Developing Ideas into a Grant Research Concept
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Discussion Objectives

- Highlight how to search for ideas
- Illustrate how to move an idea/thought to a concept
- Discuss transition of a concept to research
- Make aware of research developed for manuscript vs. grant
- Present elements of research
- Present relationship among research, publishing and research grant
- Highlight Specific Aims of the research grant
- List where to find funding opportunities
- Template how to map career funding opportunities
Thoughts & Ideas - the Pipeline

- Student Training
- Seminars
- Journal Clubs
- Conferences
- Mentors
- READ
- READ
- READ
- READ
Thoughts & Ideas - the Pipeline

- DOD_AFOSR website  
  http://www.wpafb.af.mil/AFRL/afosr

- National Defense Graduate Fellowship: http://ndseg.asee.org/

- UTMD Anderson: http://sciencepark.mdanderson.org/outreach/students/undergrad/
Thoughts & Ideas - the Pipeline

- NIH Fellowships: http://grants.nih.gov/training/extramural.htm
- NIH Administrative Fellowship: http://www.jobs.nih.gov/afp/default.htm

- NSF Funding: http://www.nsf.gov/
- NSF Graduate Student Research Fellowship: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201
The Birth of a Concept

- What excites and truly fascinates you?
- Does it fit within an area where you can obtain support and guidance and training?
- What questions will you ask of these thoughts and ideas?
Gather in groups of 3.
Select an article.
Find an idea or a statement within the article that excites and fascinates you.
Ask three questions of the statement.
Developing the Concept: Venn & Flow

- Concept 1
- Concept 2
- Concept 3

Central Concept
Developing the Concept: Venn & Flow

Central Concept

Concept 2

Concept 1
Developing the Concept: Venn & Flow

- Central Concept
- Concept 1
- Concept 2
- Concept 3
Developing the Concept: Venn & Flow

Concept 1

Concept 2

Concept 3

Central Concept
From Concept to Research: Research Elements

- Question or Hypothesis
- Specific Aims
- Method/Approach
- Analysis
- Outcome
From Concept to Research: Approaches

- Qualitative
- Quantitative
Developing the Concept: Map the Approach

Central Concept

- Concept 1
- Concept 2
- Concept 3
- Expt Design
- Expt Design
The Manuscript vs. The Grant
Research and the Manuscript
Research and the Grant
AGENCY SPECIFIC

- DOD:
  http://opd.tamu.edu/the-craft-of-writing/workbook/toolkit-for-department-of-defense-funding.html

- DOD-AFOSR White Paper Guide:
  DOD_AFOSR website
  http://www.wpafb.af.mil/AFRL/afosr

AGENCY SPECIFIC
YOU ARE NOW WRITING TO MEET SOMEONE ELSE’S PURPOSE/MISSION
REMEMBER THIS IS ABOUT RESEARCH – YOU NEED IDEAS & UNDERSTANDING of the SYSTEM


- Reports on funded awards, funded abstracts (old version = CRISP) [http://report.nih.gov/](http://report.nih.gov/)


Research Development: Grant Writing

- Hypothesis Driven versus Question
- Evidence-based versus Exploratory
The Grant Writing: Specific Aims

Purpose: to describe concisely and realistically what the proposed research is intended to accomplish.

Content: specific aims should address:
• broad, long-term goals
• impact
• the hypothesis to be tested or question to be answered
• specific time-phased research objectives.
The Grant Writing: Specific Aims

- Generally, the Specific Aims section should begin with a brief narrative describing the long-term goals of the project and the hypothesis guiding the research. This is followed by a numbered list of the Aims.

- State the hypothesis clearly. Make sure it is understandable, testable and adequately supported by citations in the Background and by data in the Preliminary Results Sections. Be sure to explain how results to be obtained will be used to test hypothesis.

- Show that the objectives are attainable within the stated time frame.
The Grant Writing: Specific Aims

- Be as brief and specific as possible. Each aim should consist of only one sentence. Use brief paragraph under each aim if need detail. Successful apps: 2-4 specific aims.

- Don't bite off more than you can chew: small, focused project better received than diffuse, multifaceted project.

- Be certain that all aims are related but not dependent. Obtain outside review for clarity and cohesiveness.

- Focus on aims where you have good supporting preliminary data (when applicable) and scientific expertise.
THE RESEARCH CONCEPT STATEMENT
ONE PAGE

Paragraph one:
• The issue
• Hypothesis (which should address the issue),
• Contribution and significance/impact of the issue if proven
• Several sentences on method/approach

Paragraph two:
• Entitle “Specific Aims”
• List as below with no more than 2-4:
  1.
  2.
  3.
• Figure with Venn/Flow (explains concept and outcomes)
CHART YOUR FUTURE - MAP YOUR GOALS

NIH Example: Jane Doe Funding Career Development Map

- College
- Graduate School
- Postdoctoral
- Independent Investigator

2010
2016
2020

- Summer Internship
  T or F kiosk
  GPP/IPP
- K99/R00 NIH
- Career Transition Award (K22)
- Mentored Research Scientist Development Award (K01)
- Independent Scientist Award (K02)
- Career Enhance. Award for Stem Cell Res. (K18)
- Senior Scientist Award (K05)
Example: Entering the NIH Portal TO MAP

**Funding home page:** [http://grants.nih.gov/grants/oer.htm](http://grants.nih.gov/grants/oer.htm)

- **Training Program Grants (The T-kiosk):**
  [http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=T&Search_Type=Activity&Search.x=19&Search.y=10](http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=T&Search_Type=Activity&Search.x=19&Search.y=10)

- **Pre-doctoral Grants (F-kiosk):**
  [http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=F&Search_Type=Activity&Search.x=11&Search.y=7](http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=F&Search_Type=Activity&Search.x=11&Search.y=7)

- **Advanced Postdoctoral and Junior Faculty Career Awards (K-Kiosk):**
  [http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=K&Search_Type=Activity&Search.x=21&Search.y=8](http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=K&Search_Type=Activity&Search.x=21&Search.y=8)
RESEARCH DEVELOPMENT: Research Cycle

- Manuscript
- Grant

(RESEARCH DEVELOPMENT: Research Cycle Diagram)
RESEARCH DEVELOPMENT

- READ
- SPECULATE
- THINK OUTSIDE THE BOX
- NETWORK

What do dreams know of boundaries? – Amelia Earhart