Writing an Effective Career (K) Application

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Brief Overview of Grant Process

Program Staff

Department of Health and Human Services
Part 1. Overview Information
National Institutes of Health (NIH)
Funding Opportunity Title
NIH Pathway to Independence Award (Parent K99/R00)
PA-16-193

Funding Opportunity Announcement

Application

Feedback & Revision

NIH Center for Scientific Review

Award

Institute/Center

Study Section and Council Review

Timeline for K Applications

Receipt Date:	Review:	Council:	Award Date:
▪ Feb 12 (Mar 12)	▪ Jun/July	▪ October	▪ December
▪ Jun 12 (Jul 12)	▪ Oct/Nov	▪ January	▪ April
▪ Oct 12 (Nov 12)	▪ Feb/Mar	▪ May	▪ July

Writing an Effective K Application

✓ **Start Early**

✓ **Develop a Strategy**

✓ **Plan Your Application**

✓ **Application Requirement**

✓ **Review Criteria**

Start Early

- **Start *at least* 3 months** prior to the application due date (or begin planning even sooner)

- Get an NIH Commons account at least a month before the application deadline

- Know your organization's **A**uthorized **O**rganizational **R**epresentative (**AOR**) to assist with the application

- Notify your referees early and give them plenty of time to submit letters of reference

  o *Make sure they have current CV and aims of grant*

Develop a Strategy (1 of 2)

- Assess your career situation and needs:

  - *Is there an **added value** to your receiving a K award? Why not another funding mechanism?*

- Check which NIH Institute or Center (IC) funds K awards in your research area

- Schedule a phone call with an **NIH Program Officer** to discuss your research area, training needs and career development plans

- Assess the field and the competition by searching NIH's **R**esearch **P**ortfolio **O**nline **R**eporting **T**ools *(RePORT)*

Develop a Strategy (2 of 2)

- Identify an experienced mentor(s) and collaborators and discuss your plans, project and career development needs **early** to be sure they are on board

- Consider your strengths and areas for growth:

    o *Can you fill in any gaps with proposed mentor, collaborators or consultants?*

- Identify essential resources and support needed and consider if this is available within your organization—or must be obtained elsewhere

Plan Your Application

- Coordinate the application with your mentor's schedule **a K application is a collaboration between you and your mentor (s)**

- Put together a review committee to assist planning and provide critical feedback (critical input is good)

- Draft a short description of your specific aims and discuss these with the committee- chalk talk, diagrams, central hypotheses, scope

- Be sure the project is **distinct** from your mentors research and that the mentor is supportive of future independence

Don't Propose Too Much

- Avoid an **over-ambitious** project—but it should be novel and significant!

- Your hypothesis should be testable and aims doable with the resources you are requesting (and mentor support)

- Make sure the scope of your hypothesis and aims fits available time and resources

- Your research and career development objectives should be related/matched

Application Requirements

❑**Candidate Qualifications, Career Goals and Objectives**

❑**Mentor(s), Collaborators, and Consultants**

❑**Institution's Environment and Commitment to the Candidate**

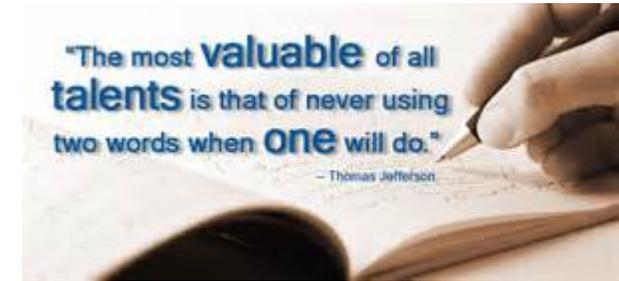❑**Specific Aims**

❑**Research Strategy**

A Few Tips as You Write
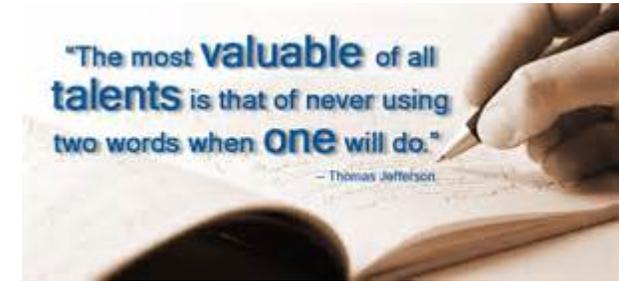
Make Life Easy for Reviewers:

- Write clearly and concisely

- Guide the reviewers with graphics as much as possible

- Label all materials clearly

- Make sure figures and legends are readable

- Edit and proof

- Avoid TMI – a figure is worth a thousand words!

A Few Tips as You Write

"The most **valuable** of all **talents** is that of never using two words when **one** will do." — Thomas Jefferson

Know These Review Problems and Solutions:

- Write a compelling argument for why your career will be advanced to independence and enhanced by receiving a K award

- Write for both experts and non-expert in your field

- Cite the work of experts as reading articles in the field

Candidate's Qualifications

Biographical Sketch:

- Education/training

- Contributions to science (background, findings, influence/impact, your specific role)- cite publications or research products

- Personal Statement: Your research experience and other qualifications for this K award

- Research Support: Ongoing and completed research projects - yours and your mentor/colleague accomplishments attesting to qualifications of the research team

Candidate's Background

- Can coordinate with information in the Biosketch, but make sure key information is provided here, even if repeats Biosketch

- Commitment to an academic research career

- Interactions, collaborations

- Research achievements experience and potential

- Other relevant experience (leadership, teaching, mentoring)

Career Goals and Objectives of the K award

- New or enhanced research skills you will gain

- Other activities that will enhance your research career, e.g., courses, workshops, techniques, teaching, mentoring (including 'soft skills' management, leadership)

- If you have **changed research direction**, discuss the reasons and justify how it will help you to develop your research career

- Provide a **career development timeline**, including plans to apply for subsequent grant support

- Career development can include a visit to another laboratory, to learn new technologies or approaches

Sponsor/Mentor(s), Collaborators, Consultants

- *Primary/Key Sponsor/Mentor(s)* must explain how she/he will *tangibly* contribute to the development of the candidate.

- Discuss the research *and also* other career—how will they advance the research and career of the applicant?

- Document sources and amounts of anticipated support for the candidate's research project

- Discuss plans for transitioning the candidate to independence— *and convey clear support for the pathway to independence*

- Provide details of previous experience as a mentor and outcomes of mentees

Institutional Environment and Commitment

- Document a strong, well-established research program related to the candidate's interests

- Experienced faculty, facilities and resources

- Opportunities for intellectual interactions, e.g., journal clubs, seminars, and presentations

- Commitment to the candidate's career development *independent of the K award*

- Adequate office and lab space, time and support to the candidate for the period of K award

Specific Aims of the Project

- To test a central hypothesis and sub-hypotheses

- Solve a specific problem and address a critical barrier to progress in the field

- To challenge an existing paradigm or develop new technology

- All members of the review panel may read this page

- State the problem, why you can solve it, what's new & the hypothesis and sub-hypotheses related to each aim

- End with why completing the aims will be a major contribution to the biomedical field and to your career development

A few Tips on the Hypothesis

Scientific Method

- Strong, testable hypotheses rather than advance in technology or 'collecting' information

- Aim 2 should still be doable if aim 1 does not pan out

- The research should ask questions that prove or disprove a hypothesis rather than use a method to search for a problem

- Methods are the means to perform your experiments. Your experimental results will prove or disprove your hypothesis

- The hypothesis must be testable during the duration of the K award and with the level of available resources.
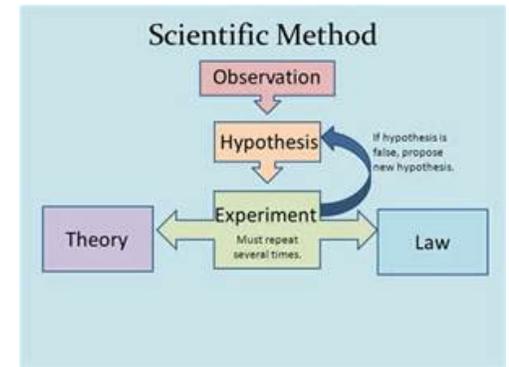
Research Strategy (1 of 3)

Significance:

- The importance of the problem you are trying to solve

- How your study and anticipated results will improve scientific knowledge, technical capability, or clinical practice in one or more fields

- How existing concepts, methods, technologies, treatments, or interventions may be impacted if the proposed aims are achieved
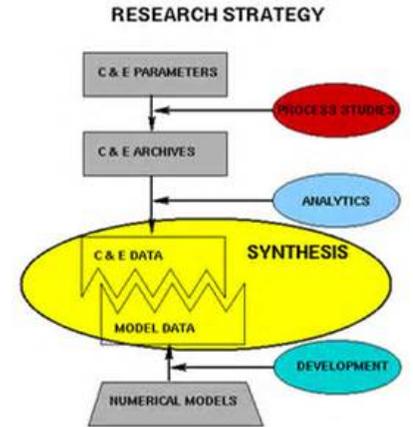
Research Strategy (2 of 3)

RESEARCH STRATEGY

Innovation:

- How your proposed research will challenge or improve current research or clinical practice paradigms

- Novel theoretical concepts, approaches, methodologies, or interventions that may be developed or used

- Advantages over existing approaches, methodologies, instrumentation, or interventions
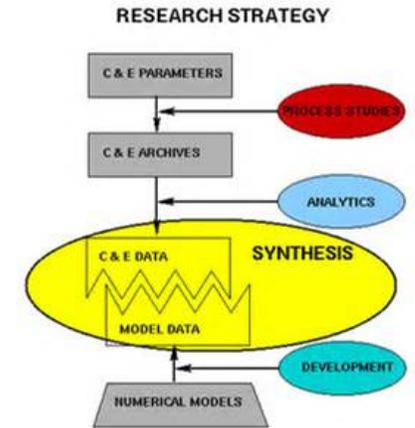
Research Strategy (3 of 3)

Approach:

- Methods and analyses to test the hypotheses and accomplish the specific aims

- Discuss benchmarks for success anticipated to achieve the aims

- Potential problems and alternative strategies

- For early stages of development, describe strategies to establish. feasibility and manage high-risk aspects of the proposed work

- Rigorous experimental design – power calculations, sufficient N, biological variables, appropriate statistical tests and authentication of reagents
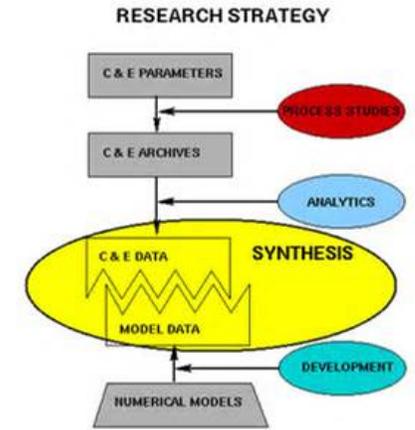
Responsible Conduct of Research

- Discuss the five components outlined in the NIH Policy:

    - *(1) Format, (2) Subject Matter, (3) Faculty Participation, (4) Duration, and (5) Frequency*

- Is the plan appropriate for your career stage, and will it enhance your understanding of ethical issues related to research?

- Document any prior participation in RCR training and/or propose plans to receive additional instruction

Career Award Review Criteria

Scored Review Criteria:

- ❑ *Candidate*

- ❑ *Career Development Plan, Goals and Objectives*

- ❑ *Research Plan (Includes review of Scientific Premise, rigorous experimental design, biological variables)*

- ❑ *Mentor(s), Consultants(s), Collaborator(s)*

- ❑ *Environment and Institutional Commitment to the Candidate*

Career Award Review Criteria (1 of 4)

Candidate:

- Research, academic and/or clinical record

- Commitment and potential to develop as an independent and productive researcher

- Quality of letters of reference (referees know you!)

Career Development Plan, Goals and Objectives:

- Contribute substantially to the scientific development of candidate

- Content, scope, phasing, and duration of the plan in the context of prior experience

Career Award Review Criteria
(2 of 4)

Research Plan:

- Scientific and technical merit of the research question, design and methodology

- Strong premise, rigorous experimental design and statistical analyses, unbiased approach, addresses relevant biological variables (e.g. sex- must include males and females)

- Relevance of the proposed research to the candidate's *career objectives*

- Is the research plan appropriate to the stage of research development and for developing the research skills described in the career development plan?

Career Award Review Criteria
(3 of 4)

Mentor(s), Consultants(s), Collaborator(s):

- Qualifications, funding, and statement by Mentor(s), collaborators, and/or Consultants

- Clear commitment and plan for career development and pathway to independence

Environment and Institutional Commitment to the Candidate:

- Assurance that minimum 75% effort will be devoted to research and related activities

- Assurance that the candidate is considered an integral part of the institutional research program

Career Award Review Criteria (4 of 4)

Additional Review Criteria:

- Protection of Human Subjects
- Inclusion of Women, Minorities, and Children
- Care and Use of Vertebrate Animals
- Biohazards

Additional Review Considerations:

- *Responsible Conduct of Research*
- Select Agents
- Authentication of key biological or chemical resources
- Resource Sharing Plans
- Budget and Period of Support

Rigor in K Award Application and Review

Element of Rigor	Section of Application	Criterion Score	Additional Review Consideration	Contribute to Overall Impact?
Scientific Premise	Research Strategy	Significance	NA	Yes
Scientific Rigor		Approach	NA	Yes
Consideration of Relevant Biological Variables Such as Sex		Approach	NA	Yes
Authentication of Key Biological and/or Chemical Resources	New Attachment	NA	Adequate or Inadequate	No

About Grants

Grants Basics

Grants Process Overview

Plan Your Application

How to Apply

Receipt & Referral

Peer Review

Pre-Award Process

Post-Award Monitoring and Reporting