Key aspects for a successful R grant – a reviewer's (*personal*) perspective

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Initial steps: a grant writer's perspective

- Scientific question and experimental strategy
  - Months to years of preparation
  - Collection of pilot/preliminary data
- Practicalities
  - Identification of appropriate Institute (27 in total)
    - If your proposal fits the mission of 2+ Institutes → target Institute with better/higher payline
    - https://reporter.nih.gov/matchmaker
      - See Similar Projects or Similar Program Officials
      - PO → Institute
  - Identification of appropriate study section

	FY2025 Payline (%)		
Institute	**General**	**NI**	**ESI**
NIAMS#	8	8	15
NIA*	16	19	25
NIDDK*	13-15	13-15	25
NHLBI*	14	14	24
NINDS#	8	8	16

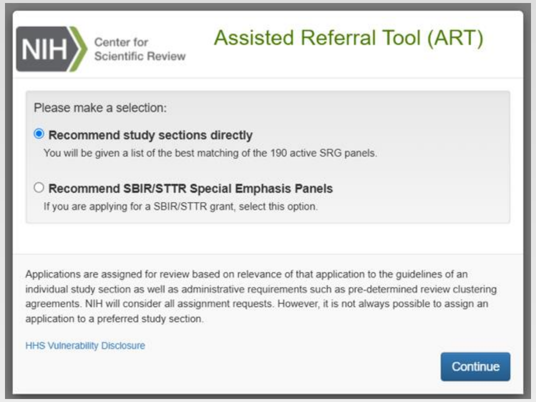
#Interim paylines

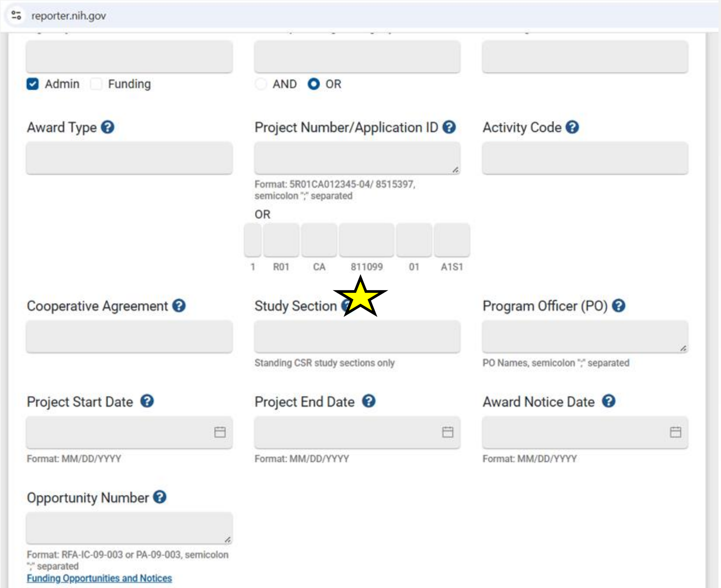
*FY2024 levels

**All assume direct costs < $500K/yr

Identification of appropriate study section

- https://art.csr.nih.gov/ART/selection.jsp
  - Title, abstract, spec aims
- Obtain list of relevant study sections
  - "Strong" and "Possible"
  - Study sections listed alphabetically by SRG acronym (MRS, SMEP)
  - Look at the rosters
    - Do the members publish in your field?
    - Relevant expertise?
    - Has this study section funded similar research in recent past?
      - https://reporter.nih.gov/advanced-search (NIH RePORTER)
      - Advanced search → Study Section
      - Can cross-reference PO's/Institutes





Changes in peer review – RPG's

- For applications due on or after January 25, 2025 (June '25 study section and beyond)
- Reorganizes the five regulatory criteria into three factors
  - Significance, Investigators, Innovation, Approach, Environment →
  - Importance of the Research, Rigor and Feasibility, & Expertise and Resources
  - Most Research Project Grants (R-level grants)
  - https://grants.nih.gov/policy-and-compliance/policy-topics/peer-review/simplifying-review/framework
- Scoring:
  - Factor 1: Importance of the Research (Significance, Innovation), scored 1-9
  - Factor 2: Rigor and Feasibility (Approach), scored 1-9
  - Factor 3: Expertise and Resources (Investigator, Environment): to be evaluated as either sufficient for the proposed research or not (if not, reviewers must provide an explanation)

Additional Review Criteria (can affect overall score)

- Revised Additional Review Criteria
  - Human Subject Protections (for HS and CT)
  - Vertebrate Animal Protections
  - Biohazards
  - Resubmission/Renewal/Revisions

  - Inclusion criteria (women, minorities, across the lifespan)*
  - Study timelines (clinical trial applications)*
  - Plans for valid design and analysis of Phase III clinical trials*
- *Incorporated into Factor 2

Additional Review Considerations (no effect on overall score)

- Authentication of Key Biological and/or Chemical Resources
- Budget and Period of Support

- Applications from Foreign Organizations**
- Select Agent Research**
- Resource Sharing Plans**
- **Review shifting to NIH staff

Know your audience

- Peer review/study section group
- Audience likely as little as 3 reviews (Reviewer 1, 2, 3)
- Your proposal (if discussed) will have ~15min devoted to discussion:
  - Randomized review sequence
  - Keeps reviewers on their toes

  - Reviewer 1: <u>5 min</u>
    - Describe the application and indicate why the score is what it is
    - Briefly touch on each of the review criteria
    - Focus on main score-driving strengths and weaknesses
    - For resubmissions, tell us how they responded to the previous review (renewals: prior productivity)
  - Reviewers 2 and 3: <u>5 min</u>
    - Only state new points and not repeat previous reviewers' comments
    - If you have nothing to add, it is OK to say "I agree"
  - Panel Discussion: <u>5 min</u>
    - Listen to the discussion, point out discrepancies between comments and preliminary scores during discussion and ask for clarification
    - Focus on main score drivers only

Know your audience

- Final score range set
- Panel reviewers are encouraged to
  - Assign a score that captures your assessment of the potential overall impact based on discussion
  - Avoid splitting the difference when there is a range. Pick the side you find most convincing (try to avoid score compression in the middle)

- Reviewers are assigned ~7-9 grants per cycle/meeting to review
- Reviewers are scientists
  - Want to be your advocate
  - Make life easier for them

Facilitating your review

- Telling a story through your proposal
  - Educating reviewers on the importance/significance of your area of study/problem
  - Not simply clinical importance (cancer is bad and important to study)
- Clearly stated goals and hypotheses makes it easy for reviewers to present
- Remember that reviewers may not have similar areas of expertise
- Tailoring background and significance to the reviewers
- <u>KNOW</u> the literature in your field
  - Relevant background and studies
  - Rigor of prior research

Facilitating your review

- Readability and comprehension
  - Economy of words
    - Critical for the Specific Aims
    - Write it, rewrite it, keep re-writing it to capture your message in the most impactful and succinct manner
  - Avoiding dense paragraphs/pages – use of white space
  - *Clear* graphical abstract
    - Feedback from colleagues
  - Bulleted lists or tables
    - Innovative points
    - Gaps in knowledge / literature
    - Lack of rigor in prior studies
    - Primary/secondary/tertiary outcomes
    - Statistical power / sample size justification

Facilitating your review

- Preliminary data should support
  - Scientific premise
  - Technical feasibility
- Demonstrates your experience, competence, and likelihood of success
  - Provide enough data to convince reviewers, and then no more
  - If data are complex, consider adding a schematic to the figure to illustrate the ‘take-home’ message
- Legibility – don’t make figures/legends too small
- As with manuscripts, figures and legends should stand alone for comprehension

Post-review

- Read summary statement and let it sink in for a few days (emotional response)
- Approach the feedback with an objective mindset
  - If reviewers identify a problem you thought was clear, take the opportunity to better highlight or emphasize that point
  - It is your job to make the grant clear to reviewers
  - Reviewers do not automatically grant a better score with a resubmission
- Prioritize critiques
  - Major vs. minor
  - Shared weaknesses identified by multiple reviewers
  - Shared critiques and major concerns should feature prominently at the beginning of the Introduction page

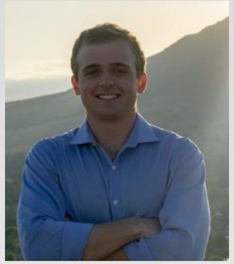
Revising your proposal

- Address the critiques
  - Do you need additional preliminary data?
  - Do you need additional expertise?
- <u>Pay particular attention to the summary of discussion</u>

- Not discussed
  - Were critical flaws identified and what was their nature?
  - If multiple reviewers have the same critique that is not addressable, may need to recalibrate or try something else
  - Criticisms relating to approach or investigators can be addressable
  - Issues with significance
    - Clarity in presentation and writing
    - Differing opinions on the importance of the problem

Revising your proposal

- Regroup and remain persistent
- Continue to hone your proposal by incorporating reviewer feedback
- Stay positive!

Presenter	Title	Time
 Dr. Ross Wohlgemuth	Targeting the extracellular matrix to support aged muscle hypertrophy	Poster #24 Podium: 3/20 @ 4:40
 Sara Gonzalez	Interrogating the Myofiber-FAP GDNF-GFRA1 Signaling Axis to Maintain Neuromuscular Junction Integrity Following Injury	Poster #87
 Alex Keeble	FOXO1-Driven Myonuclear Pathology in Chronic Kidney Disease Persists After Kidney Transplantation	Poster #93
 Dr. Nick Thomas	HDAC4 DNA binding disrupts muscle plasticity following joint injury and is rescued with muscle-specific Hdac4 deletion	Poster #117 Podium: 3/19 @ 3:40