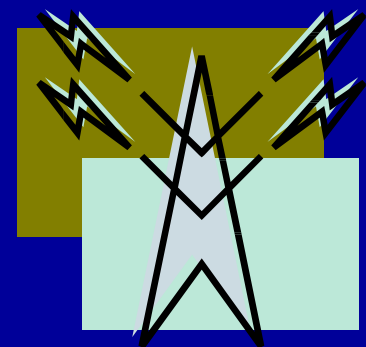


“The Grant Proposal Pathway”

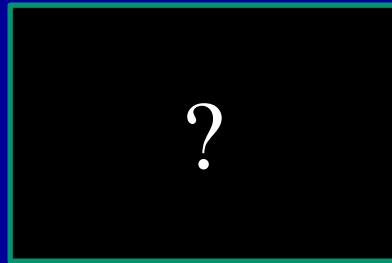
- **Hypothesis**: Understanding what happens to a proposal between the time it is submitted and a funding decision is made will improve the chance of funding success.
- **Specific Aims**: Identify –
 - 1) How a grant is reviewed
 - 2) Who are the reviewers
 - 3) What are the reviewers looking for



→
Your Grant



NIH or Other
Funding
Agency



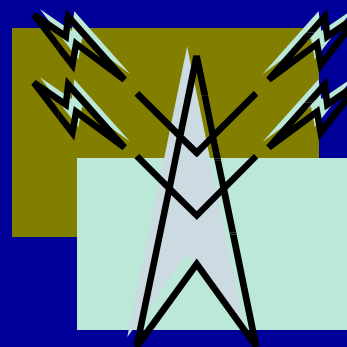
months later..

“Pink Sheet”

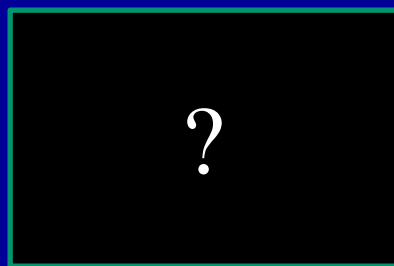
Critique
and
Funding
Decision



→
Your Grant



NIH or Other
Funding
Agency



months later..

“Pink Sheet”

↓
Let's look inside the
Black Box!

Critique
and
Funding
Decision

NIH Organization?

- Director's Office – sets policies, represents NIH to Congress, public, has modest discretionary \$, etc.
- Institutes and Centers (I/C's) – (**Congress puts grant \$\$\$ 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; Initial Review Groups or IRG's). **No grant \$\$ to distribute**



National Institutes of Health

Office of the Director

National Institute
on Aging

National Institute
on Alcohol Abuse
and Alcoholism

National Institute
of Allergy and
Infectious Diseases

National Institute
of Arthritis and
Musculoskeletal
and Skin Diseases

National Cancer
Institute

National Institute
of Child Health
and Human
Development

National Institute on
Deafness and Other
Communication
Disorders

National Institute
of Dental and
Craniofacial
Research

National Institute
of Diabetes and
Digestive and
Kidney Diseases

National Institute
on Drug Abuse

National Institute
of Environmental
Health Sciences

National Eye
Institute

National Institute
of General
Medical Sciences

National Heart,
Lung, and Blood
Institute

National Human
Genome Research
Institute

National Institute
of Mental Health

National Institute
of Neurological
Disorders and
Stroke

National Institute
of Nursing Research

National Institute of
Biomedical Imaging
and Bioengineering

National Center
for Complementary
and Alternative
Medicine

Fogarty
International
Center

National Center
for Research
Resources

National Library
of Medicine

National Center on
Minority Health and
Health Disparities

Center for
Scientific Review

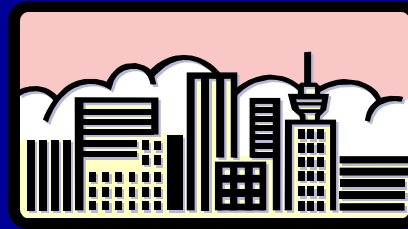
CSR has Many Study Sections, e.g.

- Arthritis, Connective Tissue, and Skin
- Auditory System
- Membrane Biochem. & Biophysics
- Biomaterials
- Cancer Genetics
- Cellular Signaling & Regulatory Systems

The Grant Pathway



Your Grant



NIH = National *Institutes* of Health

1

Two Assignments Made

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

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

2

3

4

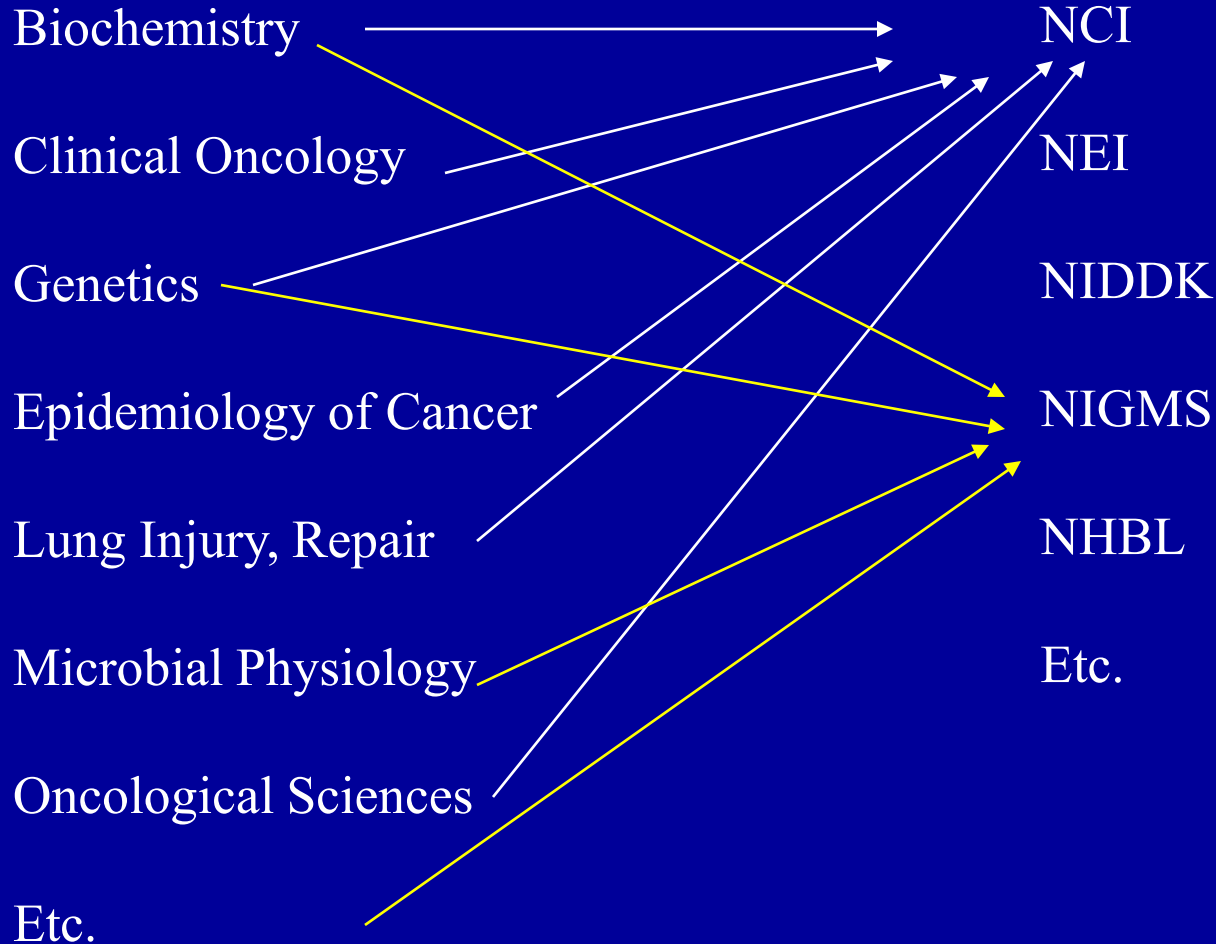
Scientific Review & Priority Score

\$\$\$ to Texas!

Relationship of Study Sections (Scientific Review) to Institutes (\$\$)

~200 Study Sections -- CSR

~ 20 Institutes



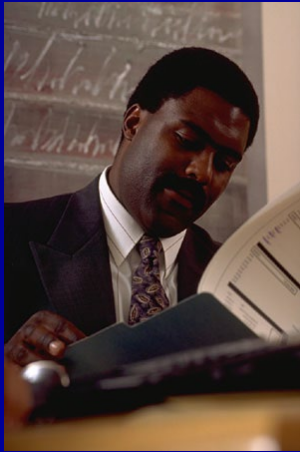
- 1) Scientific Review is Done by Study Sections
- 2) Funding Decisions made by Institutes

How does the Study Section Operate?

- SS has 15-25 members (regular & ad hoc) selected for their expertise in the area of the applications the study section reviews and is overseen by a Scientific Review Officer
- Scientific Review Officers (SRO) oversee individual SS's; receive applications from CSR main office and assign each application to primary & secondary reviewers before the review meeting
- Primary & Secondary Reviewers prepare written reviews and post in advance on NIH website
- All SS members meet to review all grants
 - Chair runs meeting (not NIH employee)
 - SRO serves as a 'resource' about policy & protocol
- **Study Sections are far more diverse than one might anticipate**

- 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



Study Section



The primary and secondary reviewers will:

- 1) read your proposal thoroughly (you hope!) and hopefully understand it
- 2) evaluate it (priority score),
- 3) explain it AND justify their evaluation to the study section,
- 4) prepare a written summary and evaluation.



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!!

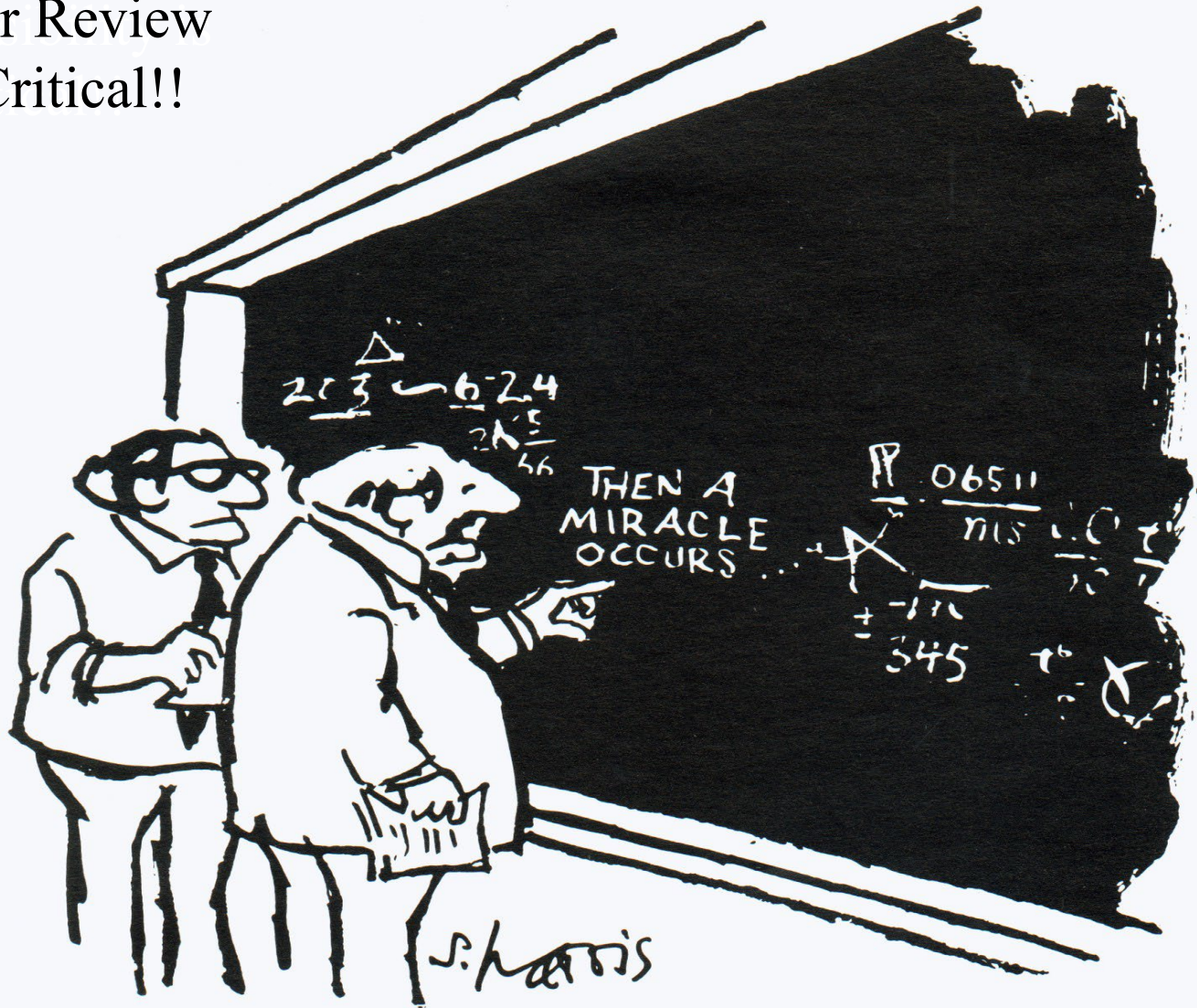
(2) Write different sections of the grant for 'different' reviewers; ask different types of colleagues to review proposal

(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.”

The Study Section Assigns a Priority Score



	Overall Impact Score		Guidance on weighing strengths and weaknesses
High Impact	1	Exceptional	
	2	Outstanding	
	3	Excellent	
Moderate Impact	4	Very Good	
	5	Good	
	6	Satisfactory	
Low Impact	7	Fair	
	8	Marginal	
	9	Poor	

Non-numeric score options: **NR = Not Recommended for Further Consideration**,
 DF = Deferred, AB = Abstention, CF = Conflict, NP = Not Present.

Priority Scores and Percentile Rank

- Priority Scores assigned by Study Sections based on average of all reviewers scores
- Percentile Rank assigned afterwards to *normalize* scoring across study sections and over time
- Funding determined by percentile rank

1) Study Section Review

Approved Applications Assigned Percentile Scores

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

Etc.

Etc.

Not Recommended for Further
Consideration
(a.k.a. “Streamlined”, “Nerfed”)

2) Institute Funding Decision



National Cancer Institute (Budget from Congress)

	1) Your Grant	\$
	2) John Doe	\$
	3) Stancel	\$
Payline	4) Jane Doe	-
	Etc.	-
	Etc.	-
	Etc.	-

The Institute's Council may make some changes in the rankings based upon their particular goals and needs.



“We have plenty of good grants on magic potions, but we need at least one good grant on curing evil spells!”

Grant Contacts, Interactions, and Information in Various Phases

- **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 STUDY SECTION MEMBER ABOUT YOUR GRANT!**



Help your proposal be assigned appropriately
– You can Recommend Assignments

- Call Institute staff (be respectful) – they want to help so seek information and make suggestions - but don't argue!
- Study section rosters are public information ('regular' members)



Remember – The agency does not care about supporting you as an individual. They only want to fund you if the research you propose helps them achieve one of their objectives.

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)
- Institute Home Pages
 - Information about areas of interest
 - Names and Contact information 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!!!**



Center for
Scientific Review

<https://public.csr.nih.gov/>

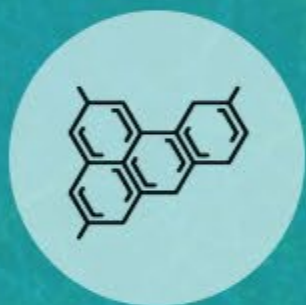
What Happens to Your NIH Grant Application

James Mack, Ph.D.
Scientific Review Officer
NIH Center for Scientific Review

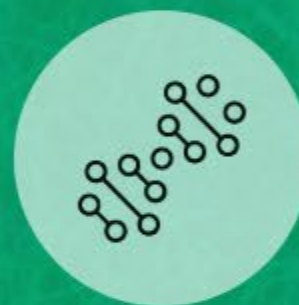
Welcome to NIGMS

The National Institute of General Medical Sciences (NIGMS) supports basic research that increases understanding of biological processes and lays the foundation for advances in disease diagnosis, treatment, and prevention.

te and
ograms



Postdoctoral Programs



Research Programs



Education

nigms.nih.gov

the Public

Understanding and appreciation of science is a key NIGMS goal. As part of its efforts, the

Your Job as Principal Investigator (PI)

- 1) *Help your proposal be assigned to*
 - a) The appropriate study section
 - b) The appropriate institute

- 2) *Make the primary & secondary reviewers' jobs easy – they'll appreciate it and become your advocates.*
 - a) Give the proposal a focus that helps them understand it
 - b) Make it easy for them to read
 - c) Make it easy for them to explain it to the study section
 - d) Make it easy for them to justify a good evaluation

- 3) *Help the other members of the study section who do not read the entire grant.*

NEVER OVERESTIMATE THE REVIEWERS!!!

***USE THE FOLLOWING TOOLS – IN ORDER –
TO PREPARE YOUR GRANT***

1) The Internet to identify

- a) Study section rosters
- b) Institute contact personnel
- c) The Institute's goals and interests
- d) The Center for Scientific Review for Updates

2) The telephone to

- a) Assess interest in your project
- b) Consider study section/institute assignments

3) The word processor to

-Actually write the grant!

HELP THE REVIEWERS – When you Write the Grant!

- 1) Read and follow your instructions and know the reviewers’
- 2) Give the proposal a focus, and have colleagues help you evaluate it (write a novel, not a collection of short stories)
- 3) Build the application around your focus (the hypothesis or scientific question being addressed)
- 4) 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 - CLEARLY!)
- 5) Get rigorous, critical review (before you send the grant!)
 - a) from “experts”
 - b) from well rounded “generalists”

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?

State EXPLICITLY what is innovative about your proposal

REMEMBER - Reviewers are just like anyone else,



EXCEPT, they have to review your grant in
Addition to all their normal work!

Don't overestimate them, and be
certain to help them out!

Don't Forget.....

- You must be registered in *eRA Commons* to submit applications electronically
- Individuals do NOT submit or receive grants – institutions do
 - Consult the Sponsored Projects Administration (SPA) well in advance of agency submission dates for their requirements and deadlines
 - Remember you will need information and approvals (e.g., animal welfare, human subjects, conflicts of interest, biohazards, chemical safety, etc.). Formal approvals may often be “just in time”, but best to check with institutional committees/offices prior to submission.

And Don't Ever Forget.....

Talk to People at the Funding Agency

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

Never Overestimate the Reviewers

GOOD LUCK!

And Remember that you can get help from

- Sponsored Projects Administration (SPA),
- Office of Academic and Research Affairs (ARA),
- Dr. Morano's New Investigator Development Program (NIDP) and "Boot Camp",
- Institutional Committees, and
- Your Colleagues and Mentors

So don't hesitate to ask!