Strategies for Preparing Strong Career Development Applications

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NIH > National Institute on Aging

Outline

1. K Award Overview

2. First Steps for a Great Application

3. Tips for Polishing your Application

NIA K Award Overview

NIA Career Development Awards (K)

- Provide salary (typically $75-100k) and research support (typically $20-$60K)

- Most have 3 due dates per year

- Non-Mentored K Awards – for mid-career or senior researchers

- **Mentored K Awards** – for early career researchers who have not yet had R01 funding

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Mentored Career Development Awards (K)

Career Transition Awards	K99	Pathway to Independence Award
	K22	Career Transition Award
Career Development Awards	K01	• Mentored Research Scientist Development Award, REDI K01 • Mentored Career Development Program for Early Stage Investigators Using Nonhuman Primate Research Models
	K08	Mentored Clinical Scientist Research Career Development Award, Translational and Clinical Research
	K18	HEAL Initiative: Translational Science Career Enhancement Award, for translational researchers working on pain therapies
	K25	Mentored Quantitative Research Development Award, open to quantitative scientists without prior wet lab research background
	K23	Mentored Patient-Oriented Research Career Development Award
	K76	Paul Beeson Emerging Leaders Career Development Award in Aging

NIA Career Development Awards

Start Early!

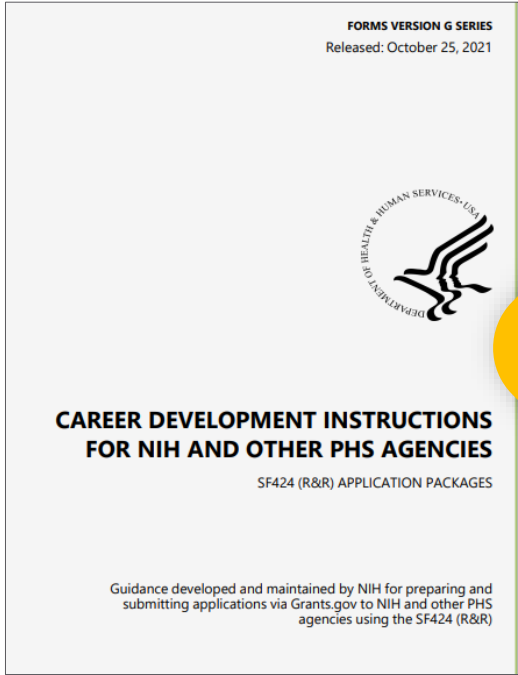| Application Component	Length Limit
Abstract	30 lines of text
Project Narrative	3 sentences
Applicant Biosketch	5 pages
Mentor Biosketch	5 pages
Budget Justification	no limit
Candidate Information and Goals for Career Development and Research Strategy	12 pages for combined sections
Specific Aims	1 page
Plans and Statements of Mentor and Co-mentor(s)	6 pages
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3 Reference Letters	2 pages each

K Applications – First Steps

1. Review the application materials

2. Draft your specific aims and seek feedback

3. Assemble your team of mentors and collaborators
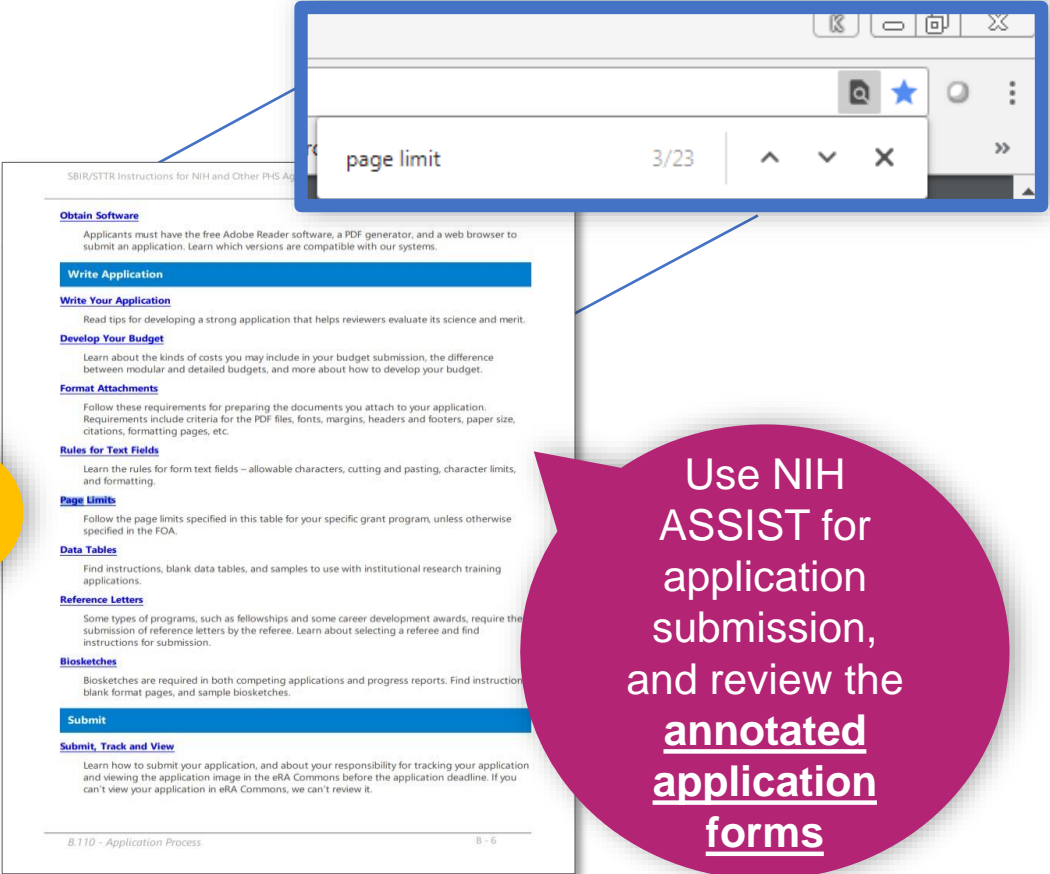
First Steps – Application Materials

- Read the Notice of Funding Opportunity

First Steps – Application Materials

- Read the Notice of Funding Opportunity
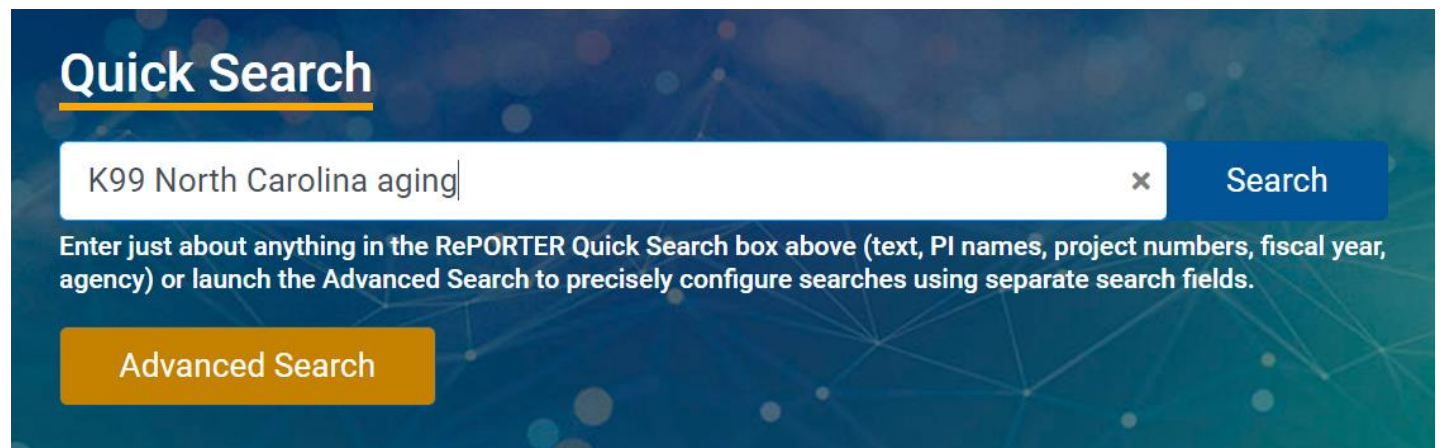- Review the SF 424 Application Guide

FORMS VERSION G SERIES
Released: October 25, 2021

CAREER DEVELOPMENT INSTRUCTIONS FOR NIH AND OTHER PHS AGENCIES

SF424 (R&R) APPLICATION PACKAGES

Guidance developed and maintained by NIH for preparing and submitting applications via Grants.gov to NIH and other PHS agencies using the SF424 (R&R)

Use "**Ctrl F**" keyword search on this document. That's what I do!

page limit   3/23

SBIR/STTR Instructions for NIH and Other PHS Ag...

Obtain Software
Applicants must have the free Adobe Reader software, a PDF generator, and a web browser to submit an application. Learn which versions are compatible with our systems.

Write Application

Write Your Application
Read tips for developing a strong application that helps reviewers evaluate its science and merit.

Develop Your Budget
Learn about the kinds of costs you may include in your budget submission, the difference between modular and detailed budgets, and more about how to develop your budget.

Format Attachments
Follow these requirements for preparing the documents you attach to your application. Requirements include criteria for the PDF files, fonts, margins, headers and footers, paper size, citations, formatting pages, etc.

Rules for Text Fields
Learn the rules for form text fields – allowable characters, cutting and pasting, character limits, and formatting.

Page Limits
Follow the page limits specified in this table for your specific grant program, unless otherwise specified in the FOA.

Data Tables
Find instructions, blank data tables, and samples to use with institutional research training applications.

Reference Letters
Some types of programs, such as fellowships and some career development awards, require the submission of reference letters by the referee. Learn about selecting a referee and find instructions for submission.

Biosketches
Biosketches are required in both competing applications and progress reports. Find instructions, blank format pages, and sample biosketches.

Submit

Submit, Track and View
Learn how to submit your application, and about your responsibility for tracking your application and viewing the application image in the eRA Commons before the application deadline. If you can't view your application in eRA Commons, we can't review it.

B.110 - Application Process   8 - 6

Use NIH ASSIST for application submission, and review the **annotated application forms**

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First Steps – Application Materials

- Read the Notice of Funding Opportunity

- Review the SF 424 Application Guide

- Review Sample Applications
  - Sample K99 applications from NIA
  - Use NIH Reporter (reporter.nih.gov)

First Steps – Specific Aims

1-2 Paragraphs
Background, significance, general introduction to the question of interest

2-3 Aims
Large scale experimental goals that will address the question of interest
Optional: sub-aims
Optional: hypotheses

Optional: 1 Concluding paragraph
Impact of this work on field or on your career

Specific Aims

Epithelia have poorly understood endogenous defense mechanisms to eliminate unfit cell types, including overgrowing cells. We have observed, for instance, that overgrowing clones of RasV12 cells are extruded from the Drosophila wing disc epithelium. Carcinomas, which arise in epithelia, must overcome these mechanisms in order to form a tumor. In order to better understand the early stage interactions between overgrowing cells and their wild-type neighbors, I propose to identify mechanisms by which epithelia extrude RasV12 clones. As activating Ras mutations are drivers of deadly human cancers, these mechanisms may point to novel methods of cancer treatment and prevention: enabling wild-type tissues to directly fight tumors in their midst. Drosophila models allow detailed and rapid examination of these complex cell interactions.

Aim 1 (K99): Characterize cellular parameters affecting RasV12 clone extrusion. I will characterize differences in extrusion of RasV12 clones from different geographical regions of Drosophila wing discs and determine whether cytoskeletal, adhesion, or cell-cell communication processes are disrupted at clonal boundaries.

Aim 2 (R00): Perform a functional screen for novel cell non-autonomous enhancers of clone extrusion. I will develop a novel genetic system to allow highly controlled generation of RasV12 clones and simultaneous genetic manipulation of surrounding wild-type tissue. I will use this system to conduct a high-throughput screen for secreted or cell surface molecules able to enhance clone extrusion.

Aim 3 (R00): Identify endogenous regulators of clone extrusion. I will adapt a recently described synthetic Notch receptor system to specifically label wild-type neighbors of RasV12 clones and evaluate gene expression in these cells. I will determine which differentially expressed genes are functionally important in the extrusion process.

These aims will take advantage of complex Drosophila genetic models to systematically characterize cell nonautonomous mechanisms regulating RasV12 clone extrusion. Aim 1 entails hypothesis-driven investigation of pathways likely to be involved, based on data gleaned from in vitro experiments using RasV12 clones and in vivo data from non-RasV12 related cell competition. Aim 2 will test potential functional regulators of RasV12 extrusion on a large scale, and Aim 3 will look genome wide for factors which change in wild-type cells in the presence of RasV12 clones, and may therefore be involved in clone extrusion.

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First Steps - Specific Aims Feedback

Send your specific aims page to:

NIATraining@mail.nih.gov

When?

- 2 months before due date

Why?

- Confirm fit with NIA
- Confirm best award for you
- GET SCIENTIFIC FEEDBACK!

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First Steps – Assemble your Team

- Mentors/advisors – cover all needed career development areas

- Collaborators – cover all needed technical areas

- Department chair – institutional support

- Former mentors – speak to your qualifications

- Grants office – application submission

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Tips for Polishing your Application
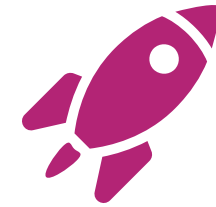
Craft Your K Award Narrative

Your background

What skills, expertise and experience do you already have?

+

K
Research and career development

What will it take to get you to your next career phase?

→

Your long-term career goals

What skills, expertise and experience will you need to thrive in your chosen career?

Tailored to you!

Specific Aims – the heart of your application

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Tips – Specific Aims Page

Usually the FIRST thing reviewers read!

Sometimes the ONLY thing reviewers read!

Succinctly Cover Main Points:	*Think Like a Primary Reviewer:*
WHAT research question are you addressing?	"This applicant is interested in…."
WHY is this research question important?	"Which is an important question because …"
HOW will you address this research question?	"To address this question, the applicant plans to …"

Have a friend in another lab read your aims and fill in these blanks for you!

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Tips – Research Plan

- Background, Significance, and **Approach**

- **Potential for research independence** – will this project launch your career and set you apart from your Ph.D. and postdoc mentors?

- **Potential for career development** – will this research project allow you to build new skills and fill any gaps in your professional development?

- **Describe potential pitfalls** - and propose alternative methods

- **Clarify K99 vs R00 plans** – make sure reviewers understand which parts you plan to do in your postdoc lab vs in your independent lab

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Aims should not be dependent on one another
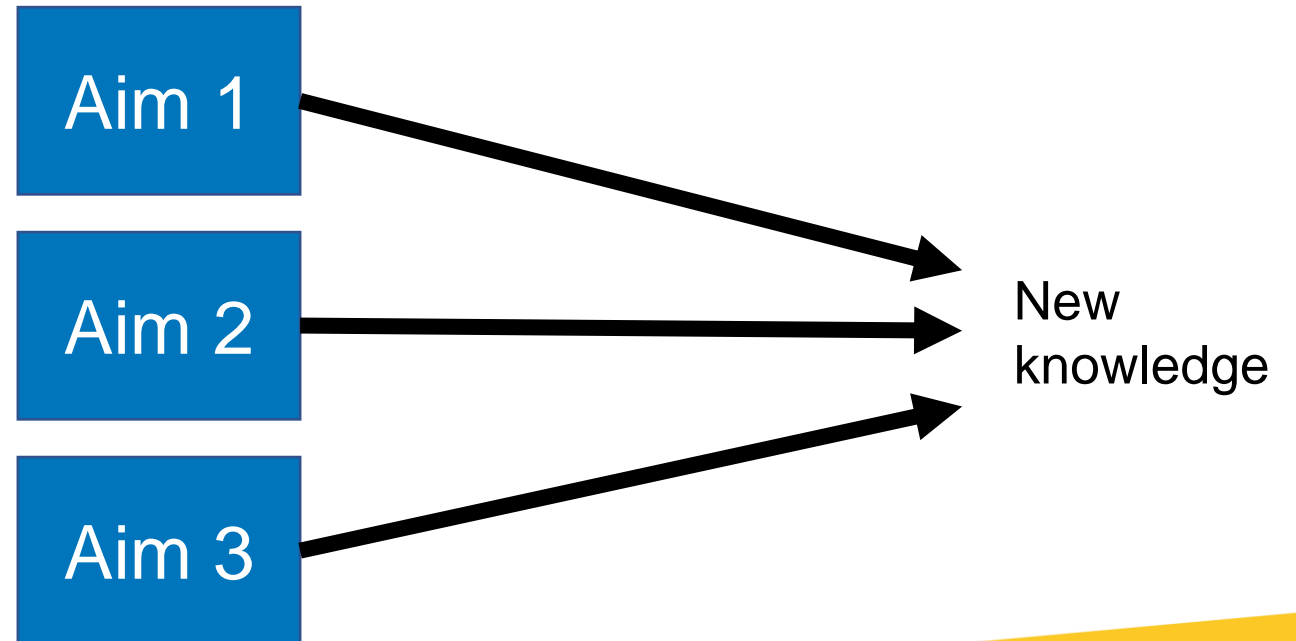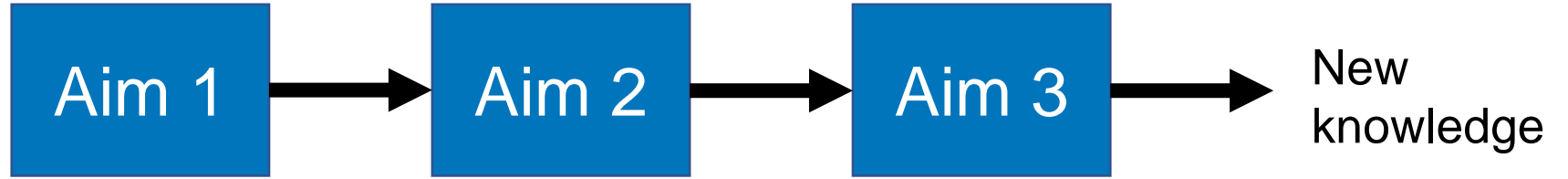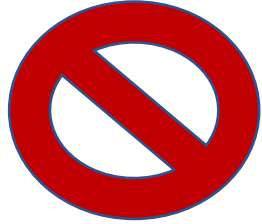
Tips – Career Development Plan

- Perform a gap analysis. What skills and expertise do you have already? Which do you still need to gain?

- **Integrate** the career development activities with research activities

- Provide a clear **timeline**

- Plan **mix** of classroom, hands-on, and 1:1 mentored experiences

- Be **specific** – your plan should be unique to you!

- **EMPHASIZE INDEPENDENCE**

Tips – Mentoring Team

- **Integrate** mentoring team with research plan – have mentors that cover all needed areas of expertise

  - Don't add unnecessary mentors!

- Be **specific** – how often will you meet? In person? 1:1 or group settings?

- **Align expectations** with your mentors

  - Your career development plan and their mentor statement should match

- **EMPHASIZE INDEPENDENCE**

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Before you submit - Conduct your own peer review

Read your application as if you were a reviewer.

- What are the weaknesses?
- **Don't try to hide potential pitfalls;** identify them and suggest strategies to overcome them.

Ask your collaborators to critically review the application.

Solicit feedback from independent readers.

- Do they understand the proposal?
- Are they excited about the idea, the potential impact, and the experimental approach?

Keep in touch with NIA training staff

NIATraining@mail.nih.gov

Maria Carranza, Ph.D.

Jamie Lahvic, Ph.D.

Laura Major, DrPH

What to do next:

Email your policy or eligibility questions

Email specific aims in order to receive scientific feedback

Visit the NIA Training website

Sign up for the NIA Training newsletter

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