

# Navigating NIH Peer Review

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# Overview

- NIH
  - The Funding Cycle
  - Center for Scientific Review
    - Referral
    - Review
  - The Process and Outcomes
  - Strategy
  - *Insider editorializing and war stories*
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# NIH Bethesda, MD



# NIH

- NIH is the largest source of funding for medical research in the world
- 24/27 Institutes and Centers (**ICs**) make awards
  - NCI
  - NIBIB
  - NIAID
  - NIGMS
  - NIMH
- Grants: Federal **assistance** consistent with authorizations, public purpose, and **IC** mission
- Contracts: Federal **acquisitions**

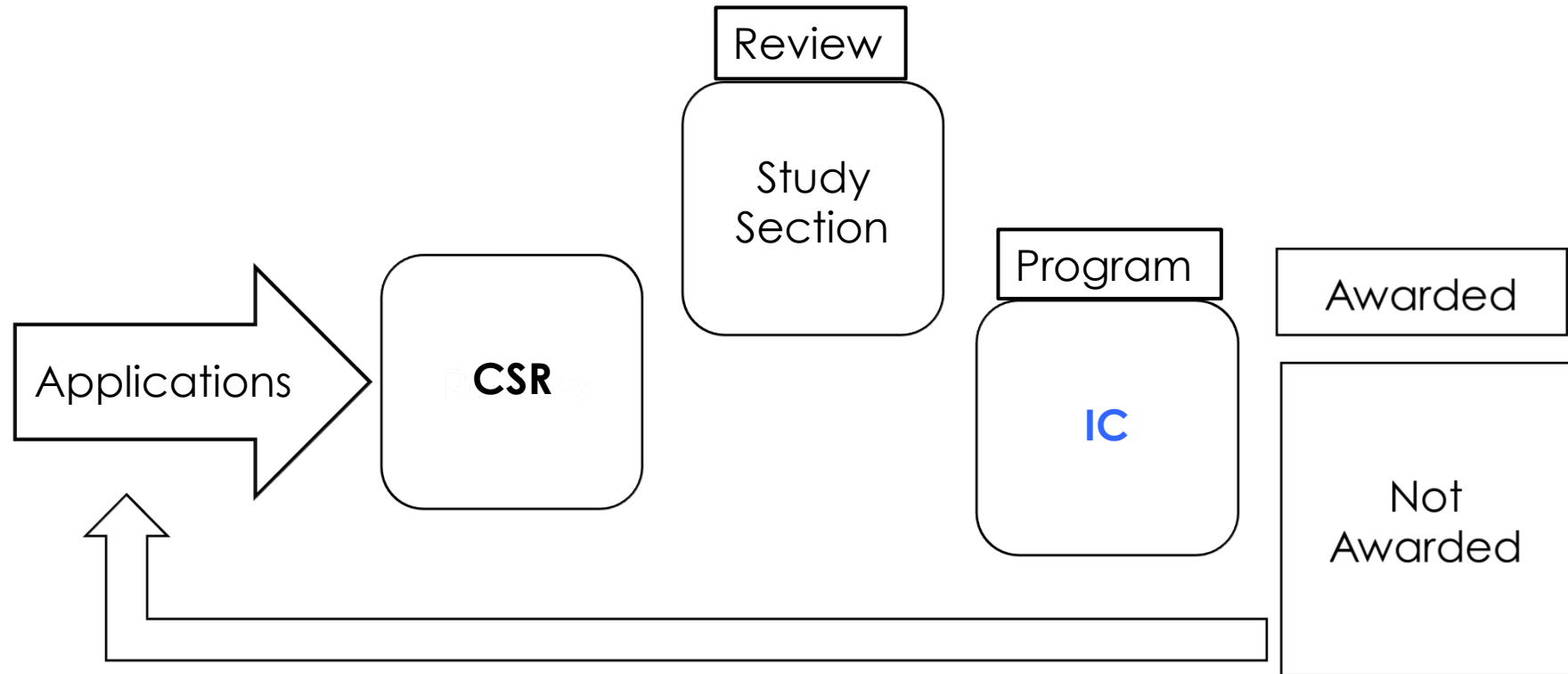
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# The Granting Process

- Solicitation
  - Application (Proposal)
    - Peer Review (two stage)
      - Award/Resubmission



# NIH Funding Cycle



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# Stakeholders

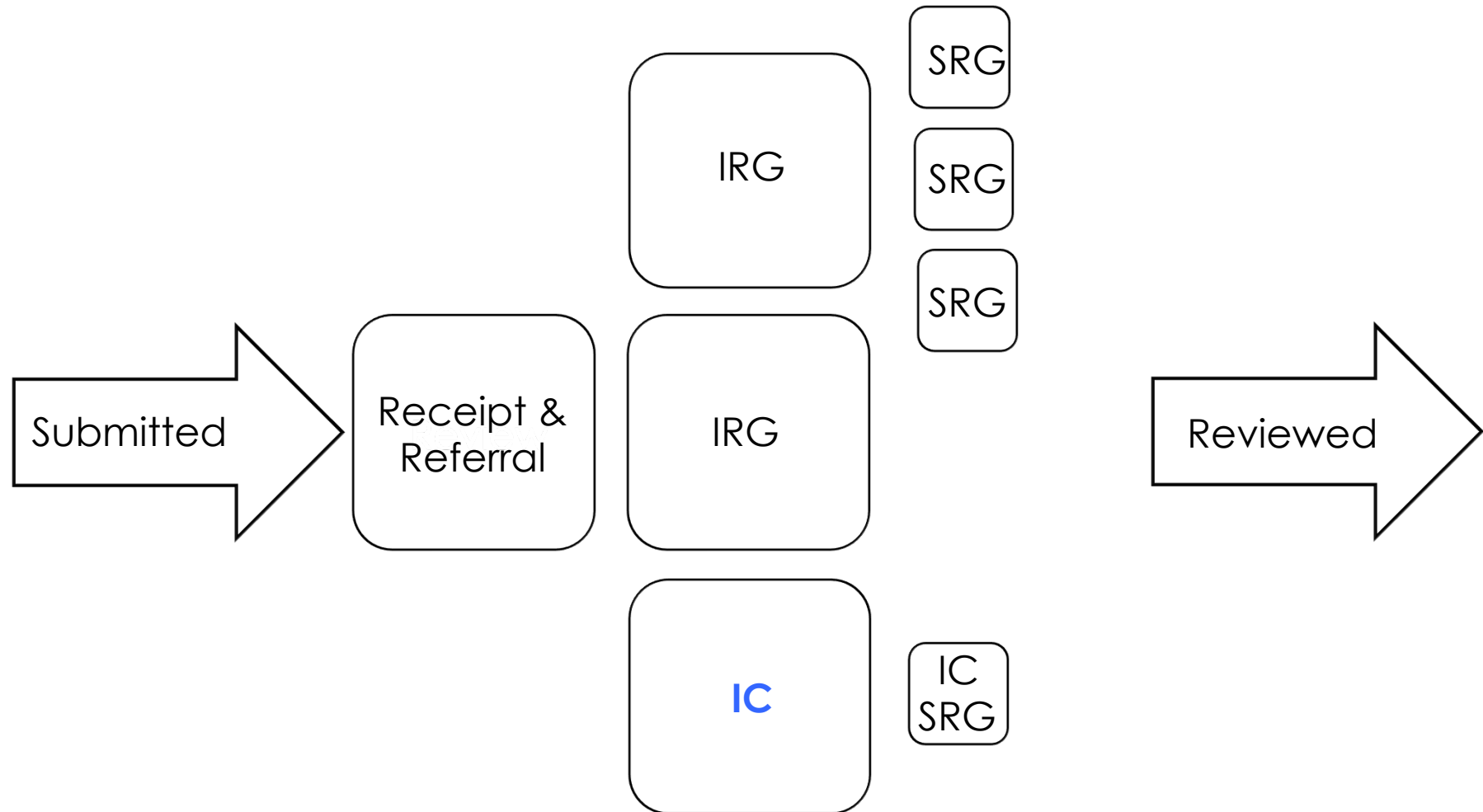
- Applicants
  - Referral Staff
  - Scientific Review Officer (SRO)
  - Reviewers
  - Program Staff
  - National Advisory Council Members
  - Institute Director
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# Center for Scientific Review (CSR)

- NIH's Peer Review 'shop'
- Manages review of ~60,000 applications each year
- 250 Scientific Review Officers (SROs)
- ~17,000 expert reviewers
- 24 Integrated Review Groups (IRGs)
- ~170 Chartered Study Sections
- Large number of Special Emphasis Panels (SEPs)



# Center for Scientific Review (CSR)



SRG = Study Section

# Receipt & Referral

- ▣ Reviewing applications for completeness
- ▣ Assigning applications to study sections (for review)
- ▣ Assigning applications to ICs (for funding)
- ▣ Checking for duplicate applications etc.
- ▣ Coordinate and negotiate FOAs with ICs
- ▣ Review Letters of Request from PIs

# Integrated Review Group (IRG)

- ▣ Reviews applications relevant to a scientific theme
- ▣ CSR has 24 IRGs
- ▣ Bioengineering, Cell Biology...
- ▣ 6-10 Study Sections, e.g.,
  - ▣ MSFA
  - ▣ GCAT
  - ▣ NANO
  - ▣ MEDI
  - ▣ ZRG1 BST-Q(02)M

# Study Section (SRG)

- Chartered Study Sections
  - Stable Membership
  - Defined Scientific Interests
  
- Special Emphasis Panels (SEP)
  - One time SEP
  - Recurring SEP

# Review Meeting-I

- SRO receives 'pile of applications'
- SRO assembles panel
- SRO assigns applications to reviewers
- 3 reviewers per application
- Typically 8-10 applications per reviewer
- Reviewer submit preliminary scores electronically (typically 3 days before a meeting)
- Applications are clustered by mechanism and sorted by average preliminary score

# Review Meeting-II

- For each cluster the upper half is discussed. Additional applications can be discussed.
- The order of discussion is presumed order of excellence (best to worst)
- Additional applications from lower half can be discussed.
- Typical clusters
  - New Investigator R01
  - Other R01
  - R21

# Review Meeting-III

For each application {

- ▣ Chair announces the application
- ▣ Reviewers in conflict leave the room
- ▣ Rev 1 introduces the application and her/his critique
- ▣ Rev 2, and Rev 3 follow
- ▣ General Discussion, human subjects and vertebrate animals
- ▣ Chair summarizes and requests final scores
- ▣ Everyone votes
- ▣ Budget discussion}

# Review Criteria

- Standard Review Criteria
  - Significance [1-9]
  - Investigator [1-9]
  - Innovation [1-9]
  - Approach [1-9]
  - Environment [1-9]
  - Overall Impact [1-9]
- *Special Review Criteria*
  - *Solicitation Specific*



# Scores and Percentiling

- Range of 1-9 (integers only)
- 1 is perfectly good
- 9 is perfectly bad
- Median score is 5
- Priority score is  $10 * \text{average score}$
- Some applications are percentiled
- ICs use percentiles differently when making awards

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# Summary Statements

- Resume of discussion written by the SRO
  - Three critiques
  - Three sets of criterion scores
  - Administrative notes and budget comments
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# Summarizing...

- NIH
  - CSR
  - IRG
  - SRG (study section)
  - Process of Peer Review
  - Outcomes
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# FOAs- PA, PAR, RFA...

- Part 1. Overview Information
- Part 2. Full Text of the Announcement
- Section I. Funding Opportunity Description
- Section II. Award Information
- Section III. Eligibility Information
- Section IV. Application and Submission Information
- Section V. Application Review Information
- Section VI. Award Administration Information
- Section VII. Agency Contacts
- Section VIII. Other Information

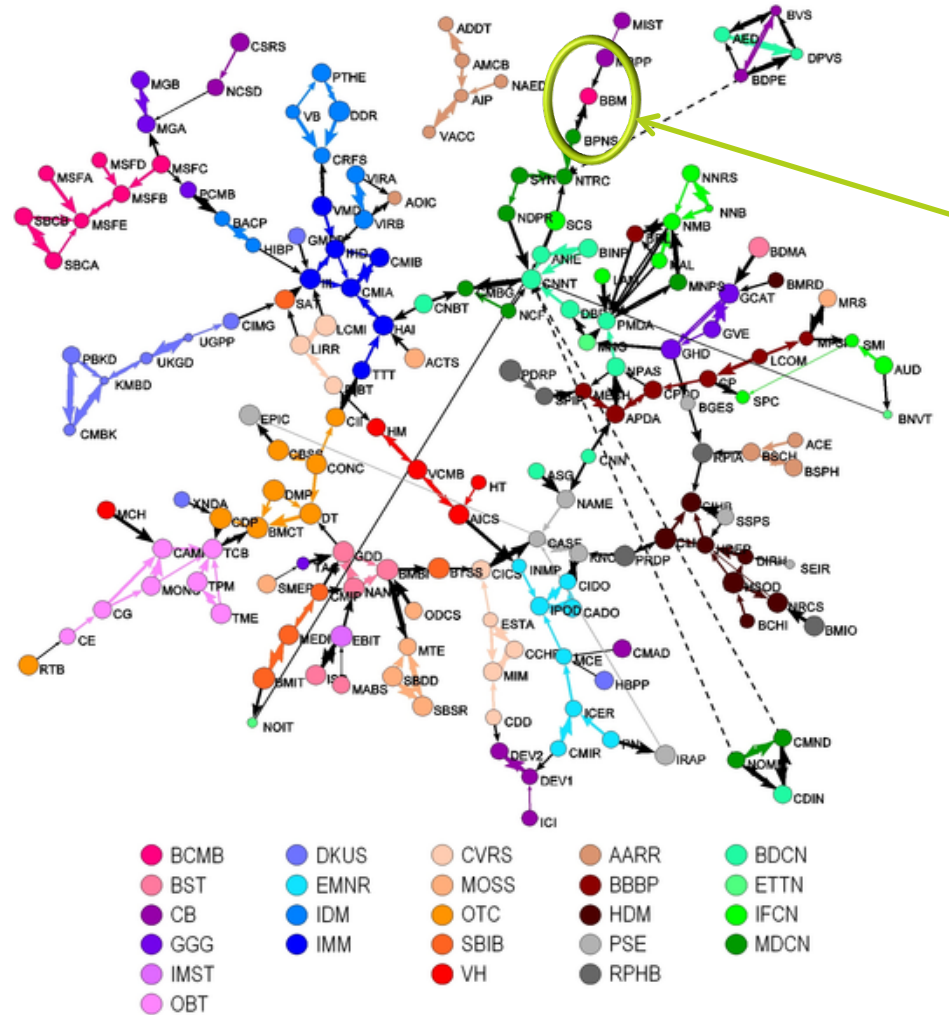
# Strategy-I

- Read FOA carefully
  - Program objectives
  - Review criteria
- Focus on idea and questions
- Preparation: the Yamamoto:UCSF approach
- Do not assume expert knowledge in reviewers
- Which study section?
- Study sections develop cultures- some better than others
- Address prior critique thoroughly- you don't have to agree
- Consult with a Program Officer

# Strategy-II

- Where does your community 'live' in CSR?
- Use RePORT & NIH RePORTER for intel on study sections
- CSR Web Site for Rosters
- Consult a Program Officer
- Reach out to the SRO
- Cover letter- indicate your preference

# Think Globally: Similar Study Sections In Different IRGs



Boyack KW, Chen MC, Chacko G (2014) Characterization of the Peer Review Network at the Center for Scientific Review, National Institutes of Health. PLoS ONE 9(8): e104244. doi:10.1371/journal.pone.0104244  
<http://127.0.0.1:8081/plosone/article?id=info:doi/10.1371/journal.pone.0104244>

# Using NIH RePORTER-Keyword Search

Keywords: Phosphatidylinositol 3-kinase, mTOR\*

- Developmental Therapeutics Study Section (DT)
- Basic Mechanisms of Cancer Therapeutics Study Section (BMCT)
- Cellular Aspects of Diabetes and Obesity Study Section (CADO)
- Cellular Signaling and Regulatory Systems Study Section (CSRS)
- Epidemiology of Cancer Study Section (EPIC)
- Molecular and Cellular Hematology (MCH)
- Molecular Oncogenesis Study Section (MONC)
- Cellular and Molecular Biology of Glia Study Section (CMBG)

\* CSR Chartered SRGs with > 1 hit



# Using NIH RePORTER-Study Section

Search Terms:

Study Section = Developmental Therapeutics

Fiscal Year- = 2014

Returns 233 Project Descriptions (includes non-competing)

Go to CSR website:

Study Section Roster

Meeting Roster

# Using NIH RePORTER

Integrating:

- a) List of award recipients at Illinois (local consultants)
- b) List of study sections of interest
- c) For each study section- history of awards
- d) For each study section- recent meeting rosters
- e) Program Officers responsible for these awards

Which study section has the best expertise for your application?

- Competition?
- Conflicts of interest?

Assignment to Institute?

- Institute Mission and Interests
- Ask a Program Officer
- Look up Institute paylines and awards

# Using NIH RePORTER- Illinois

Count of Project Number	Column Labels						
Row Labels		1	2	3	5	7	Grand Total
NCI					9		9
NCIPC					1		1
NHGRI		1			1		2
NHLBI		1			4		5
NIA				1	6		7
NIAID					3		3
NIAMS					1		1
NIBIB			1		5		6
NICHD					5		5
NIDA					2		2
NIDCD		1			2		3
NIDDK		1		1	11		13
NIEHS					1		1
NIGMS		11	5		33		49
NIMH		1			1	1	3
NINDS					2		2
<b>Grand Total</b>		<b>16</b>	<b>6</b>	<b>2</b>	<b>87</b>	<b>1</b>	<b>112</b>

# Consider..

- Responding to a solicitation
  - NIH Guide
  - Program Officer
- Preparing an application
  - Read FOA
  - Consult colleagues
  - Program Officer
- Identifying a study section
  - NIH RePORTER
  - Program staff
  - Scientific Review Officer (SRO)
- Interpreting the outcome
  - Read summary statement
  - Program staff

# Observations

- ▣ Peer review is noisy
- ▣ Study sections try their best but..
- ▣ they're only as good as their
  - ▣ Reviewers
  - ▣ Chair
  - ▣ SRO
- ▣ Study sections develop cultures- some better than others
- ▣ Study section service is very important- get involved
- ▣ Conflicts of Interest- not the same as competition

# War Stories

- “I didn’t know \*that\* was a conflict of interest”
- “The previous SRO didn’t take deadlines seriously”
- “I don’t have time- I’ll send you the critiques after the review”
- “I explained to the applicant that I wasn’t the one who..”
- Reviewer attacked while jogging
- Reviewer passed away just before meeting

# Useful Information Sources

- [CSR](#)
- [CSR InsidersGuide](#)
- [NIH RePORTER](#)
- [OER Grants Page](#)
- [Rock Talk](#)
- [Federal Reporter](#)
- [IC Websites, e.g. NIGMS Council Concept Clearance](#)

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Thank you

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