NUTS AND BOLTS OF RESIDENT RESEARCH FUNDING

Karen J. Ho, MD
DOS RESEARCH TOOLKIT LECTURE
11/10/22
RESIDENT RESEARCH FUNDING - FAQ

- WHEN SHOULD I APPLY FOR FUNDING?
- WHERE DOES FUNDING COME FROM?
- CAN I BE FUNDED FROM MORE THAN ONE PLACE?
- SHOULD I GET STRESSED OUT ABOUT THIS?
- HOW DO I APPLY FOR FUNDING?
- WHAT IF I CAN’T GET FUNDED?
WHEN SHOULD I APPLY FOR FUNDING?

• **PGY1:** IDENTIFY A RESEARCH INTEREST AND MEET WITH POTENTIAL RESEARCH MENTORS
  - Think about your career and research interests
  - Attend resident research recruitment dinner, browse DOS faculty mentor website, talk to lab residents and senior residents
  - Meet 1:1 with me
  - Meet 1:1 with potential faculty mentors; you can have > 1 mentor!

• **PGY2:** NARROW DOWN YOUR MENTOR LIST AND IDENTIFY A RESEARCH PROJECT
  - Identify a faculty mentor by Dec/Jan
  - Identify a research project by May/June
  - Establish a timeline for applying for funding (check deadlines early!)

• **PGY3:** START APPLYING FOR FUNDING
  - Apply for NIH Loan Repayment Program (Nov deadline)
  - Starting in summer/fall: Apply for T32s and other society awards (some have Aug deadlines!)
WHERE DOES RESEARCH FUNDING COME FROM?

NIH:
• Institutional training grant (T32, R38, TL1, T37)
• Individual postdoctoral fellowship (F32)

VA:
• Chief Resident in Quality and Patient Safety (CRQS)

Society (examples):
• American College of Surgeons (ACS)
• Association of Academic Surgeons (AAS)

Department of Surgery:
• Steven J. Stryker, MD, Gastrointestinal Surgery Research and Education Endowment

Other places (example):
• Howard Hughes Medical Institute – Hanna Gray Fellows Program
CAN I BE FUNDED BY MORE THAN ONE PLACE?

• YES!

• Think strategically about your grant applications with your mentor(s):
  • The same project can be submitted to multiple different funding sources, sometimes with minor tweaks – this will increase your chances of success
  • If you are successful, avoid scientific and budgetary overlap if you want to use > 1 grant at the same time
SHOULD I GET STRESSED OUT ABOUT FUNDING?

NO! But you DO need to plan ahead and know where to get help!
HOW DO I APPLY FOR FUNDING?

BASIC RULES:

• Plan the project carefully with your mentor
  • Preliminary data, feasibility, timeline, budget
• Know your deadlines
  • Internal deadlines (Office of Sponsored Research “OSR”)
  • Grant agency deadline
• Do not expect to write a competitive grant application in 1 day or a “weekend off”
  • Give yourself and your mentor time to read, think, write and iteratively revise, revise, revise!
• Join grantwriting coaching groups for feedback
  • Rick McGee (Associate Dean for Faculty Recruitment and Professional Development) is very helpful with offline critiques!
• Send drafts to collaborators for feedback
HOW DO I APPLY FOR FUNDING?

BASIC RULES:

• Ask for letters of recommendation waaaaay in advance
  • Some letter writers want you to draft their letters!
• Ask for copies of successful applications
  • Talk to previous applicants and award winners
• Follow instructions carefully
  • Format, length, components, etc.
EXAMPLE 1: AAS RESEARCH AWARD

• Application deadline: August 1, 2022
  • Internal OSR deadline: July 21, 2022

• Purpose:

This award provides an eligible resident or fellow who has completed at least two years of postgraduate training in a surgical discipline the opportunity to spend one year in a full-time research position with an AAS member. The award of $30,000 for one year per award may be used for salary support or for the direct-cost expenditures of the research. The award is to be expended solely for the purpose of the sponsored research. The funding period for this award begins July 1st 2023.

• Eligibility: At least PGY2 in an accredited surgery training program; awardee is candidate or active member of AAS; at least 1 mentor is active or senior member of AAS
• Application materials:

1. A one-page Cover Letter outlining their academic development plan for their one-year research period, their short and long-term career goals, and any other relevant information that they wish the committee to consider with their application.

2. Applicant's curriculum vitae or NIH-Style Biosketch - not to exceed 5 pages.

3. Lay Summary of the project (200-300 words only).

4. Comprehensive Research Plan – Not including references, this plan should be no more than five (5) [single-spaced, Arial 11pt, 1” margin] pages inclusive of the following items:
   • abstract for research proposal
   • significance of research
   • background information
   • preliminary observations
   • experimental plan (methods, materials, potential limitations and pitfalls)
   • Applications exceeding these page limitations WILL NOT BE REVIEWED.

5. Letter of support from sponsoring research mentor. The research mentor letter should include history of mentorship of previous research fellows.

6. Letter of support of protected time from the chair of your department. The letter must guarantee that the applicant will spend the entire funding period in the research fellowship and that the department is committed to providing the additional support necessary to ensure completion of the project.

7. NIH-style Biosketch from your research mentor – not to exceed 5 pages.
• Conditions of award

Acceptance of Award
This proposal may be submitted to other extramural funding sources for support, but this must be acknowledged on the application form. Submission for support elsewhere will not affect the evaluation of this proposal; however, in the event that more than one extramural award is offered, the investigator will be required to accept only one source of funding. The research award recipient will be introduced during the AAS Award Session at the Academic Surgical Congress. A one-page formal progress report for the research project and copies of pertinent publications resulting from the funding of the research award should be forwarded to the office of the Secretary upon completion of the one-year research project. A final report and presentation of work accomplished will be required at the Academic Surgical Congress following the conclusion of the grant.
HOW DO I FORMAT MY CV?

Use the template for NU faculty

Get it from the “Resources” page in the DOS Resident Research webpages
EXAMPLE 2: NIH F32

- Application deadline: 3 NIH review “cycles” per year - April, Aug, Dec
- Internal OSR deadline: 7 business days ahead of NIH deadline
- Administrative docs must be finalized by OSR deadline; only science section is accepted as a draft

<table>
<thead>
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<th>NIH Due Dates</th>
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<tr>
<td><strong>Submission Date</strong>*</td>
<td>April 8th</td>
<td>August 8th</td>
<td>December 8th</td>
</tr>
<tr>
<td><strong>Scientific Merit Review (Study Section)</strong>*</td>
<td>June - July</td>
<td>October - November</td>
<td>February - March</td>
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<tr>
<td><strong>Advisory Council Round (Funding Determination)</strong>*</td>
<td>August or October **</td>
<td>January</td>
<td>May</td>
</tr>
<tr>
<td><strong>Earliest Start Date</strong>*</td>
<td>September or December **</td>
<td>April</td>
<td>July</td>
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*Standard Due Dates; AIDS and AIDS-related submission dates due apply

**Advisory Council Round for April applications may be August or October, and their earliest project start date may be September or December respectively.

*Fellowships may not begin in the months of October or November.*

Develop a timeline...

Give yourself 3-6 months to write!
READ THE PROGRAM ANNOUNCEMENT ("PA")

• Search online for NIH F32 program announcement
• FOA = Funding Opportunity Announcement
• FOA Number: PA-20-242
• Make sure you are registered in “eRA Commons” (online interface for NIH signing officials and PI to share and access administrative information)
  • You need this for any NIH grant (including T32 or R38)
F32 SCORED REVIEW CRITERIA

1. Fellowship applicant: academic record, experience, commitment, potential

2. Sponsors, collaborators, and consultants: expertise, experience, resources, publications, track record of mentoring (FYI: sponsors = mentors; referees = write letters of recommendation)

3. Research training plan: is the project and training plan integrated? Is project feasible and appropriate for your stage of development? Is there appropriate development of professional skills?

4. Training potential: does training plan take advantage of your strengths and address gaps in needed skills? Does it serve a sound foundation that will enhance your development into a productive researcher?

5. Institutional environment and commitment to training: facilities, resources (equipment, lab space, computer time, subject populations, clinical training setting) and training opportunities (seminars/conferences, professional development opportunities)

Additional criteria: protections of human subjects, inclusion of women, minorities, and individuals across the lifespan, vertebrate animals, biohazards, training in responsible conduct of research, select agents, resource sharing plans, budget
Application instructions:

- Go to [NIH website](https://www.nih.gov) and download the “SF424 (R&R)” and “Fellowship Instructions”

**SF424** = “Standard Form 424” = grant application package that needs to be filled in

Make sure you have the latest versions by getting them from the NIH website!
DECODING THE SF424

• 132 pages long
• OSR will assemble and submit the grant after it has been internally reviewed and approved
• Ask your mentor who your “grants person” or “research administrator” is ahead of time and make sure they know you plan to submit an F32
UNDERSTAND THE COMPONENTS AND FORMAT OF AN NIH APPLICATION

• Fillable fields vs. PDF uploads
• Sample tracking summary of components (for my recent R21)

Font (size, color, type density) and Line Spacing

Adherence to font size, type density, line spacing and text color requirements is necessary to ensure readability and fairness. Although font requirements apply to all attachments, they are most important and most heavily scrutinized in attachments with page limits.

Text in your attachments must follow these minimum requirements:

- **Font size:** Must be 11 points or larger. Smaller text in figures, graphs, diagrams and charts is acceptable, as long as it is legible when the page is viewed at 100%.
  - Some PDF conversion software reduces font size. It is important to confirm that the final PDF document complies with the font requirements.
- **Type density:** Must be no more than 15 characters per linear inch (including characters and spaces).
- **Line spacing:** Must be no more than six lines per vertical inch.
- **Text color:** No restriction. Though not required, black or other high-contrast text colors are recommended since they print well and are legible to the largest audience.

We recommended the following fonts, although other fonts (both serif and non-serif) are acceptable if they meet the above requirements.

- Arial
- Georgia
- Helvetica
- Palatino Linotype

Legibility is of paramount importance. Applications that include PDF attachments that do not conform to the minimum requirements listed above may be withdrawn from consideration.
BUDGET COMPONENTS

• Postdoc fellowship grants provide up to 3 years of:
  • Stipend (based on years of experience on NIH table)
  • Tuition (up to 60% of total institutional tuition or $16,000 in degree-granting program, whichever is less)
  • Childcare stipend from licensed provider (up to $2500 per year)
  • Institutional Allowance (eg health insurance, research supplies, equipment, books, travel, etc.)
**SPECIFIC FORMAT PAGES**

- NIH Biosketch - use the “Fellowship” template

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**BIOPGRAPHICAL SKETCH**

Provide the following information for the following personnel and other significant contributors. Follow the format for each person: DO NOT EXCEED FIVE PAGES.

**NAME:** Simmons-Gonzales, Leonel

**EDUCATION/TRAINING**

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<tr>
<th>Institution and Location</th>
<th>Degree (if applicable)</th>
<th>Start Date MM/YYYY</th>
<th>Completion Date MM/YYYY</th>
<th>Field of Study</th>
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<td>BA</td>
<td>08/2014</td>
<td>05/2018</td>
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<tr>
<td>UC San Diego</td>
<td>PHD</td>
<td>08/2018</td>
<td>05/2023 (Expected)</td>
<td>Molecular Biology</td>
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**INSTITUTION AND LOCATION**

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<tr>
<th>NAME</th>
<th>COMMONS USER NAME</th>
<th>POSITION TITLE</th>
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**A. PERSONAL STATEMENT**

I first became interested in human health and disease in high school when I was awarded an NIH Diversity Supplement to work as a research technician for two summers in Dr. Indira Creative’s lab at the University of Hawaii. I continued to pursue this interest as an undergraduate at Purdue University, where I conducted research with Dr. Daniel Richardson on the mechanisms of action of a new class of small molecules for cancer treatment. This resulted in a co-authorship publication, as well as an invitation to present a poster at the annual Oncological meeting in Denver, Colorado. By the end of my undergraduate career, I knew that I wanted to pursue a long-term career in research. For my graduate training at UC San Diego, I have moved into the fields of genetics and biochemistry by studying the signaling and motility mechanisms of cancer cells, under the mentorship of Dr. Nain Green. Dr. Green is an internationally recognized leader in the field of cancer genetics and has an extensive record for training predoctoral and postdoctoral fellows. Along with giving me new conceptual and technical training, the proposed training plan outlines a comprehensive set of career development activities and workshops. I will have opportunities to engage in public speaking, conduct literature analysis, consider biomedical ethics, and learn about varied career options. For my initial project, I am currently developing a novel protocol for the identification of transcription complexes involved in cancer signaling pathways, which I hope to submit as a first author publication in the next few months. As a native Hawaiian, I am the first in my family to graduate from college, and I am excited to continue making great strides with my education. Overall, I believe that my current research setting in conjunction with my proposed training plan will provide a solid foundation for my long-term goal to become an academic researcher.


C. CONTRIBUTIONS TO SCIENCE

2. **High School Research:** I spent two summers doing research in the laboratory of Dr. Indira Creative at University of Hawaii, funded by a NIH Diversity Supplement award. Dr. Creative has developed several new anti-fungal drugs that might protect against skin infections. Over the course of two summers I set up in vitro cultures of skin cell lines and conducted a wide range of toxicity assays. We were excited to find that one of the new agents showed almost no toxicity, even at fairly high doses. Dr. Creative is now testing the drug in animals exposed to different types of fungal infections, including Candida albicans.

3. **Graduate Research:** My ongoing predoctoral research is focused on transcriptional gene regulation and signaling impacting motility of cancer cells. I believe the results from my research will likely be highly relevant to human health as they will provide new insights into the workings of complex biological systems, which will allow for further extrapolations into the development of several types of cancer and their progression. I am currently developing a novel protocol for the identification of transcription complexes involved in cancer signaling pathways, which I hope to submit as a first author publication in the next few months.

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**HONORS**

- **2020:** Poster Presenter, Genetics and Molecular Biology Meeting
- **2019:** Student Presentee, Advances in Cancer Research and Therapy Meeting
- **2018:** Paula F. Lafuente award for best senior project in the Biology Department, Purdue University

**SCHOLARSHIPS**

- **2018:** National Merit Scholarship Program
- **2014:** Scholarship, Daughters of Hawaii Society

**EXPERIENCE**

- **2014 - Present:** Member, Sigma Xi
- **2014 - 2016:** Diversity Supplement, National Institutes of Health
EXAMPLE 3: STRYKER ENDOWMENT

• Deadline: February
  • Start date: July
• Eligibility: McGaw resident or fellow in DOS; must commit to 1 year of full-time research in digestive health
• Budget: $40K in direct costs (salary, materials/supplies, travel up to $1500)
• NIH-style application: CV, cover letter, title, abstract, research plan, budget, budget justification, LOS
HOW TO PICK A TITLE FOR YOUR GRANT

• Be original, innovative, and compelling
• Use mission-relevant, priority-relevant, and results-driven words
• What will you do?
• Be authoritative
• Use plain language
• Get input from collaborators
• Follow character limits

DON’T: “Association of reproduction on stress and mortality”
DO: “Testing direct effects of reproduction on stress and mortality via ovariectomy”

DON’T: “Obesity Prevention in Hispanics”
DO: “Culturally Appropriate Childhood Obesity Prevention Programs for Hispanic Families”

DON’T: “Integration and Translation of the Meta-organismal Butyrate Metabolism Pathway to Prevent Arterial Restenosis after Vascular Surgery”
DO: “Targeting the Meta-organismal Butyrate Pathway to Prevent Arterial Restenosis after Vascular Surgery”
WHAT IF I CAN’T GET FUNDED?

No resident who has wanted to do research and tried to get funded but was unsuccessful has been excluded from research!
QUESTIONS?

• Contact me for more information:
  kho1@nm.org
  617-501-7232 (cell)

GOOD LUCK WITH YOUR GRANT APPLICATIONS!
(YOU WON’T SUCCEED UNLESS YOU TRY!)