Discovery Acceleration Workshops 2020-21

Resubmissions

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Discovery Acceleration Workshops 2020-21

Resubmission: The Art of Failure, Persistence, and Ultimate Success

Dr. Heather Petcovic

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WESTERN MICHIGAN UNIVERSITY

About me…

- With WMU since 2004
- Joint appointment in Geological & Environmental Sciences and the Mallinson Institute for Science Education
- Geoscience Education Research

46 total proposals submitted

42 external to WMU (NSF)

30 out of total not funded ☹

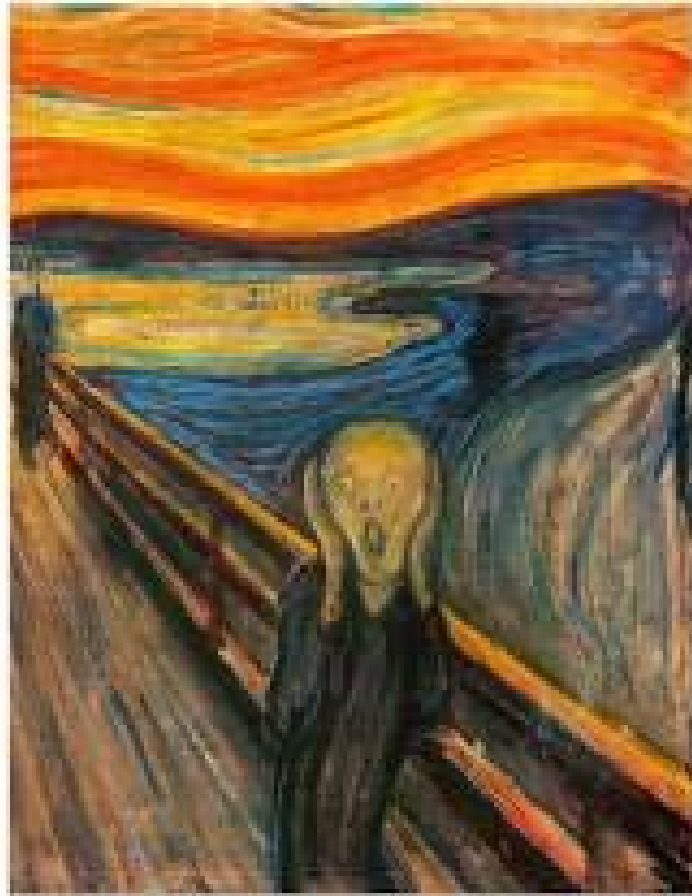15 funded, 1 pending

8 NSF 4 other 3 WMU

1st: 2 2nd: 1 4th: 1

How it feels to submit a proposal…

How it feels to get a proposal…

How it feels to get a proposal…

How it feels to NOT get a proposal…

Research grant rejection
5 Stages of Grief

1. **Denial**

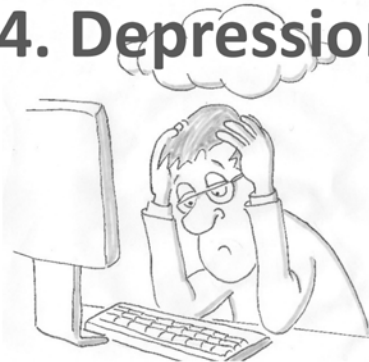"*Dear Program Manager, there seems to have been an error…*"

2. **Anger**

"*I will never apply to your lousy, corrupt funding agency again.*"

3. **Bargaining**

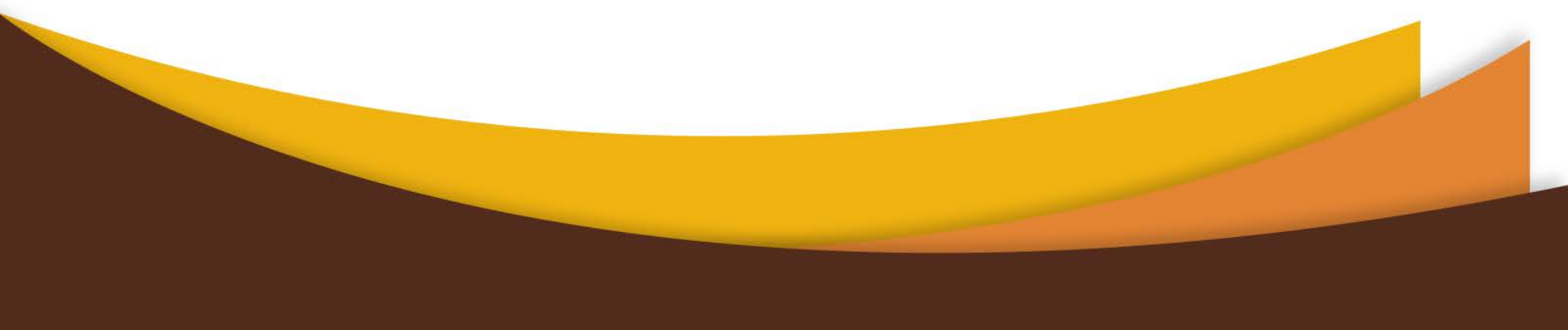"*If you just let me respond to the reviewers… I can fix this…*"

4. **Depression**

They're going to make me do more undergrad teaching.

5. **Acceptance**

Resubmit same proposal with different title, smaller budget…

How I deal with grant rejection...

1. Read the reviewer comments.
2. Sulk, get angry, maybe cry a little. Complain loudly to my inner circle (but NEVER online or in writing) about how the reviewers are a bunch of imbeciles who don't understand my brilliance.
3. Let some time pass.
4. Re-read the reviewer comments with my team:
   a. "They didn't get it."
   b. Things we can fix and resubmit.
   c. Things we cannot fix. Is this idea dead in the water?

How I deal with grant rejection…

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   a. "They didn't get it."
   b. Things we can fix and resubmit.
   c. Things we cannot fix. Is this idea dead in the water?

Cognizant Program Officer Comments

Thank you for submitting your proposal entitled "Adapting a Successful Engineering Cohort Model to Improve Student Success and Retention of Math and Science Undergraduates" to the Improving Undergraduate STEM Education (IUSE: EHR) program. As indicated in an e-mail that you will receive from the Division Director or Deputy Division Director of NSF's Division of Undergraduate Education (DUE), this proposal could not be funded within this year's budget for the IUSE: EHR program.

Your proposal was reviewed by a panel of professional educators, most of whom are STEM faculty members. Their reviews, together with the evaluation of NSF program officers, were major factors in the decision-making process. Please understand that individual reviewers' comments do not necessarily reflect NSF's policy or position. Because the IUSE program receives many more proposals than can be funded, decisions about what projects to recommend for support may also take into account considerations of portfolio balance. Examples of considerations include the diversity of institution types, and the geographic and thematic distribution of awards within the portfolio.

Panelists were genuinely excited by the idea of expanding a successful first-year cohort model to a larger group of students at the institution, but they had significant questions with respect to the quality of evidence to establish impact, both with respect to prior work and proposed work. I agree with panelists that the proposal's research and evaluation methods are relatively unclear and that lack of detail is a hindrance with respect to determining the project's potential for success and broader impact.

I encourage you to revise and submit an updated proposal that takes into consideration my comments and those of the reviewers, as well as additional progress you and your colleagues make toward your overall goals. I would be happy to speak with you by telephone or teleconferencing to discuss your future plans.

Should you decide to revise and resubmit, please understand that it is unlikely that the next panel reviewing your proposal will include the same set of reviewers, and that submission of a revised proposal does not guarantee an award. All award recommendations must consider the quality of proposals submitted for each competition, as well as the availability of program funds.

Although your proposal is not being recommended for funding at this time, I appreciate your interest in improving undergraduate STEM education and am grateful for your endeavors to make undergraduate teaching and learning more effective.

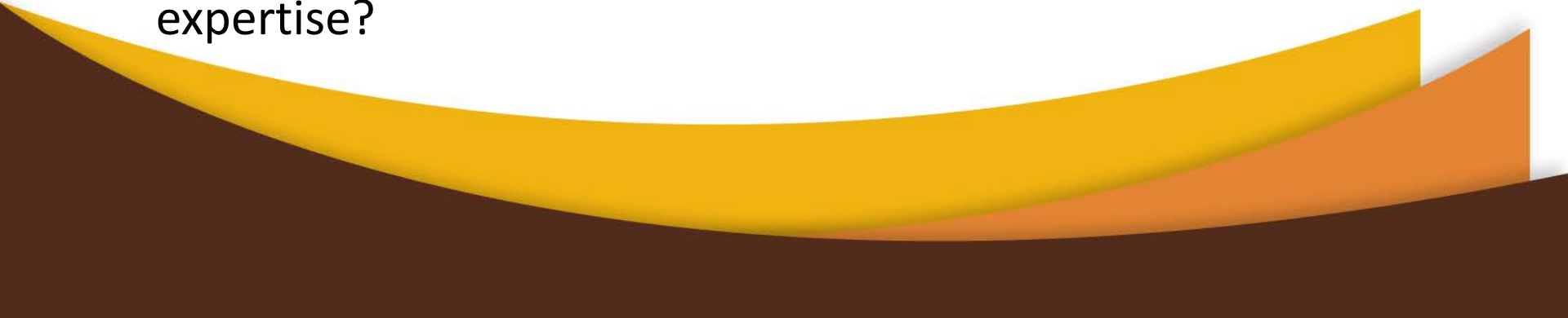# How I persist and resubmit…
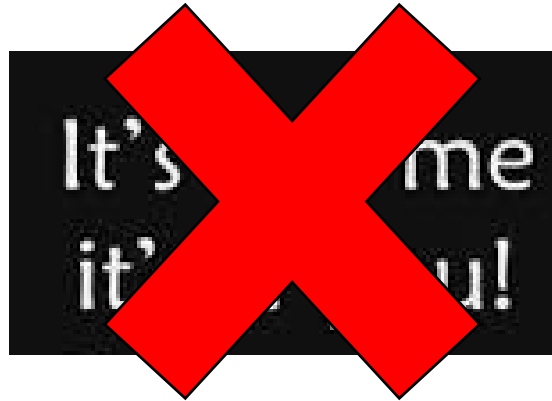
If they didn't "get it," it is MY job to explain it better.

- Look for specific points of confusion.
- See how these could be reframed for clarity.
- Call the program officer and ask!

How I persist and resubmit…

Things that are fixable:

- Was my idea a good fit to the solicitation? If not, is there another opportunity for this work? Or can I modify my proposal to better fit what the funding agency is looking for?

- Did I miss a key part of the solicitation? Can I reorganize the proposal to follow the solicitation precisely?

- Where are the key problems? The methodology? The theory or lit review? Importance and impact of the work? The budget, timeline, or logistics?

- Do I have the right people on this project? Am I missing key expertise?

To admit or not to admit…

On a resubmission, should I address prior reviewer comments? It depends…

• Will it strengthen the proposal?
• Will it go to the same program officer and/or same reviewers?

"Is it just me or are these review panels getting a lot tougher?"

https://www.ifm.eng.cam.ac.uk/research/grant-writers-handbook/cartoons/

In summary…

Do:
- Allow yourself to feel disappointed, angry, or sulky.
- Call the program officer if comments are unclear.
  - Email first with specific questions and a request for a call.
- Address specific concerns in the revision and (maybe) call out that the proposal is a resubmission.
- Have a "critical friend" review the revised version.
- Use the reviewer and program officer comments to improve the next version of the proposal.
- Realize that one (or two, or three) rejection(s) is not the kiss of death.

Resubmissions OR

That which does not kill us

Grant proposals for America's National Institutes of Health

Probability of receiving grant funding, %

Near-win applicants

Near-miss applicants

← Better score   Worse score →

Cutoff

Normalised score*

-100   -50   Cutoff   50   100   150

100   75   50   25   0
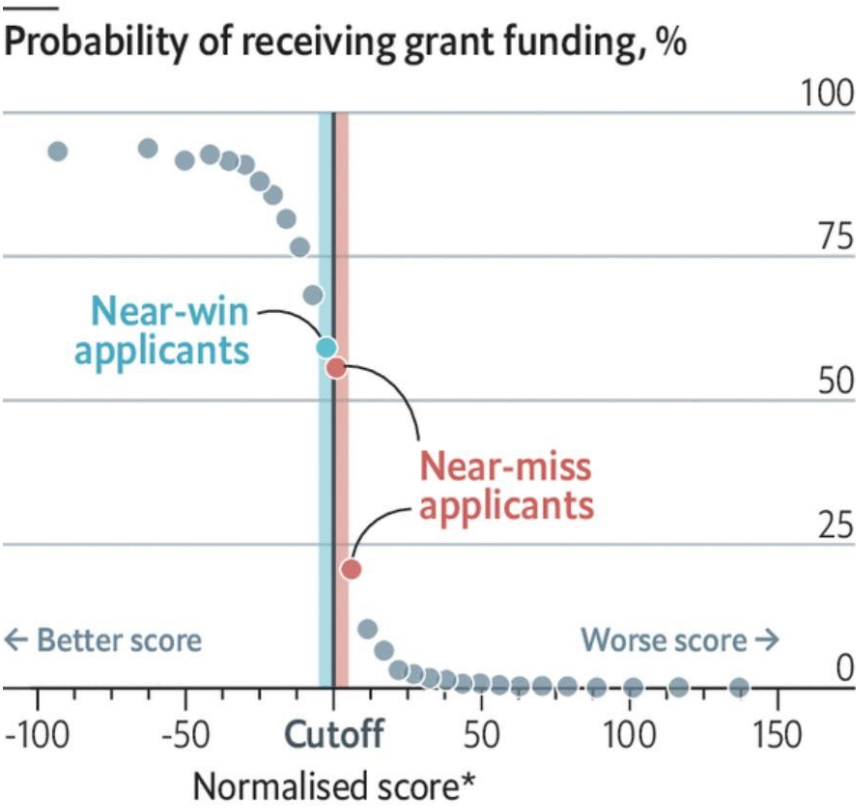
"Hit" papers, % of total published

Papers in the top 5% of citations received in the same field and year

10   12   14   16   18

Within 5 years of publication

Near wins   Near misses

Within 10 years

Average number of citations

20   25   30   35

Within 5 years

Near wins   Near misses

Within 10 years

The Economist

NIH Study Sections:
What They Are and How They Function

John S. Adams, M.D.

Director, Orthopaedic Hospital Research Center

Associate Director, Clinical and Translational Research Institute

Departments of Orthopaedic Surgery, Medicine and Molecular, Cell & Developmental Biology

UCLA

Usual Study Section

- Usual grant load per study section: 100
- Mean grant load per reviewer:
  - Permanent member mean load: 10-13
  - Mean grant load for temporary reviewers: 4
  - Mean grant load per reviewer: 8
- Mean number of reviewers per grant: 3.5
- Average number of reviewers at each study section meeting: $100 \times 3.5 \div 8 = 44$
  - 15 permanent
  - 29 temporary

There are lots of types of reviews, and more video now

Alternate Styles of Review

- Study sections
- Teleconferences
- Video-enhanced discussions
- Asynchronous electronic review
- Editorial-style review

Review your review!

NEW INVESTIGATOR

RESUME AND SUMMARY OF DISCUSSION: ███████████ currently at University of California, Los Angeles, CA submitted this outstanding Research Scholar Development Award (K22) entitled "Mechanism of Retinoic Acid Receptor Induced Innate Immune Responses". The applicant proposes to study the regulation and function of the vitamin D-mediated host defense and the role of retinoic acid and toll-like receptors (TLRs) in the innate immune response against intracellular *Mycobacteria*. The principal strengths of the application noted inc **1** outstanding candidate; the candid **2** excellent publication record and research product **3** strong and clearly written research plan; **4** significance of the proposed stu **5** strong letters of reference; an **6** overall excellent career development plan. The committee expressed enthusiasm for the candidate, who **7** potential to develop into an independent researcher. Weaknesses discussed included **1** paucity of human samples to be analyzed, which could lead to misinterpretation of the results, s **2** concerns about the applicant's independence since he has been in his current environment for a long **3** lack of clarity in what elements of the project he can develop into an R01 grant application; whether the candidate's project is independent of his mentors' projects; and whether he can move to another institution with the project. The review committee recommended support of this application for two years.

CRITIQUE 1:

Criterion Scores Table

Candidate:	1
Career Development Plan/Career Goals & Objectives:	1
Research Plan:	1
Mentor(s), Consultant(s), Collaborator(s):	1
Environment and Institutional Commitment to the Candidate:	

Overall Impact:

Strengths

- 1 Dr. Liu is an outstanding candidate for this award 2 strong research productivity and 5 letters of reference.

- 6 career development program for this candidate appears to be excellent.

- 3 research plan is clearly written, and it appears to be well within the candidate's expertise and experience.

- The a: 4 study is highly significant, focusing on the role of vitamin D and innate immunity against M. *tuberculosis*.

Weaknesses

- No weaknesses are noted.

1. Candidate:

Strengths

- Dr. Liu is an outstanding candidate.

- The candidate ha 7 potential to become a successful independent investigator. This is supported b 2 strong publication record with papers in the *Journal of Immunology* and *Science* that are related to the area of the proposed work.

- 2 The candidate is an author on 18 research publications and six review articles. He is first-author on five of the research articles and one review article. Since 2007, 19 manuscripts were published or in press, and three are as a first-author in the *Journal of Immunology*. Thus, the candidate is productive, and his work is published in peer-reviewed, high-quality journals.

- 5 The reference letters are very good. The candidate's letters are highly complimentary, and 7 suggest the making of a strong independent scientist.

Weaknesses

2 A minor weakness is that the candidate has done both Ph.D. and post-doctoral work in the same laboratory. However, he has made an effort to broaden interactions with other scientists, which minimizes the potential for a narrow training experience.

2. Career Development Plan/Career Goals & Objectives/Plan to Provide Mentoring:

Strengths

6 The career development program for this candidate appears to be excellent. It has included needed coursework and participation in a K30 program to provide a more interdisciplinary training to investigators with an emphasis on translation research, etc.

8 The group of scientists that has advised this candidate is excellent and composed of researchers whose expertise complement the candidate's expertise for the proposed research.

Weaknesses

- No weaknesses are noted.

3. Research Plan:

Strengths

4 The area of study is highly significant, focusing on the role of vitamin D and innate immunity against *M. tuberculosis*.

3 The research plan is clearly written, and it provides needed details that demonstrate the feasibility of the approaches proposed.

7 The research project is focused and appropriate for this candidate's stage of research development, and the project will likely provide a foundation for a future productive independent research career.

7 The research plan will provide the candidate an opportunity to pursue his career objectives.

Weaknesses

- No weaknesses are noted.

4. Mentor(s), Consultant(s), Collaborator(s):

Strengths

9 The mentors are outstanding.

Weaknesses

- No weaknesses are noted.

Adams Method for "Pink Sheet" Analysis

- Tabulate strengths (black) and weaknesses (red).
  - Be comprehensive, but
  - Don't count the same criticism twice
  - Black:red ratios
    - ~2:1; score ≤20   ratio: 20:10   score: 20
    - ~1:1; score ≤30
    - ~1:2; score ≤40
    - <1:3; score ≤50
    - <1:4; unscored
- Most important criticisms are those levied by more than a single reviewer.

Writing the Introduction

- Thank the SRG for their work
- Begin on a positive note
  - Briefly "recount" the strengths noted by the SRG
- "Recount" each weakness
  - Start with most frequently noted and substantial
  - Move to least common and serious
  - Identify the site of revisions in response to stated weaknesses
- End on a positive note

Your Resubmission
Do:

- Follow SF424 instructions precisely.
- Assume *all* of the initial study section comments were correct.
- Respond to *all* criticisms.
- Assume the same reviewer(s) will be seeing your revised application.
  - try to identify "your reviewer(s)" from the summary statement roster
  - write the resubmission with your reviewers' research/expertise in mind
- Try and reference work from your likely reviewers.

Your Resubmission
Do Not:

- assume you're smarter than your reviewers
- argue with the reviewers in your response
- leave out a consideration of any criticism, regardless of how "minor" it might seem to you
- fail to have your colleague and/or mentor review your revision before resubmission
- fight with your:
    - grants and contract officer
    - IRB office
    - IACUC representative

We appreciate the thorough comments provided by the reviewers and have substantially revised the proposal. We have performed key experiments since the last submission and that data (FIG. 4, 5, 7, 9 and 12) frames the revised focus of the remaining Aims 1 and 3 and the new Aim 2. Changes are highlighted with a left margin bar. Specific responses to the prior reviews are highlighted below by section.

Significance: The reviewers generally considered the unanswered question of how actin organization relates to translation and eEF1A function and the biomedical importance of eEF1A significant. Concerns were raised regarding the *GCN2* deletion results which are addressed with new data and new aims.

Investigator and Environment: These were generally regarded as positive.

Innovation: The use of ribosome profiling and tRNA microarrays were considered innovative and remain in the proposal. In addition, we have added state of the art MS analysis of phosphorylation of eEF1A. A concern was that standard techniques were used; however, another aspect of the innovation is the questions addressed such as the link between the translation initiation and elongation pathways and the best techniques in some cases are classic methods.

Renewal: The progress was assessed as excellent or relatively productive, reflected in 16 papers or reviews, some with partial acknowledgment of other support.

Approach: *This section of the critiques had the most concerns and is addressed as described below.* The major strengths were the genomic approaches such as the tRNA microarray to assess the link between eEF1A, eIF2α phosphorylation and aminoacyl-tRNA (aa-tRNA) levels and the ribosome profiling analysis. The later technique is called by one reviewer "a powerful assay of gene expression" and its use is expanded.   The other strength was the goal to understand the very novel finding of eIF2α phosphorylation and the mechanism by which this is signaled. This is now addressed more thoroughly and with an eye towards a more mechanistic understanding relative to eEF1A function. While Critique 1 was the most positive, this was not reflected in the category score.

The minor weaknesses were the limited nature of the mammalian subaim, concern the genetic screens may not yield results and low enthusiasm for mRNA localization studies. The major weakness was a lack of enthusiasm for the strong focus on the non canonical function of eEF1A as "the available assays for the functional significance of this interaction are limited and may hamper progress" thus limiting a mechanistic analysis of the actin function. The clear concern was since the *GCN2* deletion did not suppress all the defects of the eEF1A actin bundling mutant strains the mechanism was likely not as indicated or at least more complex. We take these concerns as seriously as the reviewers, and as such specifically addressed them with additional experiments prior to resubmission. We also changed the entire focus of the grant to a more mechanistic approach with very clear ties to the regulation of eEF1A by cofactors and post translational modification. Remaining, however, is the analysis of the links between translation initiation (eIF2α phosphorylation), eEF1A and potential cytoskeletal effects *only as appropriate*.   In the revised application we have specifically addressed these concerns by:

1.   Focusing on the yeast system since a larger mammalian subaim is less critical with less focus on the cytoskeleton, removing the mRNA localization analysis and reducing the number of genetic screens.
2.   Performing the critical experiments to show that in fact the aa-tRNA binding and actin binding do have overlapping effects in our mutants, explaining the partial suppression upon *GCN2* deletion. Therefore all of Aim 1 is now a mechanistic analysis of the eIF2α phosphorylation event and the potential signals, with a much greater focus on eEF1A activity in translation.
3.   Providing compelling preliminary results that direct the grant at regulation via eEF1A by not only the associated cofactors in Aim 1 but via phosphorylation sites in Aim 2. This returns to the strength of the lab's expertise in mechanistic elongation studies.
4.   Expanding the mRNA profiling analysis in Aim 3 with a greater focus on elongation regulation and *limited complementary* studies on actin effects on translation. We provide pilot data supporting the technical feasibility of this assay in our lab with our collaborator Bin Tian.

Principal Investigator
KINZY, TERRI GOSS PHD
Applicant Organization: RBHS-ROBERT WOOD JOHNSON MEDICAL SCHOOL
Review Group: **ZRG1 MGB-E (08)**
Center for Scientific Review Special Emphasis Panel
Molecular Genetics B (MGB)
Meeting Date: **11/25/2013** *RFA/PA:* **PA11-260**
Council: **JAN 2014** *PCC:* **G123MB**
Requested Start: **04/01/2014**
Project Title: **Regulators of Translation Elongation Factor eEF1A**
SRG Action: **Impact Score: 40 Percentile: 22 &**
Next Steps: **Visit http://grants.nih.gov/grants/next_steps.htm**
Human Subjects: 10-No human subjects involved
Animal Subjects: 32-Animals involved - SRG comments

RESUME AND SUMMARY OF DISCUSSION: This project will investigate the role of the eukaryotic translation elongation factor, eEF1A, in regulating protein translation, and in controlling gene expression using budding yeast as a model system. These studies have the potential to provide important new information regarding this critical process, and how interaction between eEF1A and actin, and eEF1A phosphorylation control steps in translation. Dr. Kinzy is a leader in this field, with a strong track record of accomplishments. Dr. Kinzy has responded to concerns raised in the prior review, and the resubmission has been significantly improved. Panel members expressed strong support for the mix of genetic and biochemical approaches proposed, and the use of yeast as a model organism. In contrast, several panel members viewed the lack of supportive preliminary data for Aim 2 as a weakness. In addition, concerns were raised that candidate kinases had not yet been identified, and several panel members did not think these studies would have a strong impact in the field. Other panel members expressed stronger support for the proposal and were convinced critical new insights into this important problem would emerge in the next grant cycle. Overall, the review panel concluded this was an excellent application.