Grants 101 – “The Grant Proposal Pathway”

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“The Grant Proposal Pathway”

• **Hypothesis:** Understanding what happens to a proposal between the time it is submitted and a funding decision is made will improve the chance of funding success.

• **Specific Aims:** Identify –
  – 1) How a grant is reviewed
  – 2) Who are the reviewers
  – 3) What are the reviewers looking for
Your Grant

NIH or Other Funding Agency

months later..

“Pink Sheet”

Critique and Funding Decision
Let’s look inside the Black Box!

Your Grant

NIH or Other Funding Agency

months later..

“Pink Sheet”

Critique and Funding Decision
How is NIH Organized?

- **Director’s Office** – primarily administrative oversight

- **Institutes and Centers (I/C’s)** – (Congress puts $$$ Here)
  - Each has focus, e.g., NCI, NIGMS, NEI, NHBLI, etc.
  - Develop Specific Programs and Priorities
  - *Award Grants*

- **Center for Scientific Review (CSR)** – *special function to review grants via study sections* (sometimes call Scientific Review Groups or SRG’s) directed by Scientific Review Officers (SRO’s). No grant $$ to distribute
CSR has Many Study Sections, e.g.

- Arthritis, Connective Tissue, and Skin
- Auditory System
- Membrane Biochem. & Biophysics
- Biomaterials
- Cancer Genetics
- Cellular Signaling & Regulatory Systems
The Grant Pathway: Study Section & Institute Interactions

1) CSR - Study Section that oversees scientific review and Assignment of Priority Score

2) Scientific Review & Priority Score

3) Institute ($$) that makes Final Funding Decision

4) $$$ to Texas!

NIH (CSR) National Institutes of Health

Two Assignments Made
Relationship of Study Sections (Scientific Review) to Institutes ($$)

~200 Study Sections -- CSR

- Biochemistry
- Clinical Oncology
- Genetics
- Epidemiology of Cancer
- Lung Injury, Repair
- Microbial Physiology
- Oncological Sciences
- Etc.

~20 Institutes

- NCI
- NEI
- NIDDK
- NIGMS
- NHBL
- Etc.

1) Scientific Review is Done by Study Sections
2) Funding Decisions made by Institutes
How does the Study Section Operate?

• A study section has 15-25 members selected for their expertise in the area the study section reviews

• Scientific Review Officers receive applications from CSR main office and assign *primary & secondary reviewers*

• Primary & Secondary Reviewers post their reviews in advance on NIH website with a recommended score then ‘present’ your proposal at the study section meeting

• All study section members meet to review grants and all members vote a score on every grant

• *Study Sections are more diverse than one might think*
Cellular Signaling and Regulatory Systems Study Section

• The Cellular Signaling and Regulatory Systems (CSRS) study section reviews applications that focus on the initiation and execution of programs that control cellular homeostasis and physiology. A distinguishing characteristic of these applications is an emphasis on signaling networks and the coordination of processes related to cell proliferation, survival, and growth.

• Cell cycle regulation, mitosis, meiosis, checkpoint controls, regulation by ubiquitination

• Proteolytic mechanisms associated with cell cycle, senescence and death

• Programmed cell death and apoptosis, particularly their regulation in the context of stress, growth, and transformation.

• Proliferation & growth control by the nucleus; pathways regulating transcription

• Integrative cell physiology, e.g., stress, clocks, cellular modeling; cell differentiation and transformation

• Basic studies of cytokine signaling

• Application of state-of-the-art technologies such as imaging and computational modeling of cellular signaling networks
The primary and secondary reviewers will:
1) Read your entire proposal
2) Prepare a written summary and evaluation in advance
3) Recommend a priority score
4) Explain it AND justify their evaluation to the study section,

They present to the full study section (~15-20 people) most of whom will not have read the complete grant. After discussion, every member gets an equal vote.

50-100 grants in 2 days – You must be clear and to the point!!
(1) Get peer review from critical colleagues: EARLY and OFTEN!!

(2) Write different sections of the grant for ‘different’ reviewers

(3) Grant must be crystal clear and explicit! Page limits make this critically important. (How long should one plan to write?)
Peer Review Is Critical!!

“I think you should be more explicit here in step two.”
Study Section assigns a Priority Score

<table>
<thead>
<tr>
<th>Overall Impact Score</th>
<th>Guidance on weighing strengths and weaknesses</th>
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<tbody>
<tr>
<td><strong>High Impact</strong></td>
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<tr>
<td>1</td>
<td>Exceptional</td>
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<td>Outstanding</td>
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<td>8</td>
<td>Marginal</td>
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<tr>
<td>9</td>
<td>Poor</td>
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Non-numeric score option: NR = Not Recommended for Further Consideration,
Priority Scores and Percentile Rank

- Priority Scores assigned by Study Sections
- Percentile Rank assigned afterwards to *normalize* scoring across study sections (e.g., “easy” scorers vs “hard scorers”)
- Funding determined by percentile rank
1) Study Section Review

Approved Applications
Ranked by Priority Score

1st John Doe (Biochem. SS)
2nd Your Grant (Oncology SS)
13th Stancel (Genetics SS)
27th Jane Doe (Micro. SS)

Etc.

2) Institute Funding Decision

National Cancer Institute
(Budget from Congress)
Percentile Rank Order

1) Your Grant
2) John Doe
13) Stancel
27) Jane Doe

Payline

Etc.

Etc.
Help your proposal be assigned appropriately
– You can Recommend Assignments

- Call Institute & CSR staff (be respectful) – they want to help
  - Institutes’ Missions are on their websites
  - Study section rosters & areas are on the CSR website
Contacts and Information in Various Phases of Grant Preparation & Review

- **Pre Submission**: Institute Program Officials
  - Assess Institute’s Interest in Your Proposal
  - Provide Advice & Potential SS Assignment

- **Submission – Review**: CSR’s Scientific Review Officers (SRO’s) who oversee study sections
  - Questions about application
  - Submitting additional information

- **Post Award**: Assigned Program Officer at Funding Institute

- **NEVER CONTACT A STUDY SECTION MEMBER ABOUT YOUR GRANT!!!**
Important Sources of Information

- **NIH Website** –
  - general information about types of Grants
  - ‘standard’ information, e.g., general instructions, receipt dates, etc.

- **NIH Guide** – weekly information about program changes, Request for Applications (RFA’s) & Proposals (RFPs)

- **Institute Home Pages**
  - Information about areas of interest
  - Names, Contact information, & Areas of Oversight for Program Officers

- **Center for Scientific Review Website**
  - Detailed information about preparing applications
  - Names and Contact information for Scientific Review Officers
  - Study Section Descriptions and Rosters
  - *Instructions for Reviewers!!!*
HELP THE REVIEWERS – When you Write the Grant!

1) Read and *follow instructions*

2) Give the proposal a focus (a hypothesis or scientific question), and have colleagues help you evaluate it (write a novel, not a collection of short stories)

3) Help the reviewer prepare his/her critique and presentation to the study section (know what he/she is looking for and write it for them - Explicitly!)

NEVER OVERESTIMATE REVIEWERS
What will reviewers look for in your grant?

Core Review Criteria (in instructions to reviewers on NIH website)

- Significance
- Investigators
- Innovation
- Approach
- Environment
Innovation

• “Innovation. Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?”
Don’t Forget…..

• You must be registered in *eRA Commons* to submit applications electronically

• Individuals do NOT submit or receive grants – institutions do and Sponsored Projects Administration **MUST** Review Prior to Submission

Consult the Office of Sponsored Projects Administration (SPA) well in advance of agency submission dates!
And Don’t Ever Forget.....

1) Talk to People at the Funding Agency

2) Get peer review from critical colleagues: Do It EARLY and OFTEN!!

3) Never Overestimate the Reviewers
GOOD LUCK!

And Remember you can get help from

• Sponsored Projects Administration (SPA),

• Academic and Research Affairs (ARA) units,

• New Investigator Development Program (NIDP), and

• Colleagues

So Don’t Hesitate to Ask