

# The Review Process

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# Presentation Outline

- The review process and criteria
- The role of the program director and the reviewers
- Tips for the applicants
- Funding selection process
- Final reflections

# The Review Process and Criteria

# Peer Review Policy Overview

- To ensure objectivity, fairness, confidentiality, maximum competition
- Overseen by the NIH Office of Extramural Research
- **Two-tier peer review process**
  - First level by Scientific Review Group
    - ✓ Evaluates scientific impact and scores application
  - Second level by an Institute/Center Advisory Council
    - ✓ Approves meritorious grant applications for NCI funding consideration and considers special issues
    - ✓ Example: National Cancer Institute's National Cancer Advisory Board

# Review Criteria (Scored Items)

## Overall Impact

- Reviewers will provide an overall impact/priority score to reflect their assessment of the likelihood for the project to exert a ***sustained, powerful*** influence on the research field(s).

## Significance

- Does the project address an important problem or a critical barrier to progress in the field?

## Investigator(s)

- Are the PD/PIs, collaborators, and other researchers well suited for the project?

For more information on review criteria:

[http://grants.nih.gov/grants/peer\\_review\\_process.htm#scoring2](http://grants.nih.gov/grants/peer_review_process.htm#scoring2)

# Review Criteria (Scored Items)

## 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?

## Approach

- Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project?

## Environment

- Will the scientific environment in which the work will be done contribute to the probability of success?

For more information on review criteria:

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# Additional Review Criteria

## Score-Influencing Items

- Protections for Human Subjects
- Inclusion of Women, Minorities, and Children
- Vertebrate Animals Protection
- Biohazards
- Resubmission, Renewal, Revision

## Non-Scored Items (*but still needs to be addressed*)

- Applications from Foreign Institutions
- Resource / Data Sharing Plans
- Budget and Period of Support
- Authentication of key biological and / or chemical resources

# Scoring

Overall Impact or Criterion Strength	Score	Descriptor
High	1	<b>Exceptional:</b> Exceptionally strong with essentially no weaknesses
High	2	<b>Outstanding:</b> Extremely strong with negligible weaknesses
High	3	<b>Excellent:</b> Very strong with only some minor weaknesses
Moderate	4	<b>Very Good:</b> Strong but with numerous minor weaknesses
Moderate	5	<b>Good:</b> Strong with at least one moderate weakness
Moderate	6	<b>Satisfactory:</b> Some strengths but also some moderate weaknesses
Low	7	<b>Fair:</b> Some strengths but at least one major weakness
Low	8	<b>Marginal:</b> A few strengths but a few major weaknesses
Low	9	<b>Poor:</b> Very few strengths but many major weaknesses



# Scoring

- Assigned reviewers enter their official scores for each criterion and an overall impact score on the vote sheet.
- Other reviewers give an overall impact score - each member marks scores privately assigning a whole number from 1 (best) to 9 (worst).
- At the end of the meeting, the scientific review officer (SRO) collects vote sheets and adds the scores.
- To create a raw overall impact score
  - Scores are averaged and rounded mathematically to one decimal place, e.g., a 1.34 average yields 1.3.
  - That number is multiplied by 10 to yield an overall impact score; in the example above, it would be 13.
- Percentiles are determined by matching an application's overall impact score against a table of relative rankings containing all scores of applications assigned to a study section during the three last review cycles.

# Peer Review Process

- The Scientific Review Officer distributes the applications to reviewers based on area of expertise
- Reviewers read and score each application and application scores are submitted
- In the review meeting, only the top scoring half (~50%) of the applications are discussed and will receive an overall impact score/percentile
- It is possible for scores to change during the review discussion
- Lower scoring half of the applications are not discussed – these applications will not receive an overall impact score
- All applicants will receive a summary statement ~4 – 6 weeks after the end of the review session

# Peer Review Process at the National Cancer Institute

Approval by the National Cancer Advisory Board required before funding

- Open session – NCI Director’s update, etc.
- Closed session - second level peer review
  - Assesses quality of initial review of applications
  - Considers staff recommendations for special actions (e.g. appeals)
  - Program Directors and Scientific Review Officers expected to attend, plus pre and post advisory board meetings

# The Role of the Program Directors and Reviewers

# Program Director and Review

## Before review

- Recommend reviewers
- Letters of Intent
- Help instruct reviewers about programmatic intent (PAR, RFA)
- Awaiting Receipt of Application (ARA)- large budget applications

## At the review

- Program Director Observes only

## After the Review

- Feedback from applicants to review officer
- Resolve issues / grievances
- Summary Statement

# The Reviewer: Roles and Responsibilities

- Responsible for scientific and technical review
- Reviews applications for completeness and conformance with application requirements
- Ensures fair and unbiased evaluation of scientific and technical merit
- Provides a summary of the evaluation after review
- Point of contact for applicants during the review process

# The Reviewer: Roles and Responsibilities



- Average of 80 applications per review session
- Up to 16 personal assignments to be read and discussed
- 6 reviews to write and lead discussions on
- 4 weeks to get it all done
- 2 days away from home and the office
- Also working on his/her grant deadlines!!!

# The Reviewer: Roles and Responsibilities



**Do all reviewers get your application?**

**Do reviewers get only your application?**

**What are the implications for you?**



# Tips for Applicants

# What Can You Do to Annoy the Reviewer?

- Play "hide and seek" with your hypotheses
- Too many specific aims
- “Dissertation” Background section
- “Lifetime research” Preliminary Studies section
- “Need a magnifier” font sizes
- Lack of white space – dense
- Subsections of subsections of subsections - Part I.A.2.b.i
- Poor basic writing skills
- Too many acronyms, abbreviations, and jargon
- Unintelligible / illegible figures

# What Can You Do to Help?

- Be clear, concise, and neat
  - First and best impression
  - Follow instructions
  - Write for a qualified scientist in a related field
  - Continuous, compelling story
  - Provide the complete story
- If important, do not put in the appendices or cite as reference
  - Prior to submission, have your application reviewed by others especially someone who has been successful

# For Reviewers Not Assigned to Your Application ...

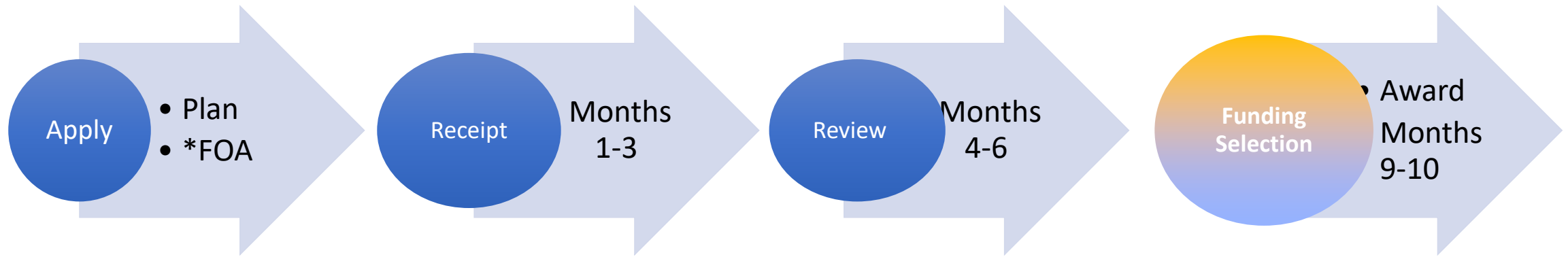
- Not likely to have read it before the meeting
- Special emphasis / focus on:
  - Abstract
  - Specific Aims/Hypotheses
  - Budget justification
  - Biographical sketches
  - Letters of support/collaboration

# What Does a Successful Grant Proposal Look Like?

- ✓ Significant and innovative idea
- ✓ Focused hypotheses
- ✓ Logical specific aims related to the hypotheses
- ✓ Convincing preliminary studies in the right amount
- ✓ Innovative, appropriate methods
- ✓ Clear path to strong conclusions
- ✓ Reasonable budget

# The Funding Selection Process

# Funding Selection Process



\*FOA: Funding Opportunity Announcement

**Two processes:**

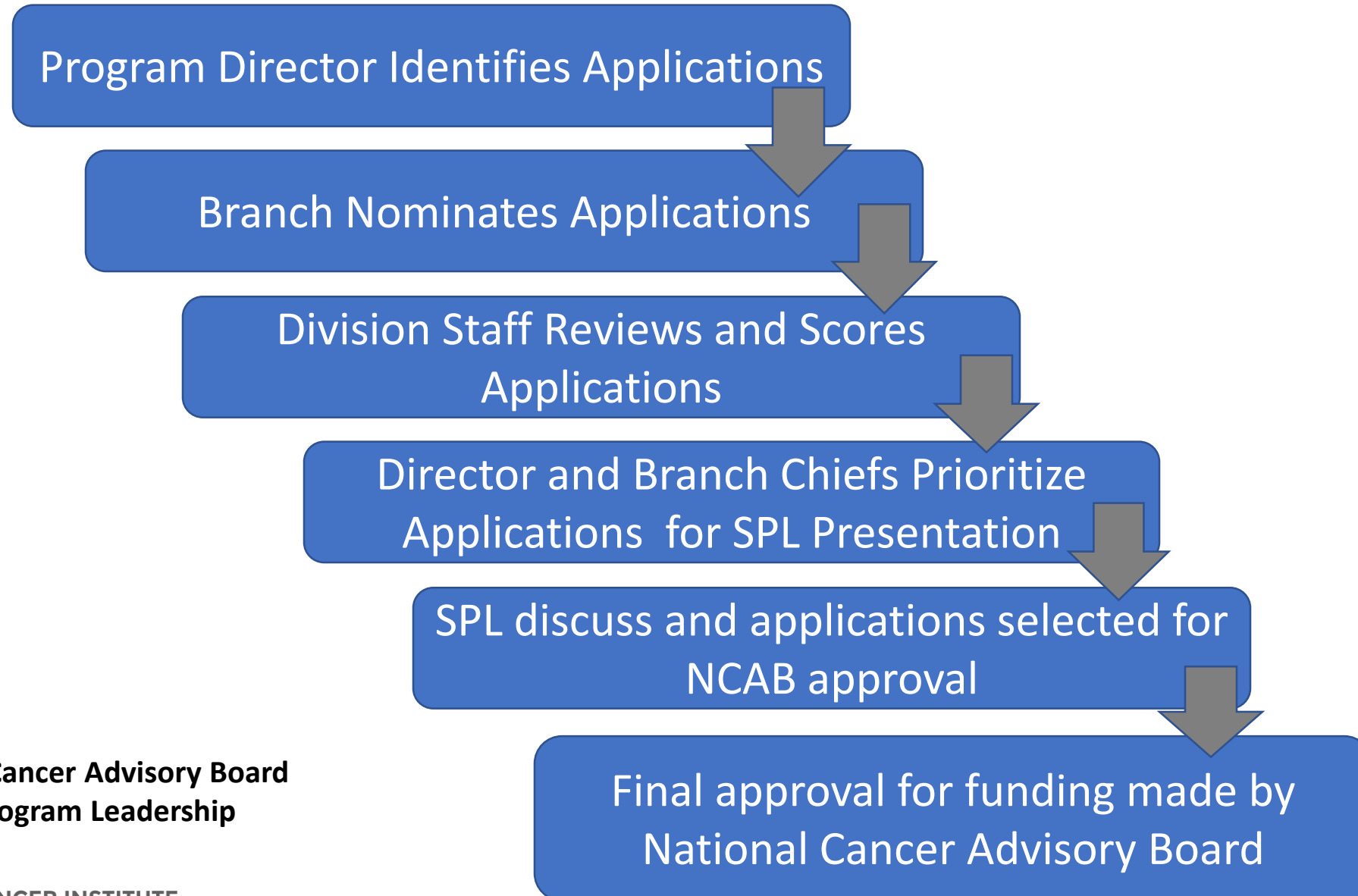
- via Fundable Range (NCI) [Payline]
- via Exception Process

# How are funding decisions made?

- NCI will make funding decisions based on review scores AND the following criteria:
- Other things to keep in mind
  - Scientific priority of the proposed research
  - Fills a significant research gap or need
  - Significantly add to and/or expand existing funded research
  - Investigate questions addressing rare cancers
  - Focus on underserved and/or understudied populations
  - Have a 'NCI-level' competitive budget



## Example: Exception Funding Selection Process at NCI



**NCAB: National Cancer Advisory Board**  
**SPL: Scientific Program Leadership**

# The Funding Selection Process

# Final reflections

Consider serving on a review panel

- Allows you to gain insight in the review process
- Who Are We Looking For?
  - Have substantial and independent research experience
  - Have received major peer-reviewed grants (R01 or equivalent)
  - Understand the importance of the review process
  - Are dedicated to high quality, fair review
  - We also welcome individuals with diverse backgrounds to consider joining our review groups so that the panels are diverse with respect to geographic representation, gender, race, and ethnicity.

<https://public.csr.nih.gov/ForReviewers/BecomeAReviewer/ECR/BecomeanEarlyCareerReviewer>

# Final reflections

## How can the ECR program benefit your career?

- Help emerging researchers advance their careers by exposing them to experience in peer review that may make them more competitive as applicants
- Train and educate qualified scientists without prior CSR review experience to develop critical and well-trained reviewers
- Enrich the existing pool of reviewers by including scientists from less research-intensive institutions

<https://public.csr.nih.gov/ForReviewers/BecomeAReviewer/ECR/BecomeanEarlyCareerReviewer>

# Final reflections

## To qualify for the ECR program, you must:

- Have at least 2 years experience as a full-time faculty member or researcher in a similar role.
- Show evidence of an active, independent research program.
  - Examples include publications, presentations, institutional research support, patents, acting as supervisor of student projects.

<https://public.csr.nih.gov/ForReviewers/BecomeAReviewer/ECR/BecomeanEarlyCareerReviewer>

# Final reflections

## To qualify for the ECR program, you must:

- Have at least 2 recent senior-authored research publications in peer-reviewed journals in the last 2 years.
  - In press publications are considered and author position can be as single author, corresponding author, or first or last author.
- Have not served on a CSR study section in a role other than mail reviewer.
  - Review service at other agencies or at other NIH institutes/centers are not disqualifiers.
- Current funding is not required.

<https://public.csr.nih.gov/ForReviewers/BecomeAReviewer/ECR/BecomeanEarlyCareerReviewer>

# Final Reflections

- The grants process has many steps!
- Interact with Program Director early and often
- Get advise from successful peers and mentors
- Become familiar with other institutes at the NIH
- Be clear, concise, complete, and proactive
- Don't take "it" personal
- Take a deep breath, regroup and recharge
- Revise and resubmit-persistent



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[www.cancer.gov](http://www.cancer.gov)

[www.cancer.gov/espanol](http://www.cancer.gov/espanol)



Principal Investigator	Application number	New or Established Investigator?	Preliminary Overall Impact Scores from the reviewers			Average Score
			Reviewer 1	Reviewer 2	Reviewer 3	
Dr. Jefferson	1AL10245-01	NI/ESI	1	2	3	2.00
Dr. Grant	1AL10252-01	NI	2	2	2	2.00
Dr. Williams	1AL10395-01	NI	3	3	2	2.66
Dr. Clinton	1AL10785-01	NI/ESI	3	3	4	3.33
Dr. Monroe	1AL12245-01	NI	3	4	4	3.66
Dr. Madison	1AL12249-01	EI	1	1	2	1.33
Dr. Adams	1AL10875-01	EI	1	2	2	1.66
Dr. Harrison	1AL19783-01	EI	2	2	3	2.33
Dr. Carter	1AL14523-01	EI	3	2	2	2.33
Dr. Tyler	1AL10786-01	EI	3	3	3	3.00
Dr. Taft	1AL16659-01	EI	3	4	4	3.66
Dr. Bush	1AL19753-01	EI	2	5	5	4.00