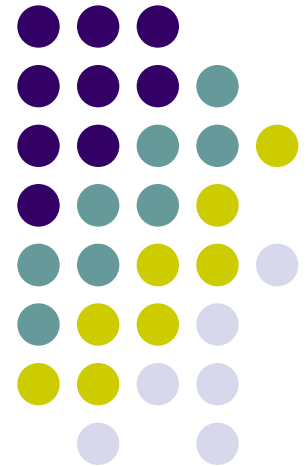
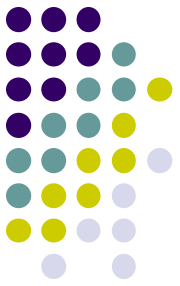


Grant Proposals for NIH

Martin R. Schiller, PhD
School of Life Sciences
University of Nevada Las Vegas

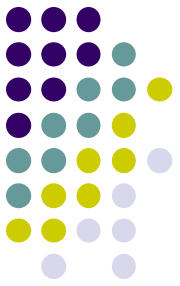


National Institutes of Health (NIH)



- Nation's **major** medical research agency
- Funds science that leads to **health** advancement
- Located in Bethesda, MD
- Most funding distributed to academic researchers in the United States

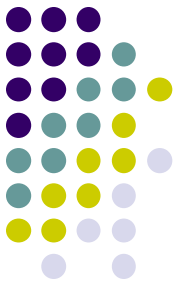
NIH supports research to improve health...



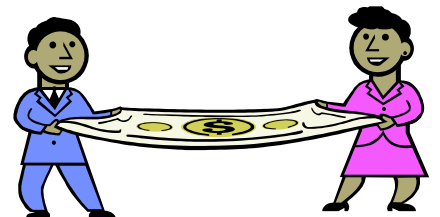
- Current annual budget of over \$28 billion
- More than 80% goes to extramural research
 - Over 50,000 competitive grants
 - 325,000 scientists
 - 3000 universities



How NIH Supports Research...

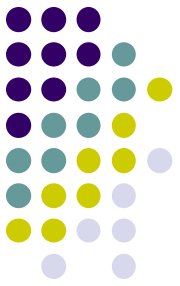


- Researchers write proposals for funding
 - What is the scientific question?
 - Why is this a good idea?
 - How will the experiments be done?
 - What will be the impact on science & medicine?
- Proposals are reviewed
 - Peer-reviewed by scientists to ensure high quality
 - Reviewed by NIH officials and public members for applicability to scientific or health priorities



Grant Mechanisms

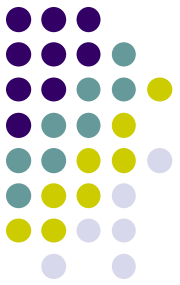
Research Projects



R01	Research Project
R03	Small Research Grant
R21	Exploratory/Developmental Grant
R15	Academic Research Enhancement Award (AREA)
R43, R44	Small Business Innovation Research Grant (SBIR)
P01	Research Program Project

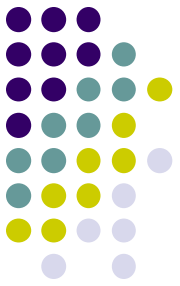
Grant Mechanisms

Fellowship & Research Career Programs

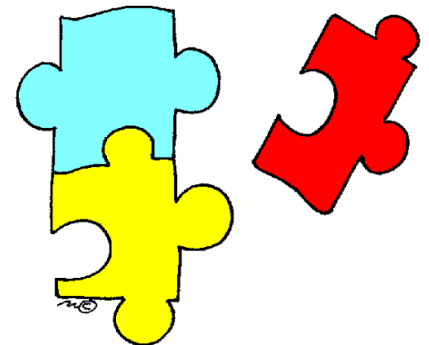


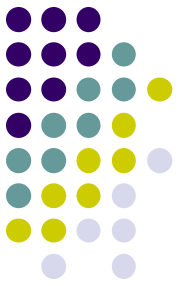
- F31, Postdoctoral Individual National Research Service
F32 Award (NRSA)
- K22 Career Transition Award (NIAID)
K01 Career Transition Award (NCI)
- K08 Clinical Investigator Award
- K23 Mentored Patient-Oriented Research Career
Development Award

Medical Breakthroughs...



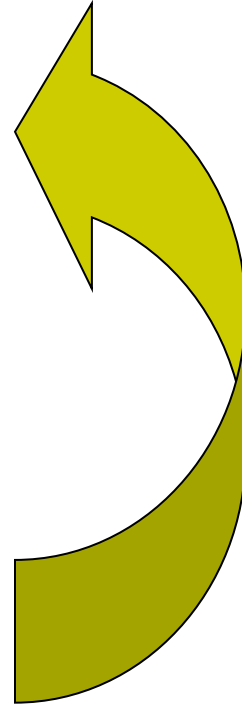
- Often come from unrelated areas of basic and clinical science
- Are based on **many years** of generating fundamental knowledge
- Scientists **solve** different pieces of the puzzle over time



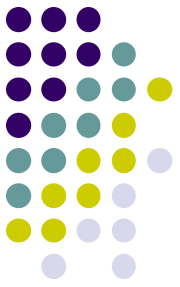


Scientific Method

- Observations
- Questions
- Hypotheses
- Experiments
- Data analysis
- Interpretations and conclusions

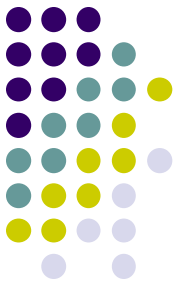


Research Plan of a Grant Application



- A. Specific Aims
- B. Significance and Innovation
- C. Approach

Specific Aims Page – *Content*



1. Identify the gap in our knowledge
2. Identify why the gap is important (significance)
3. State the hypothesis to be tested
4. List the specific aims (objectives) to test the hypothesis
5. Briefly summarize the experimental approach for each aim

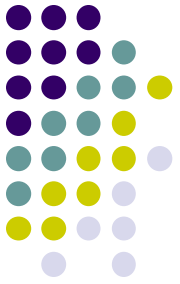


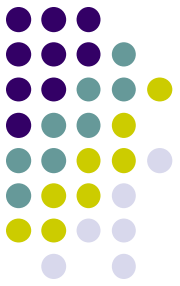
GAP

hypothesis

Impact

5. List aim and summarize the approach for each aim

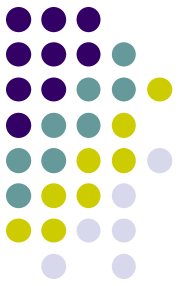




Specific Aims Page – *Tips*

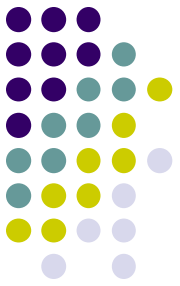
- One page
- Concise, clear and logical
- Not overly technical language
- Aims should be related but not interdependent
- *A polished gem!*

Specific Aims -Common Concerns



1. The hypothesis is not clear
2. The rationale is weak
3. The problem is not significant
4. The experimental design is weak
5. The proposal is driven by technology rather than a scientific question
6. The proposal is a “fishing expedition” – experiments without a clear scientific question
7. The proposal is sloppy (mistakes and typos)

Research Plan of a Grant Application



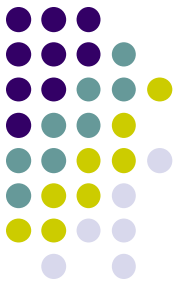
A. Specific Aims

B. Significance and Innovation

C. Approach

- Repeat aim title
- Rational
- Experimental design
- Conclusions, limitations, potential pitfalls, alternative approaches
- Methods

Review of your proposal



- ~120 study sections
- 60-100 grant / study section
- Study section rosters (about 20 people) can be found at:
http://www.csr.nih.gov/Roster_proto/sectionI.asp
- Each grant has about 3 reviewers
- All study section members score the grant 1-9
- Choose a study section that has goals consistent
with your proposal

http://www.csr.nih.gov/Roster_proto/sectionI.asp

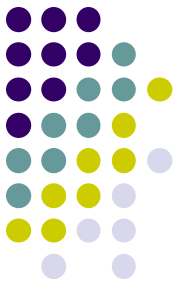
<http://grants1.nih.gov/grants/award/award.htm>

What criteria do the reviewers use?



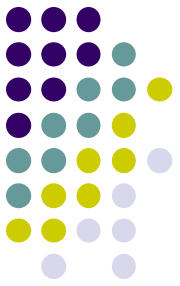
- **Significance**
- **Approach**
- **Innovation**
- **Investigator**
- **Environment**
- **Impact**

What if your first grant is not funded?



- **Learn from it and succeed - a majority do**
- **Study criticism in pink sheet**
- **Decide if problems are reparable**
- **Attend diligently to each criticism**
- **Keep a positive tone and attitude in addressing criticism**

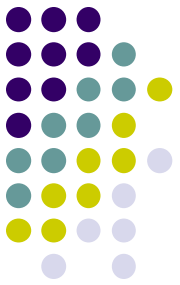
Remember



There is no grantsmanship that will turn a bad idea into a good one, but.....

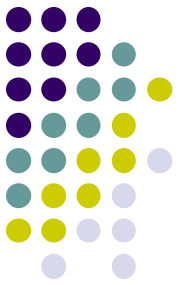
There are many ways to disguise a good one

William Raub, Past Deputy Director of NIH



References

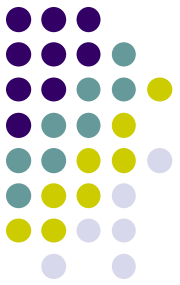
- <http://www.niaid.nih.gov/ncn/grants/default.htm>
- http://www.ninds.nih.gov/funding/write_grant_doc.htm
- <http://deainfo.nci.nih.gov/EXTRA/EXTDOCS/gntapp.htm>
- <http://sciencecareers.sciencemag.org/>
- <http://opa.faseb.org/pages/Advocacy/advocacyresources.htm>



Resources

- **National Institutes of Health**
<http://www.nih.gov>
- **National Science Foundation**
<http://www.nsf.gov>
- **Library of Congress**
<http://thomas.loc.gov>
- **NIAID Home Page**
<http://web.fie.com.web/fed/nih>

Resources



- **Hints for Writing Successful NIH grants by Ellen Barrett.**
<http://chroma.med.miami.edu/Ellens.how.to.html>
- **Extramural Funding Opportunities**
<http://deainfo.nci.nih.gov/extra/extdocs/gntapp.html>
- **Sounding Board: Picking a Research Problem by C. Ronald Kahn. The New England Journal of Medicine. 330:1530**
- **How to Ask for a Research Grant by Janet S. Rasey. In Writing, Speaking, and Communication Skills for Health Professionals. Yale University Press. Pg 91-117**