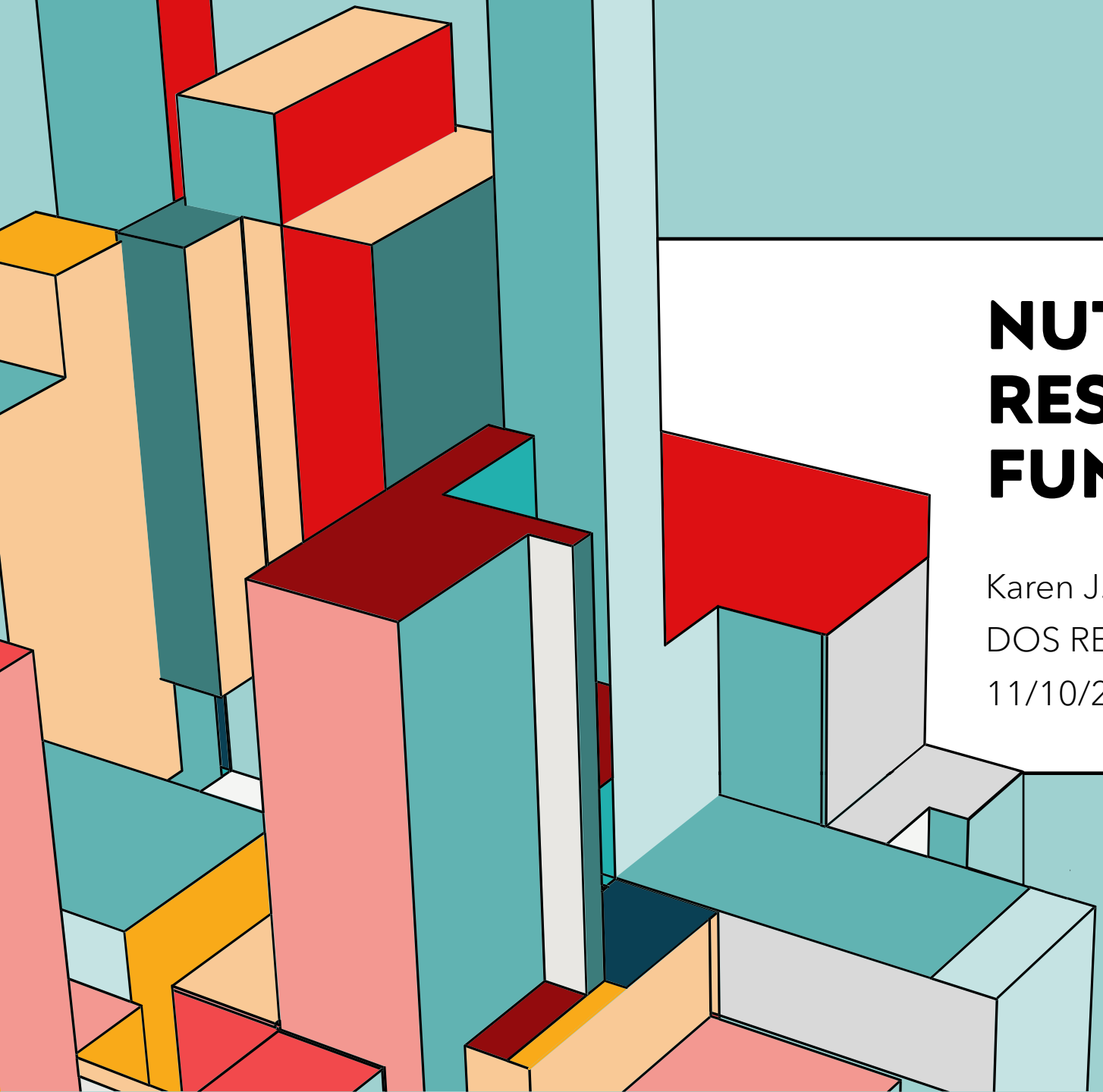


NUTS AND BOLTS OF RESIDENT RESEARCH FUNDING

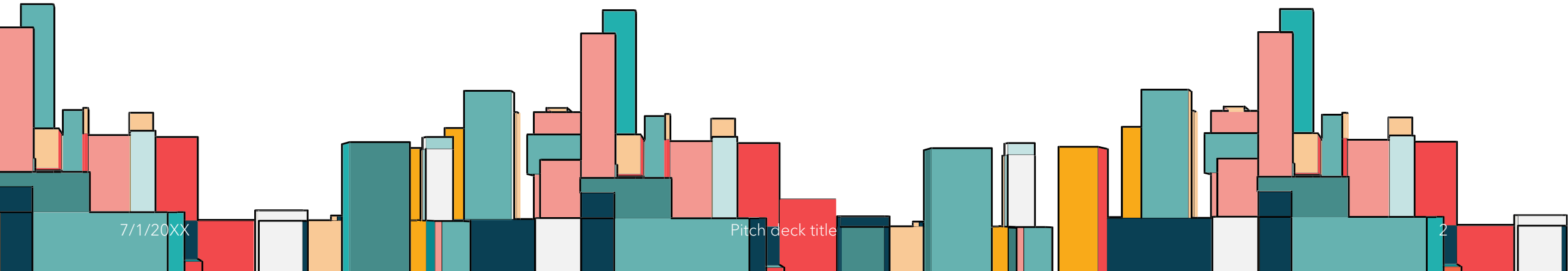
Karen J. Ho, MD

DOS RESEARCH TOOLKIT LECTURE

11/10/22

RESIDENT RESEARCH FUNDING - FAQ

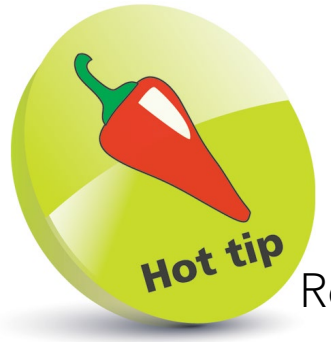
- WHEN SHOULD I APPLY FOR FUNDING?
- WHERE DOES FUNDING COME FROM?
- CAN I BE FUNDED FROM MORE THAN ONE PLACE?
- SHOULD I GET STRESSED OUT ABOUT THIS?
- HOW DO I APPLY FOR FUNDING?
- WHAT IF I CAN'T GET FUNDED?



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?



Funding opportunities for residents on DOS Resident Research webpages

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?

<u>BASIC RULES:</u>

- 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

r-mcgee@northwestern.edu

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.*

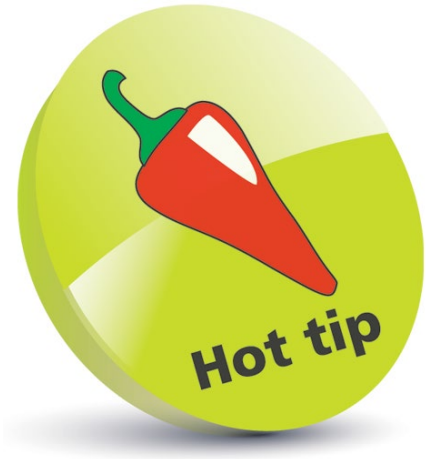
5. Letter of support from sponsoring research mentor. The research mentor letter should include history of mentorship of previous research fellows.
6. Letter of support of protected time from the chair of your department. The letter must guarantee that the applicant will spend the entire funding period 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

NIH Due Dates			
Submission Date*	April 8th	August 8th	December 8th
Scientific Merit Review (Study Section)	June - July	October - November	February - March
Advisory Council Round (Funding Determination)	August or October **	January	May
Earliest Start Date	September or December **	April	July

*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.

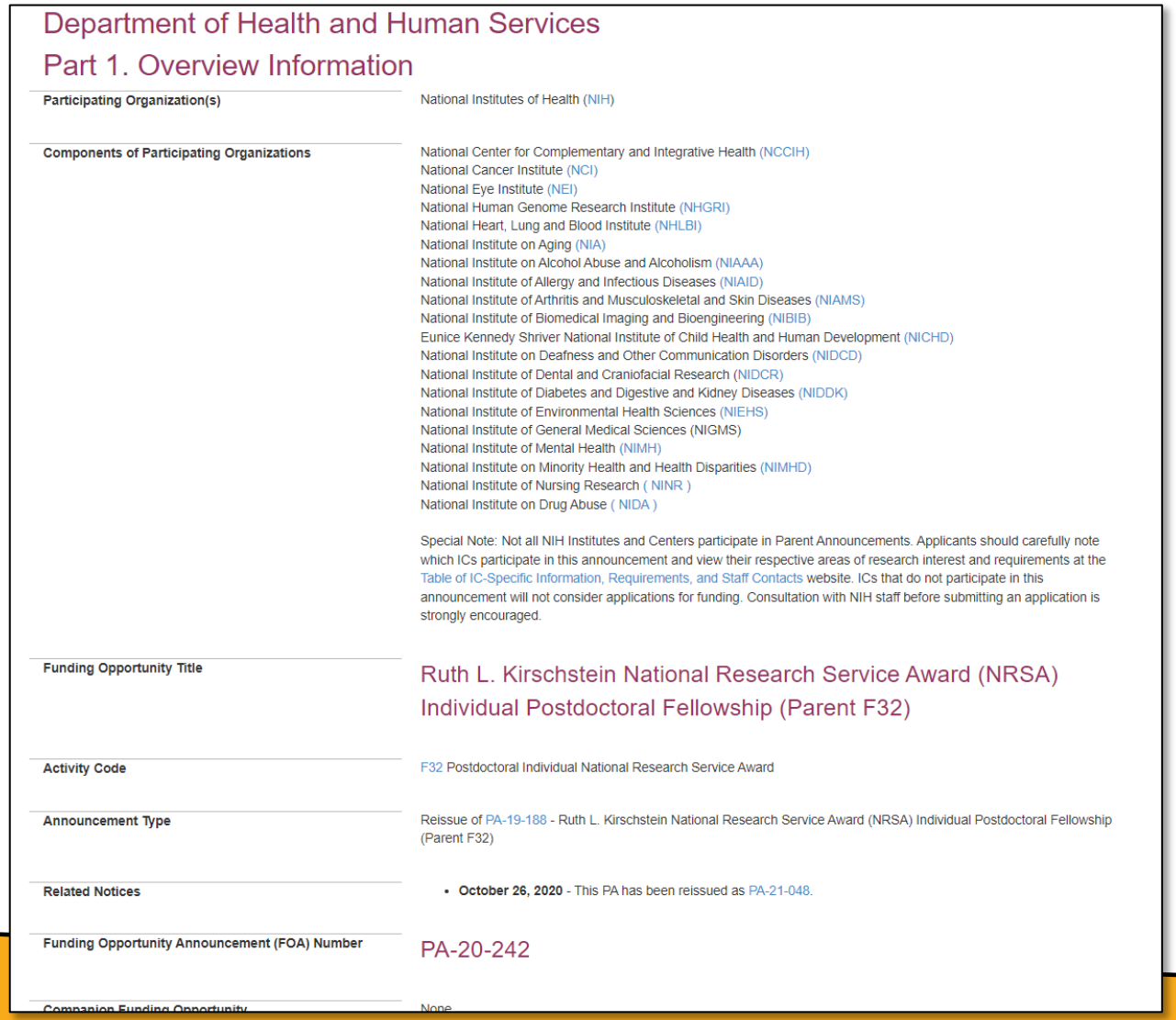
Fellowships may not begin in the months of October or November.

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)



Department of Health and Human Services

Part 1. Overview Information

Participating Organization(s)

National Institutes of Health (NIH)

Components of Participating Organizations

National Center for Complementary and Integrative Health (NCCIH)
National Cancer Institute (NCI)
National Eye Institute (NEI)
National Human Genome Research Institute (NHGRI)
National Heart, Lung and Blood Institute (NHLBI)
National Institute on Aging (NIA)
National Institute on Alcohol Abuse and Alcoholism (NIAAA)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
National Institute of Biomedical Imaging and Bioengineering (NIBIB)
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
National Institute on Deafness and Other Communication Disorders (NIDCD)
National Institute of Dental and Craniofacial Research (NIDCR)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
National Institute of Environmental Health Sciences (NIEHS)
National Institute of General Medical Sciences (NIGMS)
National Institute of Mental Health (NIMH)
National Institute on Minority Health and Health Disparities (NIMHD)
National Institute of Nursing Research (NINR)
National Institute on Drug Abuse (NIDA)

Special Note: Not all NIH Institutes and Centers participate in Parent Announcements. Applicants should carefully note which ICs participate in this announcement and view their respective areas of research interest and requirements at the Table of IC-Specific Information, Requirements, and Staff Contacts website. ICs that do not participate in this announcement will not consider applications for funding. Consultation with NIH staff before submitting an application is strongly encouraged.

Funding Opportunity Title

Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship (Parent F32)

Activity Code

F32 Postdoctoral Individual National Research Service Award

Announcement Type

Reissue of PA-19-188 - Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship (Parent F32)

Related Notices

- **October 26, 2020** - This PA has been reissued as PA-21-048.

Funding Opportunity Announcement (FOA) Number

PA-20-242

Companion Funding Opportunity

None

F32 SCORED REVIEW CRITERIA

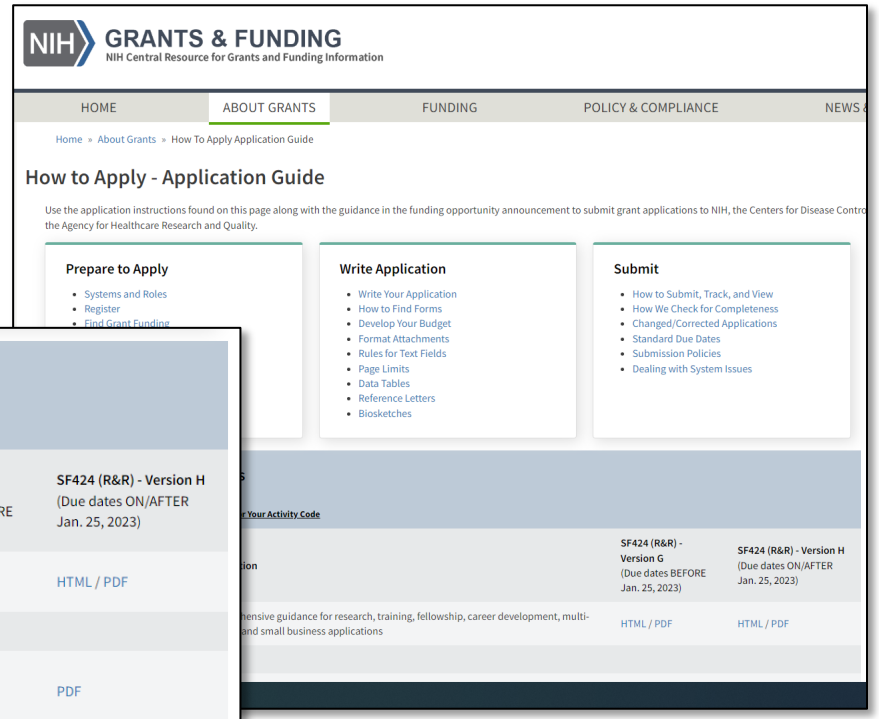
1. **Fellowship applicant:** academic record, experience, commitment, potential
2. **Sponsors, collaborators, and consultants:** expertise, experience, resources, publications, track record of mentoring (FYI: sponsors = mentors; referees = write letters of recommendation)
3. **Res** feas dev oject opriate
4. **Trai** ado enh and ill
5. **Inst** (equ setting) and training opportunities (seminars/conferences, professional development opportunities) ces ning

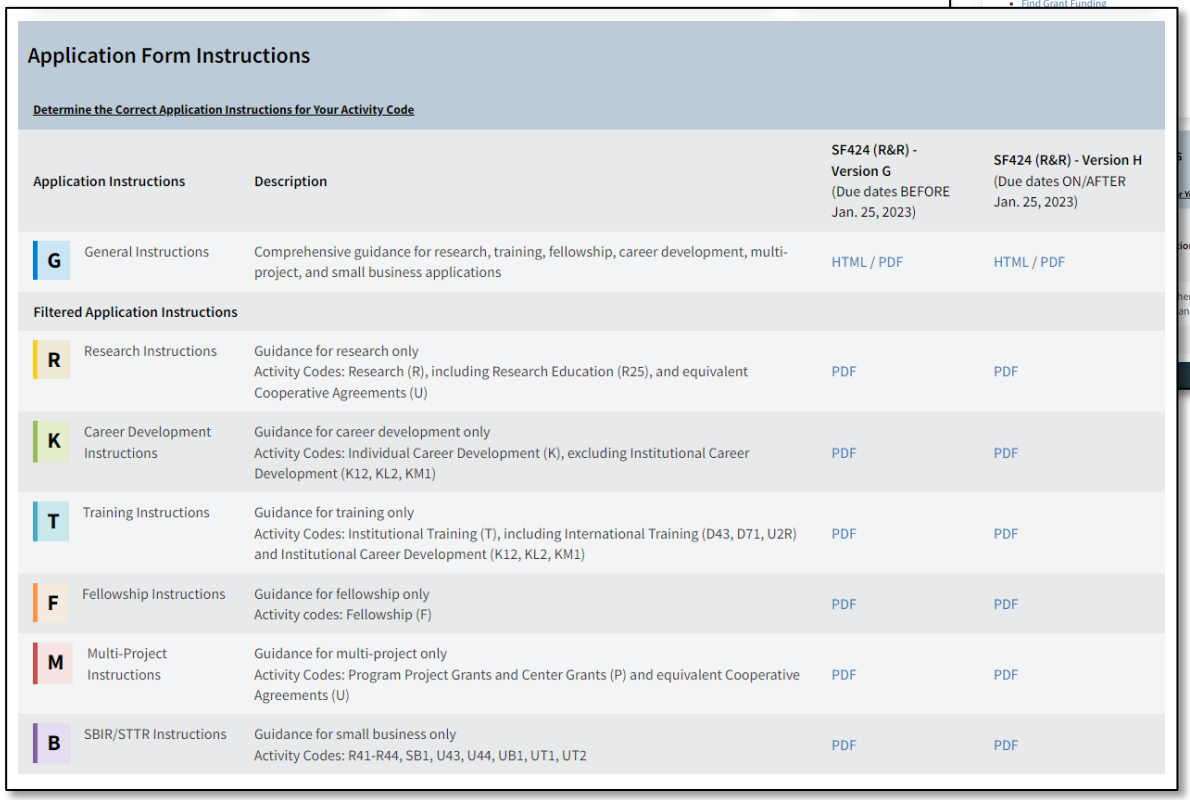
A fellowship application has a research project that is integrated with the training plan. The review will emphasize the candidate's potential for a productive career, the candidate's need for the proposed training, and the degree to which the research project and training plan, the sponsor(s), and the environment will satisfy those needs.

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 and download the "SF424 (R&R)" and "Fellowship Instructions"

SF424 = "Standard Form 424" = grant application package that needs to be filled in

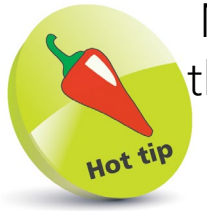




Application Form Instructions

Determine the Correct Application Instructions for Your Activity Code

Application Instructions	Description	SF424 (R&R) - Version G (Due dates BEFORE Jan. 25, 2023)	SF424 (R&R) - Version H (Due dates ON/AFTER Jan. 25, 2023)
G General Instructions	Comprehensive guidance for research, training, fellowship, career development, multi-project, and small business applications	HTML / PDF	HTML / PDF
Filtered Application Instructions			
R Research Instructions	Guidance for research only Activity Codes: Research (R), including Research Education (R25), and equivalent Cooperative Agreements (U)	PDF	PDF
K Career Development Instructions	Guidance for career development only Activity Codes: Individual Career Development (K), excluding Institutional Career Development (K12, KL2, KM1)	PDF	PDF
T Training Instructions	Guidance for training only Activity Codes: Institutional Training (T), including International Training (D43, D71, U2R) and Institutional Career Development (K12, KL2, KM1)	PDF	PDF
F Fellowship Instructions	Guidance for fellowship only Activity codes: Fellowship (F)	PDF	PDF
M Multi-Project Instructions	Guidance for multi-project only Activity Codes: Program Project Grants and Center Grants (P) and equivalent Cooperative Agreements (U)	PDF	PDF
B SBIR/STTR Instructions	Guidance for small business only Activity Codes: R41-R44, SB1, U43, U44, UB1, UT1, UT2	PDF	PDF



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

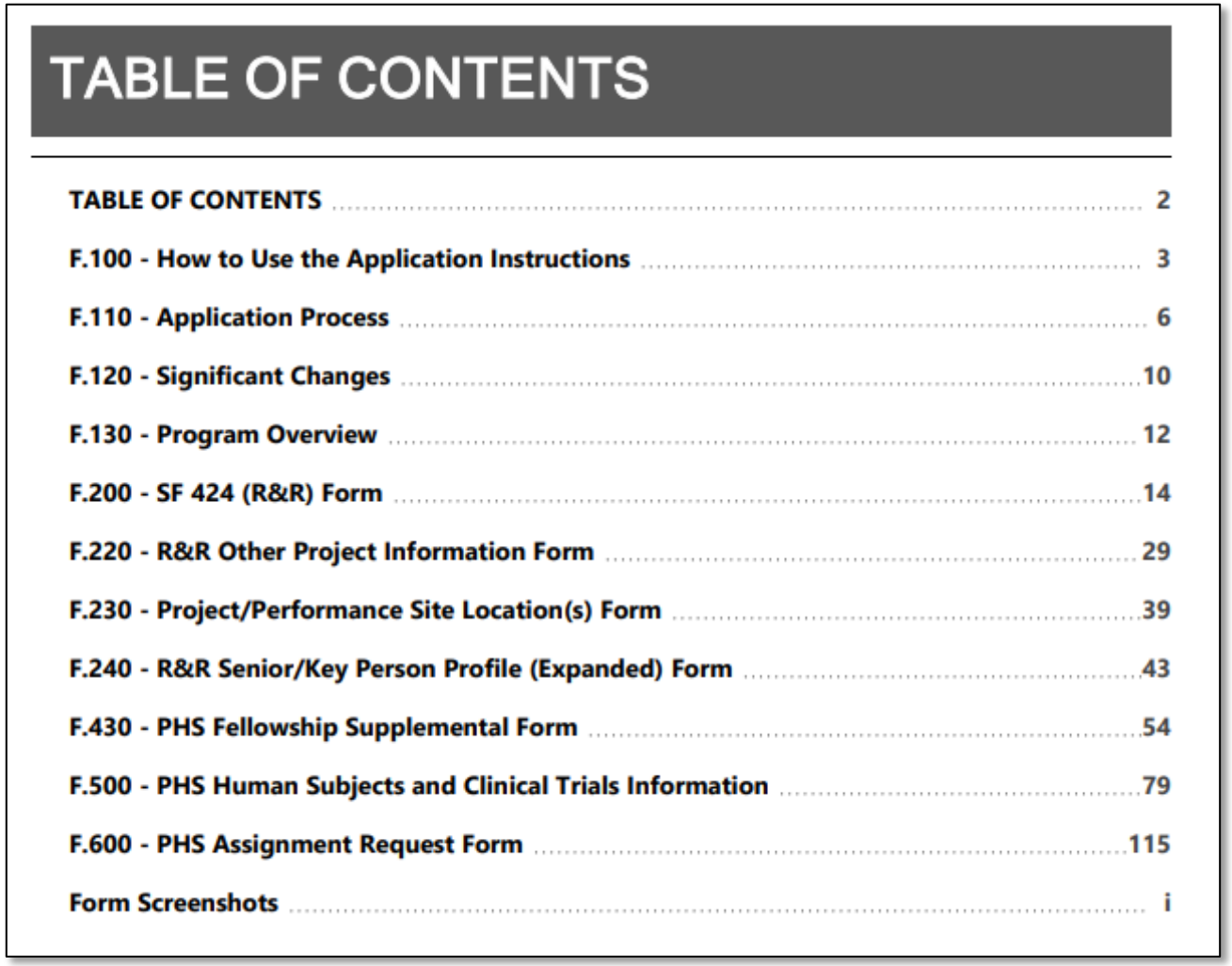


TABLE OF CONTENTS

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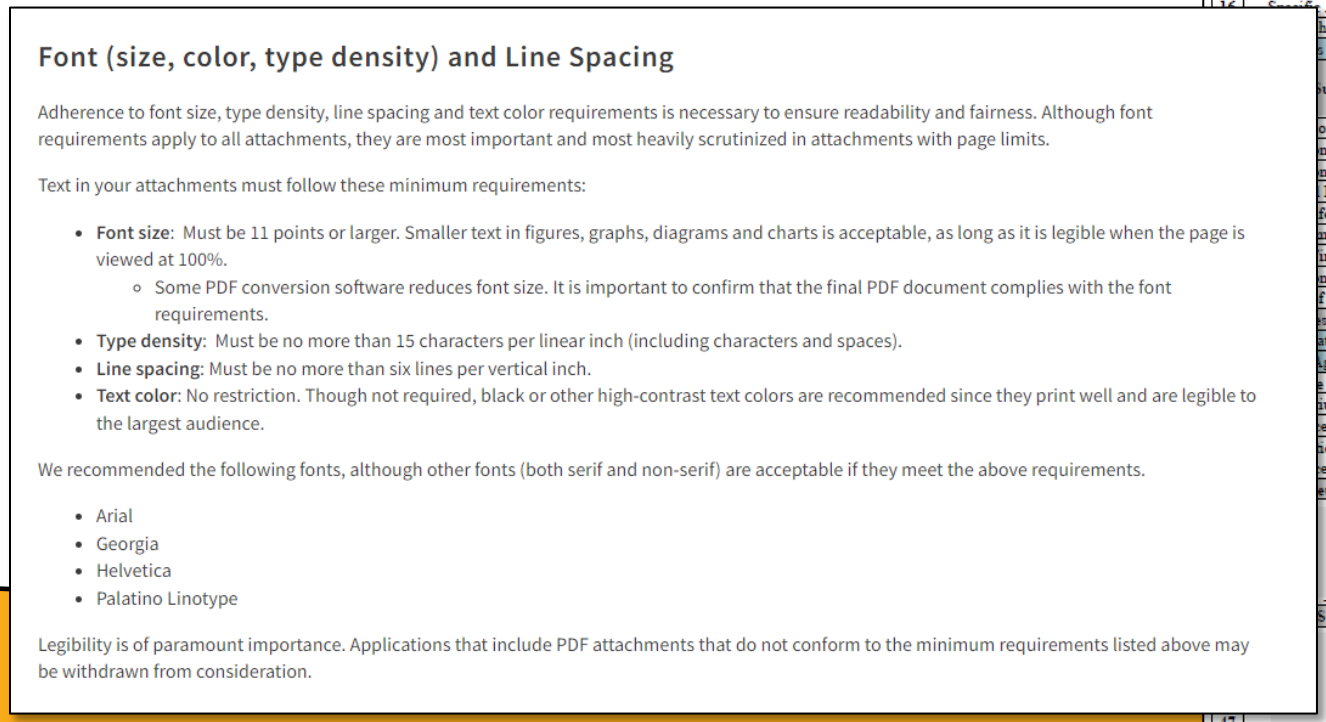
F.100 - How to Use the Application Instructions 3
F.110 - Application Process 6
F.120 - Significant Changes 10
F.130 - Program Overview 12
F.200 - SF 424 (R&R) Form 14
F.220 - R&R Other Project Information Form 29
F.230 - Project/Performance Site Location(s) Form 39
F.240 - R&R Senior/Key Person Profile (Expanded) Form 43
F.430 - PHS Fellowship Supplemental Form 54
F.500 - PHS Human Subjects and Clinical Trials Information 79
F.600 - PHS Assignment Request Form 115
Form Screenshots i

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.

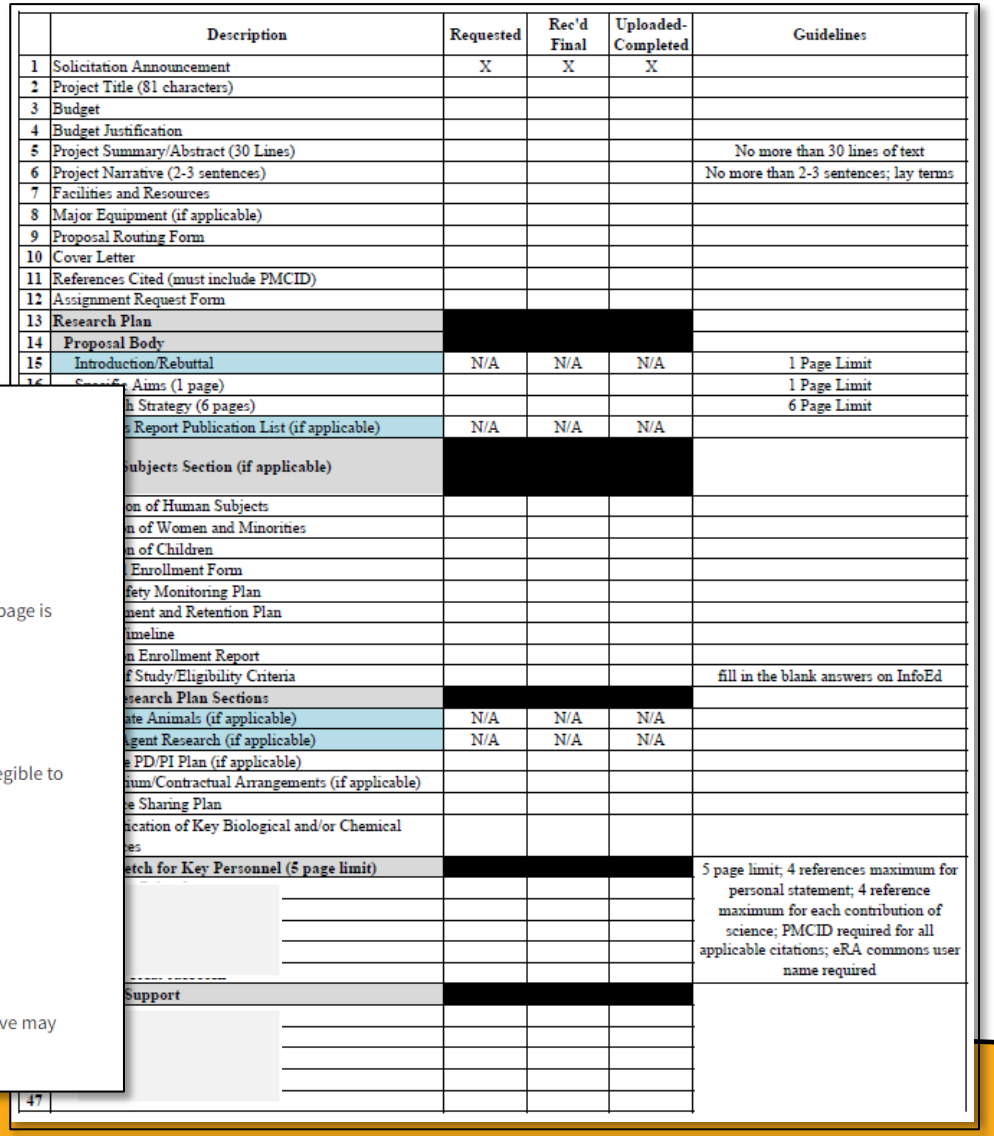
Text in your attachments must follow these minimum requirements:

- **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.



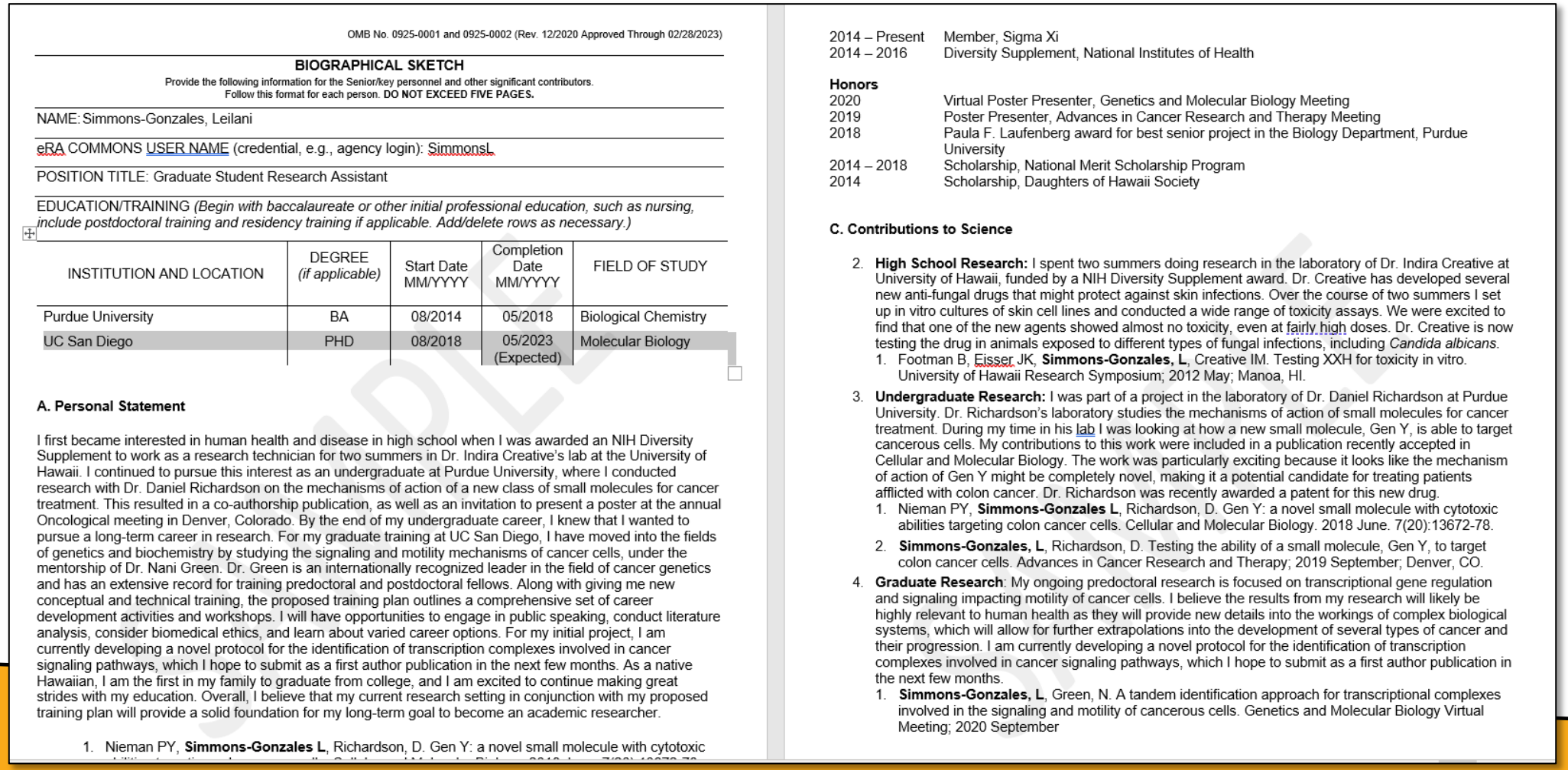
	Description	Requested	Rec'd Final	Uploaded-Completed	Guidelines
1	Solicitation Announcement	X	X	X	
2	Project Title (81 characters)				
3	Budget				
4	Budget Justification				
5	Project Summary/Abstract (30 Lines)				No more than 30 lines of text
6	Project Narrative (2-3 sentences)				No more than 2-3 sentences; lay terms
7	Facilities and Resources				
8	Major Equipment (if applicable)				
9	Proposal Routing Form				
10	Cover Letter				
11	References Cited (must include PMCID)				
12	Assignment Request Form				
13	**Research Plan**				
14	**Proposal Body**				
15	Introduction/Rebuttal	N/A	N/A	N/A	1 Page Limit
16	Specific Aims (1 page)				1 Page Limit
	h Strategy (6 pages)				6 Page Limit
	Report Publication List (if applicable)	N/A	N/A	N/A	
	ubjects Section (if applicable)				
	on of Human Subjects				
	n of Women and Minorities				
	n of Children				
	Enrollment Form				
	fety Monitoring Plan				
	ment and Retention Plan				
	imeline				
	n Enrollment Report				
	f Study/Eligibility Criteria				fill in the blank answers on InfoEd
	esearch Plan Sections				
	ate Animals (if applicable)	N/A	N/A	N/A	
	gent Research (if applicable)	N/A	N/A	N/A	
	e PD/PI Plan (if applicable)				
	ium/Contractual Arrangements (if applicable)				
	e Sharing Plan				
	ication of Key Biological and/or Chemical es				
	etch for Key Personnel (5 page limit)				5 page limit; 4 references maximum for personal statement; 4 reference maximum for each contribution of science; PMCID required for all applicable citations; eRA commons user name required
	Support				
47					

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



OMB No. 0925-0001 and 0925-0002 (Rev. 12/2020 Approved Through 02/28/2023)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Simmons-Gonzales, Leilani

eRA COMMONS USER NAME (credential, e.g., agency login): SimmonsL

POSITION TITLE: Graduate Student Research Assistant

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
Purdue University	BA	08/2014	05/2018	Biological Chemistry
UC San Diego	PHD	08/2018	05/2023 (Expected)	Molecular Biology

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. Nani 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.

1. Nieman PY, **Simmons-Gonzales L**, Richardson, D. Gen Y: a novel small molecule with cytotoxic

2014 – Present Member, Sigma Xi
2014 – 2016 Diversity Supplement, National Institutes of Health

Honors
2020 Virtual Poster Presenter, Genetics and Molecular Biology Meeting
2019 Poster Presenter, Advances in Cancer Research and Therapy Meeting
2018 Paula F. Laufenberg award for best senior project in the Biology Department, Purdue University
2014 – 2018 Scholarship, National Merit Scholarship Program
2014 Scholarship, Daughters of Hawaii Society

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*.
   1. Footman B, Eisser JK, **Simmons-Gonzales, L**, Creative IM. Testing XXH for toxicity in vitro. University of Hawaii Research Symposium; 2012 May; Manoa, HI.
3. **Undergraduate Research:** I was part of a project in the laboratory of Dr. Daniel Richardson at Purdue University. Dr. Richardson's laboratory studies the mechanisms of action of small molecules for cancer treatment. During my time in his lab I was looking at how a new small molecule, Gen Y, is able to target cancerous cells. My contributions to this work were included in a publication recently accepted in Cellular and Molecular Biology. The work was particularly exciting because it looks like the mechanism of action of Gen Y might be completely novel, making it a potential candidate for treating patients afflicted with colon cancer. Dr. Richardson was recently awarded a patent for this new drug.
   1. Nieman PY, **Simmons-Gonzales L**, Richardson, D. Gen Y: a novel small molecule with cytotoxic abilities targeting colon cancer cells. Cellular and Molecular Biology. 2018 June. 7(20):13672-78.
   2. **Simmons-Gonzales, L**, Richardson, D. Testing the ability of a small molecule, Gen Y, to target colon cancer cells. Advances in Cancer Research and Therapy; 2019 September; Denver, CO.
4. **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 details 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.
   1. **Simmons-Gonzales, L**, Green, N. A tandem identification approach for transcriptional complexes involved in the signaling and motility of cancerous cells. Genetics and Molecular Biology Virtual Meeting; 2020 September

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"

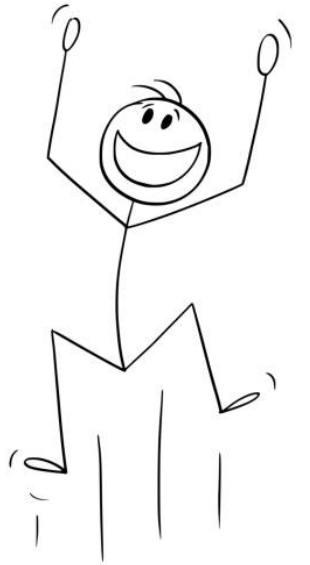
DO: "Culturally Appropriate Childhood Obesity Prevention Programs for Hispanic Families"

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!)