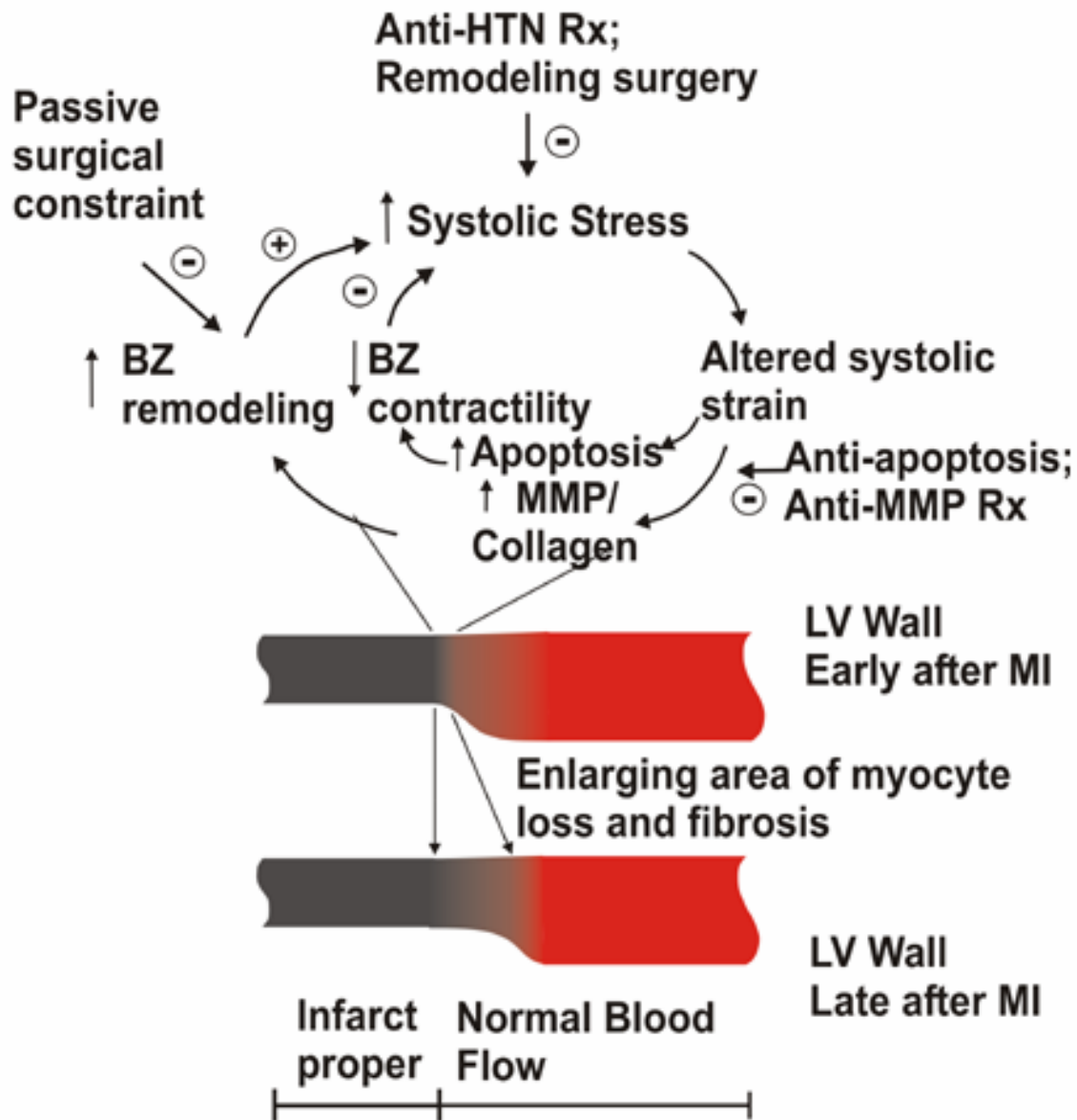
1. Rob Gorman, CT Surgery, UPenn

# Pictures, Figures and Cartoons

- “Pictures/Figures are good but they should be easy to understand and add something besides color to the grant.”<sup>1</sup>
- “Make sure the regions of interest in figures/images are highlighted, have arrows, etc, so the reviewer does not have to guess at what they are looking for.”<sup>2</sup>

1. Rob Gorman, CT Surgery, UPenn

2. David Saloner, Surgery and Radiology, UCSF



# General Comments

- Check to see that the references are correctly numbered.<sup>1</sup>
- A reference manager such as Endnote is strongly recommended.<sup>2</sup>
  - References can be downloaded directly from PubMed thereby avoiding errors in the bibliography (very irritating when the reviewer wants to look something up).
  - More efficient when reformatting is necessary.
- “Check carefully for typos. In the age of spellcheck, typos are extremely annoying to reviewers, especially if there are a large number of them.”<sup>3</sup>

1. Kessel D, Chest 130: 296 2006

2. [www.endnote.com](http://www.endnote.com)

3. Joel Karliner, Cardiology, UCSF

## **B. Background and Significance**

Briefly sketch the background leading to the present application, critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. State concisely the importance and health relevance of the research described in this application by relating the specific aims to the broad, long-term objectives. If the aims of the application are achieved, state how scientific knowledge or clinical practice will be advanced. Describe the effect of these studies on the concepts, methods, technologies, treatments, services or preventative interventions that drive this field. **Two to three pages are recommended.**

# Background

- Convey the significance of your research to 1) increasing scientific knowledge and 2) improving public health.
- Reveal you are aware of opportunities, gaps, and roadblocks in your field.
  - Show reviewers your intimate familiarity with the field and knowledge about research being done, referring to all relevant scientific literature.
  - If you leave out an important work, reviewers will assume you're not aware of it.

[http://www.niaid.nih.gov/ncn/grants/write/write\\_k1.htm](http://www.niaid.nih.gov/ncn/grants/write/write_k1.htm)

# Background

- Use this section to show the breadth of your knowledge of your field and highlight why you are uniquely qualified to do the research.
  - Refer to unpublished work, including information learned through personal contacts.
  - Make sure the literature you note here is also in your Bibliography and References Cited section.

[http://www.niaid.nih.gov/ncn/grants/write/write\\_k1.htm](http://www.niaid.nih.gov/ncn/grants/write/write_k1.htm)

# Background

- Purpose of the Background Section:
  1. to provide justification for specific aims and hypotheses.
  2. in conjunction with Preliminary Data to establish the competence of the investigator.
  3. to educate a reviewer who is unfamiliar with the subject of your grant.

# Background and Significance: Organization

- A common mistake is to make this section too long.<sup>1</sup>
- Three to five sections.
- As before, section headings should be b.1, b.1.1, b.2 etc.

1. Inouye SD and Fiellin DA, Ann Int Med 142:274 2005

# Background and Significance: Organization

- Start with the general and move toward the more specific.
- Section subject matter should be either:
  - "... totally relevant to your actual aims."
  - or if that is not possible:
    - general topics that are critical to the grant
- Conclude each section with a sentence that ties the subject matter to your aims.
- Common critiques are that this section did not justify the need for the study.<sup>1</sup>

1. Inouye SD and Fiellin DA, Ann Int Med 142:274 2005

# Significance

- Significance is related to both:
  - The clinical problem (i.e. the mortality or morbidity caused by the problem that you will address).
  - The relevance of your potential findings beyond the clinical problem (i.e. benefit of a new operation for ASD to all Peds CT operations).
  - Amount of innovation (incremental change or paradigm shift).

# Significance

- The reviewer's critique is required by the NIH to contain sections on significance and innovation.
- Write the significance and innovation sections so the reviewer doesn't have to.

# AHA Fatal Flaws

- **Problems with significance**
  - Not significant nor exciting nor new research
  - Lack of compelling rationale
  - Incremental and low impact research
  - Innovation is not always necessary, but the results should have compelling significance.

AHA Grant writing Fatal Flaws Dec 2005  
[http://www.heart.org/downloadable/heart/  
1133366256870Grantwriting\\_Tips.pdf](http://www.heart.org/downloadable/heart/1133366256870Grantwriting_Tips.pdf)