Grantsmanship
or
The Good, the Bad and the Ugly!

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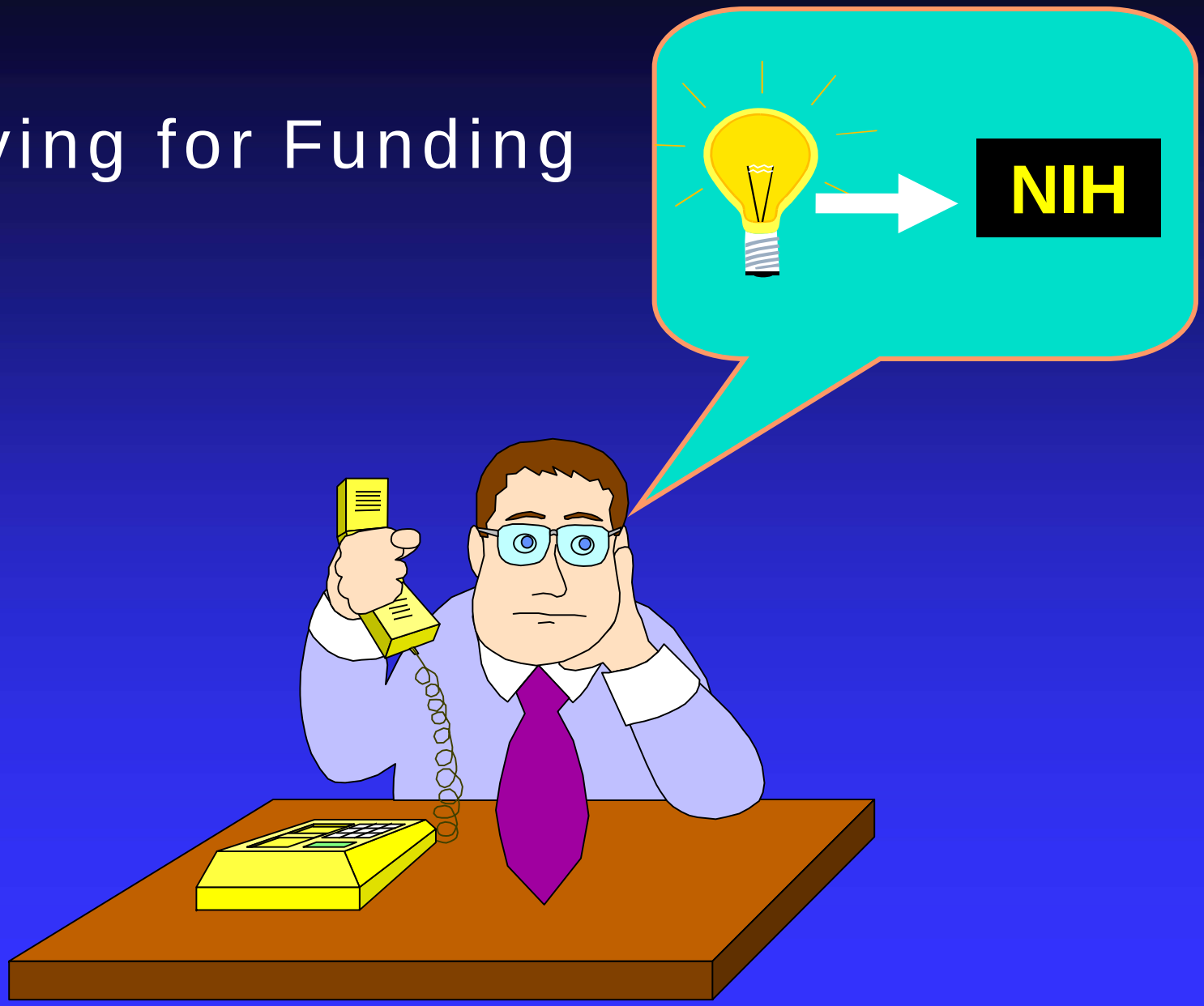
National Institute of Environmental Health Sciences

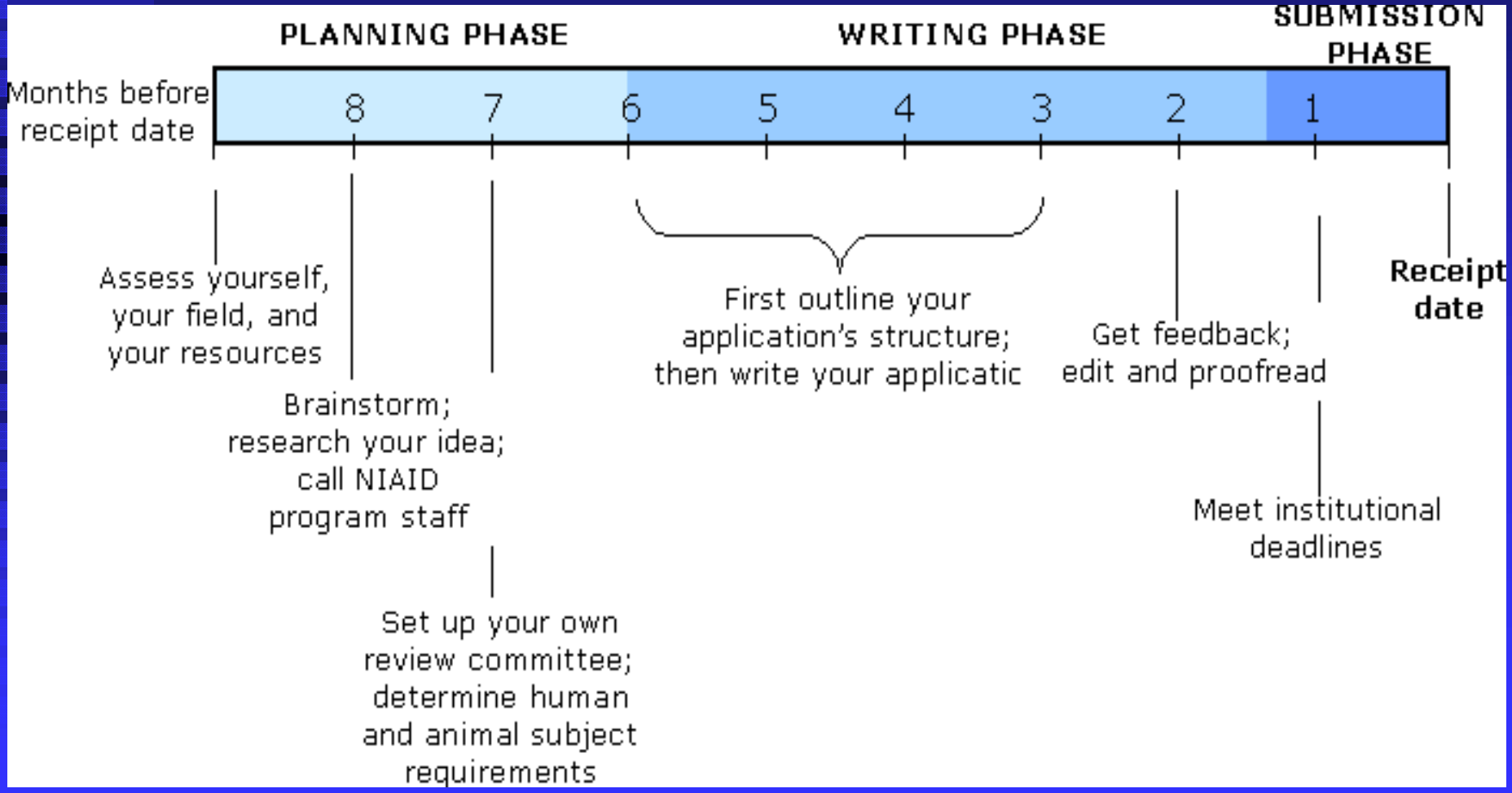
NIH/DHHS

Applying for Funding



Start Planning Early!!!!!

Planning Schedule…..



APPLICATION, REVIEW, and AWARD

Scientist

Submit Grant Application

National Institutes of Health

Center for Scientific Review

Assign to IC and IRG

Scientific Review Group

Review for Scientific Merit

~2-3 months after submission

Institute

Evaluate for Relevance

Advisory Council or Board

~2-3 months after review

Recommends Action

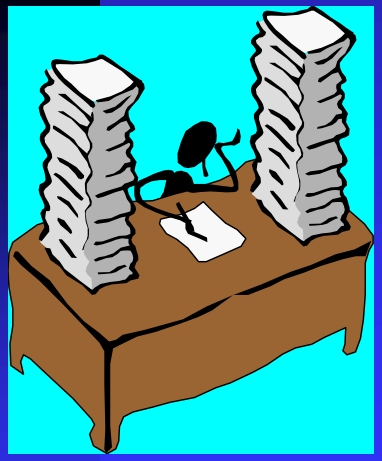
Institute Director

Takes final action for NIH Director

Allocates Funds $$

Conducts Research

Applicant Initiates Research Idea



II. Who to talk to, When and About What!

- Start talking to agency representative before start writing.
- Be sure agency is interested in idea.
- Check out possible review panels.
- Get grantsmanship training.
- Information on budgets and financial matters.
- Information on patent rights…..

When to Interact with Various Staff Members

Scientific Program Administrator:

- **Prior to submission**
- After the review is complete
- Prior to the award
- During the progress of the research

Grants Management Official:

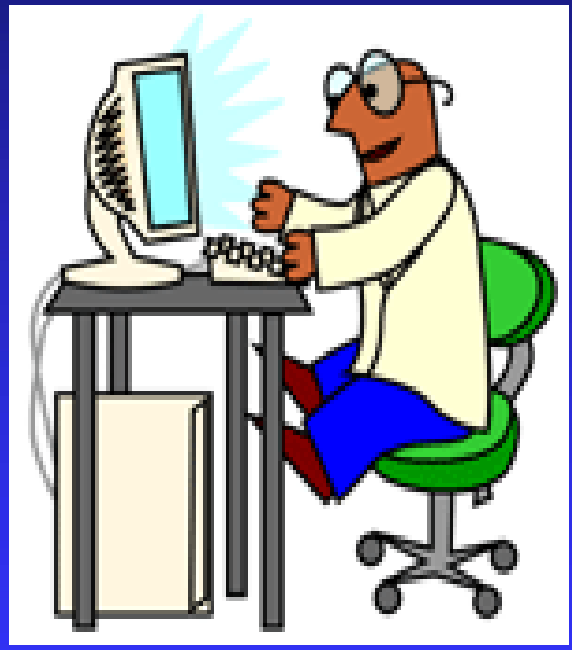
- Fiscal or Administrative questions prior to submission or award and throughout award

Scientific Review Administrator:

- After Submission
- Prior to Summary Statement

III. Principles of Grantsmanship Preparing an NIH Application

- Title
- Abstract (200 words)
- Research Plan
  - Specific Aims (1 page)
  - Significance (2-3 pages)
- Experimental Methods/Approach



Grantsmanship : General Preparation

- Assess the field….know state of field and opportunities
- Check out the competition
- Brainstorm ideas….match them to NIH
  - Novel, innovative, high impact
- Check with NIH program directors
- Give yourself plenty of time….3-6 mo!
- Write clearly, concisely and with grantsmanship in mind!

Grantsmanship: Know your Audience! or Start with the End in mind!

- **The Reviewers**
  - Accomplished, dedicated, fair.
  - Overly committed, tired, inherently skeptical, overly critical and underpaid.
  - General understanding only.
- Assume reviewers are:
  - Uninformed but intelligent!
  - Looking for easiest way to get the job done.

The key to success in grant writing is to engender **enthusiasm** in the reviewer---who then becomes an **advocate** for the proposal!

The more energy and time a reviewer has to devote to figuring out your application, the less energy a reviewer has to **review** your application!

NIH REVIEW CRITERIA

- Significance (Real Problem/Real People)
- Approach (Research Design, Feasible)
- Innovation (New or Improved?)
- Investigators (PI and team)
- Environment (Facilities/Resources)

... Protection of Human Subjects

... Animal Welfare

... Budget

Grantsmanship: Know your Audience …. Scientific Review Criteria

- **Significance (real problem/real people)**
  - Important problem; if successful how will it affect area?
- **Approach (feasible research design)**
  - Conceptual framework, design, methods, analyses well developed; potential problems identified and addressed; time frame; sound approach for achieving technical and commercial feasibility
- **Innovation**
  - **Novel** concepts, approaches or methods;**challenge existing paradigms** or develop new or **innovative technologies**

Selling Yourself and Your Ideas!

Knowing the science is not enough. You must be:

- **Scientist**
- **Spokesperson**
- **Communicator**
- **Salesperson**

Grantsmanship: Sell yourself and your ideas!

- **What** are you selling?
- **Why** is it important?
- **Impact** (who will benefit)
- **How** will you do it?
- **Advantages**/strengths/limitati
- **Track record** (can you do it?)

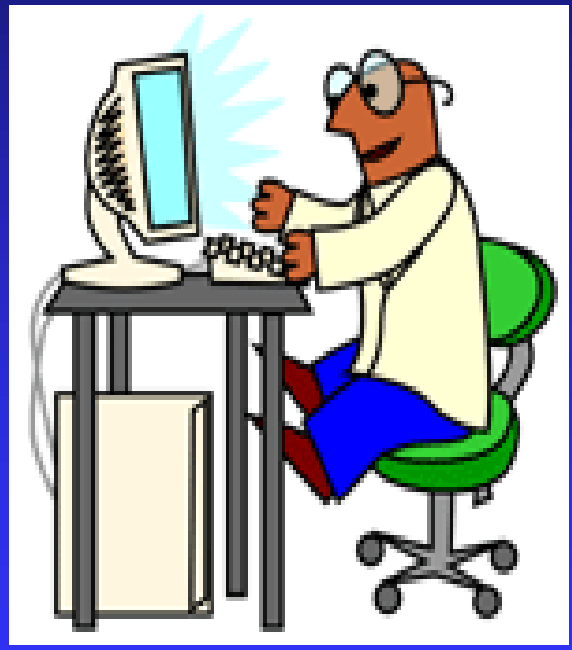
And put it in the proper form !

Principle of Successful Selling

- Make people like you…develop rapport
- Find out what they need or want
- Get the other person point of view
- Know your product
- Show advantages of your product
- Develop a desire for your product
- Get people saying YES

Principles of Grantsmanship Preparing an NIH Application

- Title
- **Abstract (200 words)**
- **Research Plan**
  - **Specific Aims (1 page)**
  - **Significance (2-3 pages)**
- **Experimental Methods/Approach**



Which kind of Grant is Right for You?

- R03
- R21
- R01
- R15
- P01
- R13
- F Series (Individual Fellowships)
- K Series (Research career programs)

ABSTRACT: Guidelines

- State the application's broad, long term objectives and specific aims.
- Make reference to the health-relatedness of the project.
- Describe concisely the research design and methods for achieving goals.
- Discuss potential for innovation.
- Avoid summaries of past accomplishments and the use of first person.
- Do not exceed 200 words.

Grantsmanship : Abstract

Significance

- **What to do ----------→ Objectives / Hypothesis**
- **Why do this----------→ Rationale / Purpose**
- **How do this ----------→ Methods / Study Design**

- **Evidence when done ----------→ Expected Results / Findings**
- **Why anyone cares ----→ Significance / Importance**

- **The ABSTRACT is meant to serve as a succinct and accurate description of the proposed work when SEPARATED from the application.**

Specific Aims : The Heart of The Application

- **Specific Aims**
- Background and Significance
- Preliminary Studies
- Research Design/Methods
- Literature Cited

Hypothesis

Abstract

Specific Aims

Research Plan

Grantsmanship: Specific Aims (on one page)

- **Introductory paragraph**
  - Statement of ***long term health-related goal*** (1 sentence)
  - ***Background/significance*** of problem (1-2 sentences)
  - ***Preliminary data*** /state of the art (2-3 sentences)
  - ***Data gaps*** /controversy (1-2 sentences)
  - Clearly defined ***hypothesis/specific goal***

    (1-2 sentences)

Specific Aims (Cont'd)

- **Specific Aims/Milestones**
  - 2-5 aims (One sentence each)
  - Specifically focused to prove hypothesis/develop product
  - Logical order with no dead ends
  - Two to three sentences describing approach and techniques
- Emphasize novel product and innovative approach and impact on field (2-3 sentences)

Strong Specific Aims Page

- **What, Why, Whom paragraph**
  - **Long range goal (not goal of application)**
  - **Obective of application (framed to lead to hypothesis)**
  - **Central hypothesis**
  - **Rationale**
- **Aims paragraph**
- **Payoff paragraph**
  - **Innovation**
  - **Expectations**
  - **Impact**

HYPOTHESIS

- State what you are going to test
- Be explicit
- One or two only
- Must be testable
- Do not rely on reviewer to develop hypothesis
- Do not wander about, stay aligned in logic

Idea and Hypothesis. NOVEL!!!

- Develop and new, innovative and novel ideas…paradigm shifters.
- You need to be first….we don't fund followers!
- We don't fund gap filling.
- We don't fund verification/repetition.

Why is this application special….what singles out this application?

Grantsmanship : A Research Focus

- The writing style and organizational format substantially impacts on the ease of reading and comprehending of a presentations' ideas and plans.
- It is easy to not see a gold nugget when it rests in a bed of dull stones that requires voluminous effort to scan through and study.

Experimental Methods/Research Plan

For Each Aim/Milestone:

- **State aim**
- **Rationale for approach** Section
- **Experimental Design** in detail including data analysis and interpretation
- **Potential Difficulties/Limitations** Section
- **Alternative approaches** Section

Justify everything including timetable and that you have experience and expertise needed

Background and Significance

- Logical development of background information that forms basis of proposal.
- Logical flow from more global to specific.
- Critical evaluation of current knowledge (goal not to be comprehensive …present solid foundation).
- Identification of data gaps, conflicts, needs, what's new and novel and innovative.
- Importance of research and how it will fill need.
- Public health benefit.

Preliminary Data

- Goal: To establish your experience and competence in the area of application.
  - Convince reviewers you are familiar with and have done all the techniques proposed including data analysis and interpretation.
  - Simple graphs and tables with descriptive legends.
  - No extraneous or irrelevant data.
  - Black and white.

F. Timetable for Completion of Proposed Studies:

Table 6.

	YEAR 1				YEAR 2				YEAR 3				YEAR 4				YEAR 5			
Specific Aim #1. Modulation of particle-induced injury through transgenic augmentation and depletion of EC-SOD	X	X	X	X	X	X	X	X	X	X	X	X								
Specific Aim #2. Modulation of particle-induced injury through aerosolized replacement with rh Mn-SOD									X	X	X	X	X	X	X	X	X	X	X	X

C. Time Schedule

	YEAR 1				YEAR 2				YEAR 3			
	Quarter				Quarter				Quarter			
ACTIVITY	1	2	3	4	1	2	3	4	1	2	3	4
Hire & train tech												
AIM 1												
AIM 2												
Set up plethysmographs												
Set up formaldehyde exposure												
AIM 3												
AIM 4												

Time Table:
The following scheme depicts the anticipated timeperiods required for the individual Specific Aims.

Specific Aim	• • • • • Year • • • • • One	Two	Three	Four
1	----------			
2		----------		
3			----------	
4			----------	
5				----------
6	----------	----------	----------	----------

Applications Submitted to NIH Center for Scientific Review

Cover Letter: A Valuable Tool

- Suggest potential awarding component(s)
- Discuss areas of expertise appropriate for the application's review
- Indicate individual(s) or organization(s) in conflict

Common Problems with Applications

- Lack of innovation
- Unconvincing case for commercial potential
- Lack of experience with methods
- Questionable reasoning in approach
  - Uncritical approach
  - Failure to consider potential pitfalls and alternatives
- Lack of experimental detail
- Overly ambitious
- Unfocused research plan that does not test feasibility