Writing a Proposal and Grant

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How to get started

• What type of a grant?
  • Exploratory, pilot study
  • Full grant
  • Basic science, clinical, translational?
  • Mentored or independent grant

• Do you have the expertise, track record in the field?

• Who is your team?
  • Mentor, collaborator, consultant
  • One or more institutions
How to get started

• What is the funding agency?
• Do you have the institutional environment to support the proposed studies?
• Assess feasibility
  • Size and access to patient population
  • Reagents, equipment, animals, etc.
• Do you have the type of support that you as the investigator needs?
  • Support of your mentor, division/department
  • Your future at the institutions
  • Future of the institution
How to get started
Have an idea?

• Read
• Think
• Read more
• Think more
• Write down ideas
• Talk to a colleague about it (helps to articulate the thought)
Have an idea?

• Think about the big picture
• Next, narrow down to specific questions
• Think
• Read more
• Search the literature
  • What supports your idea?
  • What goes against it?
  • Has this been done?
Be your own critique

- Is your idea and proposal really novel? If not, is there a novel component?
- Are you asking a new question?
- How will this impact the field?
- Narrow down to specific questions
- Think
- Read more
Find an independent critique to read your outline

• More readers are the better
• Ask your mentor, colleague, other scientists to read your research summary specific aims page
  • Is it understandable?
  • Are they convinced (after reading it) that you propose something novel and worth doing?
  • Did they get the same points that you are trying to make?
  • Were you clear in explaining why, what and how?
Find an independent critique to read your outline

- Don’t get hurt on the critiques!
- It is not personal
- What does not kill your proposal will only make it better
Don’t forget the time factor!

- It always takes longer than you think!
- Unexpected priorities always come up even if you have planned time for writing!
Sections of a Grant Proposal

- Specific Aims
- Background Introduction
- Preliminary Results
- Proposed Experiments
- Literature Cited
Specific Aims

- This is a brief summary of the grant
- Describe:
  - What is the problem/question?
  - Why would anyone care?
  - What is your hypothesis/question?
  - How will you answer/approach your hypothesis questions?
  - What will your research reveal?
  - How does it add to the current state-of-the-art?
Background Introduction

- Be short, focused
- Build your story
- Highlight what is known
- What is not known, what are the questions
- How will your proposal answer these questions
- Provide a diagram
- Describe your hypothesis
Significance

- Why is your research important
- How will your results advance science/medicine
Preliminary Results

- If you have preliminary data
  - Show feasibility
  - Show that you can do it
  - Show data (only) that supports your story
  - Limit unrelated data – that would just disrupt
Experimental Plan

- Provide plans for specific experiments
- Discuss alternate approaches and potential pitfalls
- Describe anticipated results and show how those will or will not support your hypothesis
Experimental Plan

- Rationale
- Preliminary data
- Specific experiments
- Anticipated results
- Potential pitfalls and alternate approaches
Statistical analysis

- Always include!
- Type of analysis to be used
- Sample size calculation
Human subjects and animals

• Important element
• Room to expand experimental description
Submit application

Proof read before hitting the Submit button!

• Feels good!
• .......but it may not be over.....
Review process

- Study section or review panel of experts
- What will be critiqued
  - Significance
  - Novelty
  - Hypothesis
  - Feasibility
  - Approach
  - Investigator
  - Research environment

CONGRATULATIONS!
Review process

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  - Feasibility
  - Approach
  - Investigator
  - Research environment
Start the revision! Don’t stop!

- Read the review
- Let it sink in – don’t get upset
- Seek advise of an experienced colleague in interpretation of the critiques
- Go though point-by-point
- Incorporate changes to all critics in the revised application