

R21 BASICS

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PhD Qualifying Exam Session



THE TAKE HOMES

Understand the goal of a R21

- The purpose of a grant is not to prove what you know. It is ultimately a request for resources to conduct a study, namely protected time and the requisite funds to accomplish the goal.
- The goal is to present a sound/rational case that you will create value/impact in an interesting/important area in bioengineering through this proposed work detailed in this plan. The value could be a technology or knowledge/insight.
- Return-on-investment expectations are scaled to the size/duration of the request. Specifically, the R21 assumes a ~3 year time frame for one person full-time (i.e. similar to the remainder of your thesis).



CRITERIA IN LAY TERMS

- A clear picture of what do you propose to do / what your technology is.
- “Significance” - Why are you doing it? (i.e. problem statement in context of the field and known literature or state of technology/biology)
- “Innovation” - How is this a novel improvement? How will it advance the field?
- “Approach” – Experimental design and rationale, organized into a set of specific aims. The deliverable of the aim is typically specific knowledge or technology that meets a performance metric. How are you going to do it, and what evidence do you have that it should be possible?
- “Impact” – What is the potential for upside given the Significance and Innovation, when probabalized for success based on the Approach?
- “Investigator” – Why should you in particular be funded. Here, you do not have to explain why in the R21. This is gauged by your technical foundations demonstrated during the presentation.

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THE R21 FORMAT

- 0.5” margins, at least Arial 11 font
- 7 pages with figures (references not included), with rough guidelines:
 - 1 page specific aims (summary of the whole R21, including description of aims)
 - ~ 1-2 pages significance and innovation (problem and solution statement)
 - ~ 4-5 pages approach (research plan)
- Scoring
 - Significance (directly evaluated here)
 - Innovation (directly evaluated here)
 - Impact
 - Approach (directly evaluated here)
 - Investigator (indirectly evaluated here)
 - Environment
- Examples of successful R21 and summary statements:
 - <https://www.nichd.nih.gov/grants-funding/grants-process/application-samples/Pages/default.aspx>
 - <https://www.niaid.nih.gov/grants-contracts/sample-applications>

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