GRANT WRITING FOR SUCCESS

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National Institute of Nursing Research

National Institutes of Health

OVERVIEW

- **Start planning early**
- Apply for the right opportunities
- Contact appropriate program staff early
- Present ideas clearly
- What to do after review

THE GRANT LIFE CYCLE

START PLANNING EARLY

FROM “PLAN” TO “APPLY” COULD TAKE 8+ MONTHS

National Institutes of Health

GRANTS.NIH.GOV/GRANTS/HOW-TO-APPLY-APPLICATION-GUIDE.HTML

How to Apply - Application Guide

Use the application instructions found on this page along with the guidance in the funding opportunity announcement to submit grant applications to NIH, the Centers for Disease Control and Prevention, the Food and Drug Administration, and the Agency for Healthcare Research and Quality.

Prepare to Apply

- Systems and Roles
- Register
- Understand Funding Opportunities
- Types of Applications
- Submission Options
- Obtain Software

Write Application

- Write Your Application
- How to Find Forms
- Develop Your Budget
- Format Attachments
- Rules for Text Fields
- Page Limits
- Data Tables
- Reference Letters
- Biosketches

Submit

- Submit, Track, and View
- How We Check for Completeness
- Changed/Corrected Applications
- Standard Due Dates
- Submission Policies
- Dealing with System Issues

FAQs

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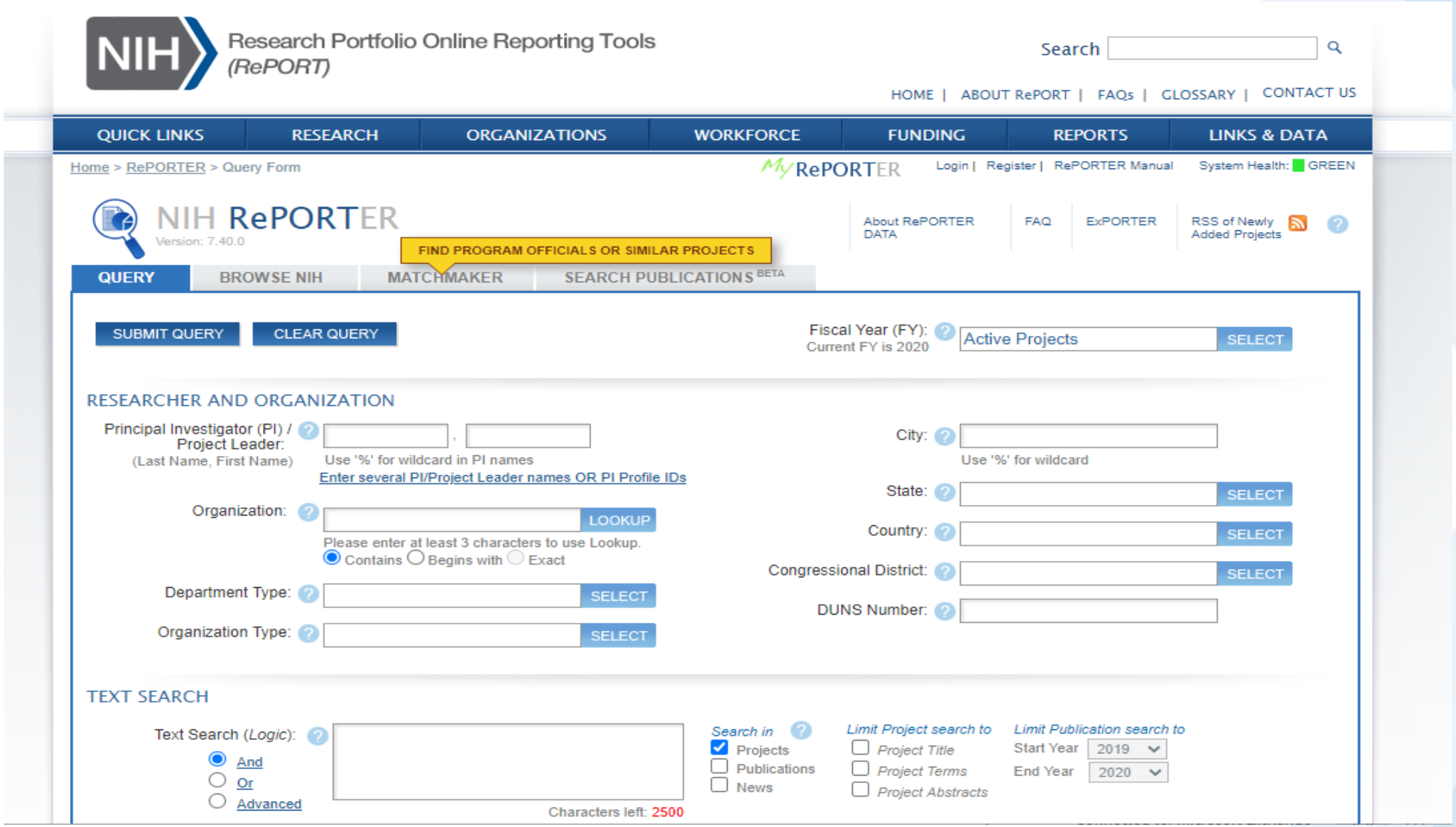
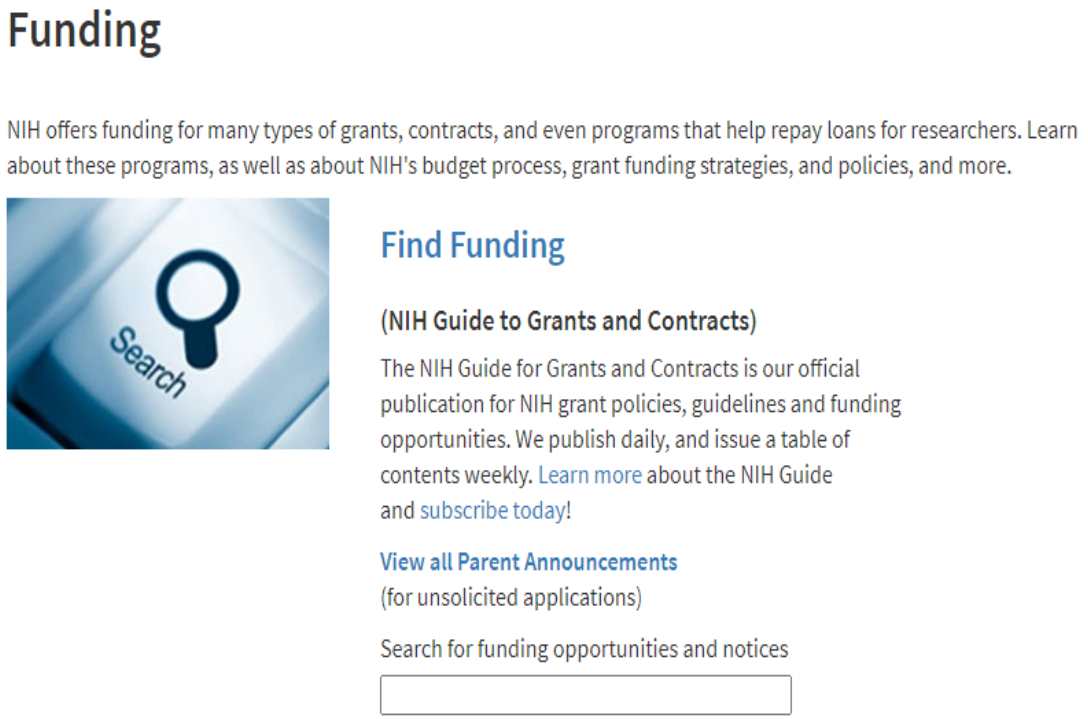
PROJECTREPORTER.NIH.GOV



USE THE NIH GUIDE TO FIND FUNDING OPPORTUNITIES



- RFA—funds set aside, special receipt date, special review panel
- PA, PAR, PAS—iterations of the Program Announcement; “R” is for special receipt date or review process; “S” is for set-aside funds

‘Parent’ Announcement—investigator-initiated; activity code-specific (R01, R03, R15, R21)

NIH National Institutes of Health

EARLY STAGE INVESTIGATOR (ESI) OR NEW INVESTIGATOR (NI)

- Designation matters for R01 applications
- ESI—never awarded an R01; earned terminal degree within 10 years of receiving R01 award
- NI—never awarded R01 award
- ESI/NI applications clustered and reviewed together
- Institutes consider investigator status for funding decisions

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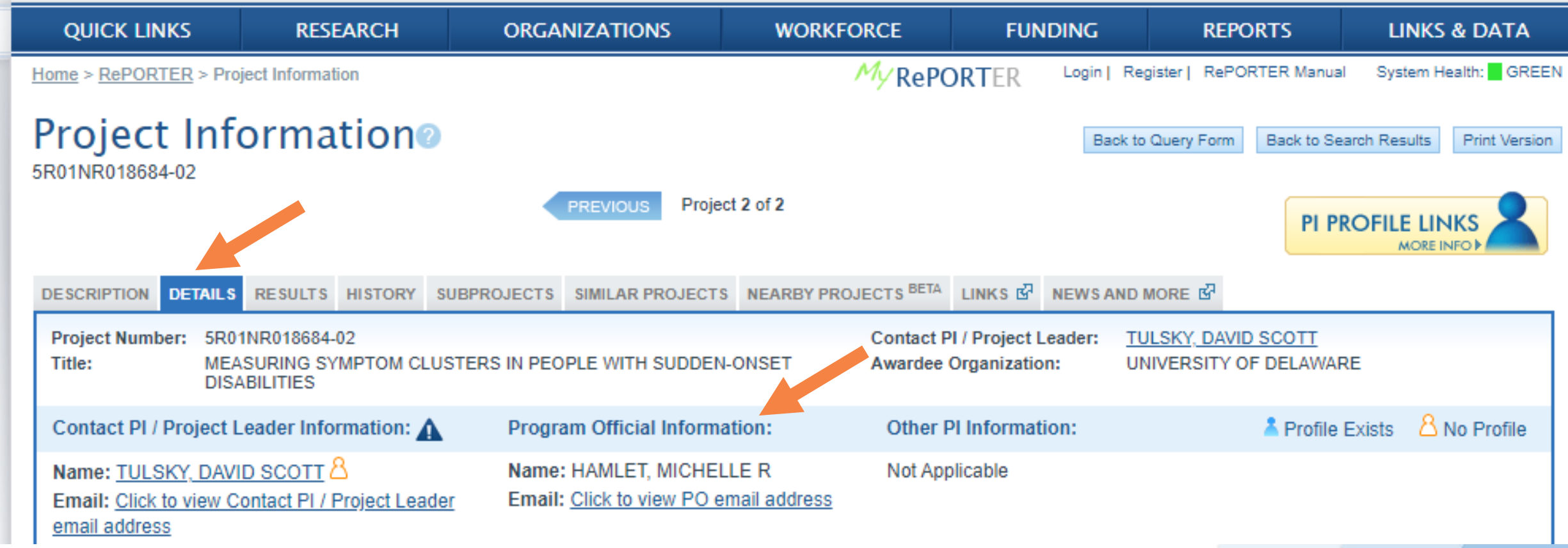
WHAT DO PROGRAM OFFICERS DO?

- Manage grants, contracts, and cooperative agreements
- Identify needs in scientific areas
- Report on scientific progress and program accomplishments
- Have many names: Program Director, Chief, Health Scientist Administrator, Program Official

WHAT TO DISCUSS WITH PROGRAM OFFICER?

- Your idea—e.g., provide specific aims page
- Fit—is idea fit for Institute or Center (IC)
- Priority—is idea a research priority for IC
- Funding Opportunity Announcements (FOAs)
- Funding mechanisms the IC supports

IDENTIFY PROGRAM OFFICERS IN NIH REPORTER



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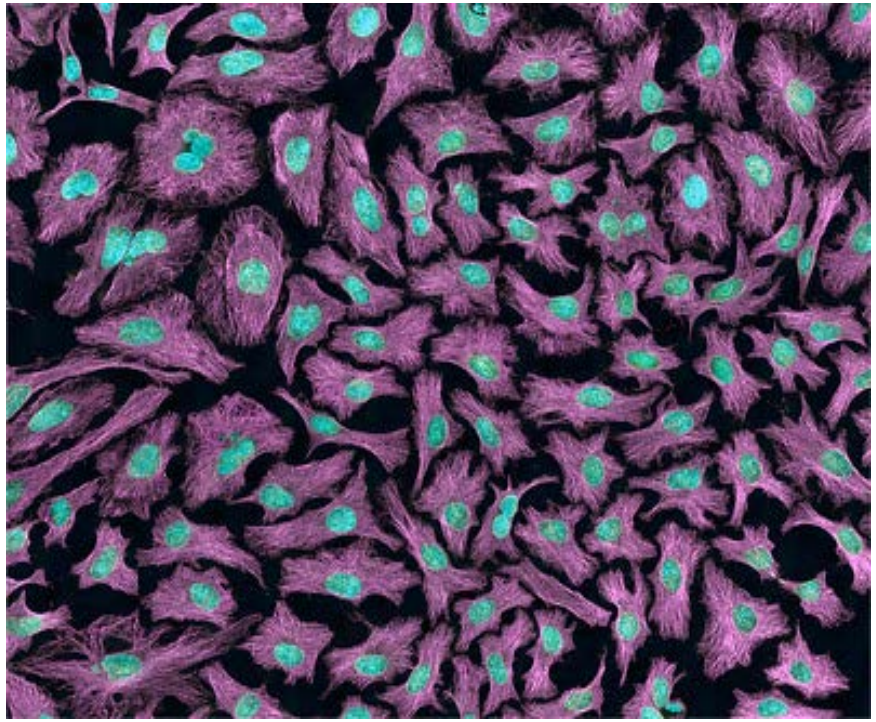
GENERAL GRANT-WRITING TIPS

- Read instructions for application form
- Be realistic … not overly ambitious
- Discuss potential problem areas and possible solutions
- Be explicit
  - Reviewers cannot read your mind!
  - Don’t expect reviewers to read between the lines!
  - Don’t assume they know what you intend!

ALIGN APPLICATION WITH REVIEW CRITERIA

- Core Review Criteria
  - **Significance**
  - Investigator
  - **Innovation**
  - **Approach**
  - Environment

What is the overall impact of an application?



Credit: Tom Deerinck, NIGMS-funded

Two questions drive reviewer determination about the likelihood that the proposed studies will have a strong and sustained impact on the scientific field

- Should they do it?
- Can they do it?

DEVELOP A STRONG RESEARCH PLAN

Specific Aims

- Grabs the reader immediately
- Is roadmap for your application
- Begin with an overall section
  - State general purpose
  - Include some key supporting data
  - State the hypothesis
  - State long-term objectives and expected ***impact***
- Organize the aims in a sequential, numeric format
- *Tell reviewers what the results will mean!*

DEVELOP A STRONG RESEARCH PLAN

Significance

- Answers the “so what” question
- Shows overall understanding of the field
- Demonstrates that questions are novel, important, and represent a logical next step in research
- Highlights critical gaps that will be addressed by the proposed research

DEVELOP A STRONG RESEARCH PLAN

Innovation

- Shows that proposed research is new and unique
- Either by:
  - Showing how research refines, improves, or proposes a new application of an existing concept or method, or
  - Showing how the research would shift a current paradigm
    - Make a very strong case

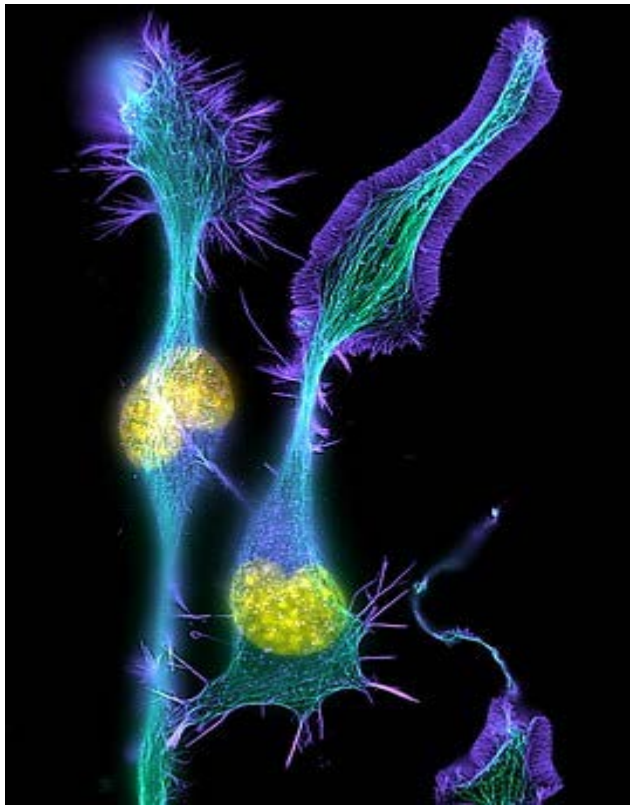
DEVELOP A STRONG RESEARCH PLAN

Approach:

Preliminary Studies

- Strengthen your application
- Show availability of key resources, familiarity with proposed methods and approach to interpreting results
- Show that work is promising, feasible, has potential impact
- Can be qualitative, quantitative and/or come from collaborator

DEVELOP A STRONG RESEARCH PLAN



- Credit: Torsten Wittmann, University of California, San Francisco
- https://www.nigms.nih.gov/education/life-magnified/Pages/11B_developing_nerve_cells.aspx

Approach

- Does your plan flow logically from the literature review and prior studies?
- How will each hypothesis be tested?
- Do your measures capture the variables needed to test hypotheses?
- Why did you choose those measures?
- Methods and analyses must match.
- Consider organizing each aim the same way, including the:
  - Rationale
  - Experimental approach
  - Anticipated results
  - Alternative approaches/pitfalls

DEVELOP A STRONG RESEARCH PLAN

Approach-

Clinical Studies

For clinical studies, include information in the Research Strategy section about:

- Overall strategy
- Methodology
- Analyses

Detailed study information belongs in the Human Subjects and Clinical Trials Information form

HALLMARKS OF AN OUTSTANDING GRANT APPLICATION

- Strong significance, important problem in public health: IMPACT is high
- High degree of novelty and innovation
- Strong track record of a well-qualified applicant; compelling publications
- Clear rationale
- Relevant, supportive preliminary data
- Clear and focused approach that provides unambiguous results
- Careful attention to details
    - Spelling, punctuation, grammar, fonts, clarity of data, error bars, spelling, etc.

COMMON REASONS CITED FOR A WEAK APPLICATION

- Weak impact – avoid ‘descriptive’ or ‘incremental’ projects
- Too ambitious, lacking focus, too many unrelated aims, aim dependency
- Unclear hypothesis or rationale
- Applicant lacks appropriate expertise
- No evidence of feasibility (do not assume reviewers are as familiar with the subject as you are)
- Approach flawed and no discussion of pitfalls and alternative approaches
- Poor writing and lots of errors; small figures and densely packed text

OVERVIEW

- Start planning early
- Apply for the right opportunities
- Contact appropriate program staff early
- Seek advice broadly—peers, mentors, colleagues
- Present ideas clearly; pay attention to review criteria
- **What to do after review**

AFTER THE REVIEW

- Read and re-read the summary statement
- Contact your program officer and be prepared to discuss:
  - Reviewer comments from summary statement
  - Scores and percentiles
  - Funding prospects
  - Resubmission and other options

SUMMARY STATEMENT

SUMMARY STATEMENT

PROGRAM CONTACT: [redacted]

(Privileged Communication)

Release Date: **02/27/2017**
Revised Date:

Application Number: **1 R01 AI121500-01A1**

Principal Investigator

GORDON, VERNITA

Applicant Organization: UNIVERSITY OF TEXAS, AUSTIN

Review Group:	**BMBI** **Biomaterials and Biointerfaces Study Section**
Meeting Date:	**02/15/2017**
Council:	**MAY 2017**
Requested Start:	**05/01/2017**
RFA/PA:	**PAR16-242**
PCC:	**M36**
Project Title:	**Assessing the roles of biofilm structure and mechanics in pathogenic, persistent infections**
SRG Action:	**Impact Score:15 Percentile:1**
Next Steps:	**Visit http://grants.nih.gov/grants/next_steps.htm**
Human Subjects:	**10-No human subjects involved**
Animal Subjects:	**30-Vertebrate animals involved - no SRG concerns noted**

https://www.niaid.nih.gov/sites/default/files/1-R01-AI121500-01A1_Gordon_Summary-Statement.pdf

Summary Statement

1R01AI121500-01A1 Gordon, Vernita

NEW INVESTIGATOR

RESUME AND SUMMARY OF DISCUSSION: This application proposes to determine the mechanics and structure of biofilm infections of the opportunistic pathogen Pseudomonas aeruginosa in chronic wounds and how these physical properties impact disease course. The impact of these studies, if successful, will address the major physical factors controlling virulence, antibiotic resistance, and immune evasion in biofilm infections and is expected to give rise to new types of treatments and diagnostics for chronic biofilm infections that specifically target structure and mechanics. The strengths of the application are the dramatically improved focus; the supportive preliminary data; and the novel mechanism to treat biofilms. Concerns areb that it will require a large amount of coordination between groups. Overall, the application receives much enthusiasm in the area of biofilm infections.

Written by the Scientific Review Officer based on outcome of discussion, summarizes strengths & weaknesses, highlights areas of concurrence & disagreement between reviewers

CRITIQUE 1:

Significance: 2
Investigator(s): 1
Innovation: 1
Approach: 2
Environment: 1

Written by the individual reviewer to summarize his/her opinion on the overall strengths and weaknesses of the application

Overall Impact: This application is to investigate the structural and physical properties of biofilms using a wide range of novel techniques developed by the team and how these properties affect infections, antibiotic resistance, resistance to immune invasion and virulence. The proposed study is very novel in several aspects including novel techniques used, different properties to be studied, new insights into biofilm development, etc. This application has been improved substantially from the previous applications and the team has made several progresses with published records to support the current study. A few concerns still exist including coordination of the research activities, unclear description of budgets, inconsistence in description of research activities and justification of animal to be used.

These scores are indices only. They have no mathematical relationship to the priority score.

Consider the criteria scores carefully

- The written comments and summary of discussion will tell a more complete story
- However, pay special attention to **Significance** and **Approach**
  - Low significance, no matter what the other scores are, might be hard to fix
  - High significance but weak approach may be fixable

If not funded, try again!

- You are in good company
- Know your options
- Get advice, regroup
- Contact your Program Officer

Gain review experience: Early Career Reviewer Program

- Train and educate qualified scientists to become critical and well-trained reviewers
- Expose investigators to the peer review experience to help make them more competitive as applicants
- www.csr.nih.gov/ECR

REVISING AND RESUBMITTING

- Opportunity to improve the application
- Acknowledge and accept the help of reviewers
- Write clear introduction section
- Address criticisms thoroughly
- Respond constructively and respectfully

QUESTIONS?

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