Ins and Outs of NIH Career Development Awards

- Research Career Program Awards - K Series
- Grant Submission and Peer Review
- Strategy for Success

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Slides adapted from: - Drs. Alan Willard, Henry Khachaturian, Milton Hernandez, Marcia Hahn and NIH Web pages
Research Training and Career Development

Research Awards

- Pre-Bac Institutional Training Grant (T34)
- Pre-Bac Individual NRSA (F31)
- Pre-Bac Individual MD/PhD NRSA (F30)
- Postdoctoral Institutional Training Grant (T32)
- Postdoctoral Individual NRSA (F32)
- NIH Pathway to Independence (PI) (K99/R00)
- Mentored Research Scientist Development (K01)
- Mentored Clinical Scientist Development (K08)
- Mentored Patient-Oriented RCDA (K23)
- Mentored Quantitative RCDA (K25)
- Research Scholar (K22)
- Independent Scientist (K02)
- Midcareer Investigator in Patient-Oriented Research (K24)
- Senior Scientist (K05)

Career Stage

- Pre-Bac
- Graduate/Medical Student
- Postdoctoral
- Early
- Middle
- Senior

‘Informal’ Training and Career Development

- Small Grant (R03)
- Research Project Grant (R01)
- Exploratory/Development Grant (R21)
Research Career Program Awards - K Series

- **K-series awards**: granted to research and academic institutions on behalf of scientists with **clear scientific potential**
  - part of integrated NIH Institute/Center Programs
  - designed to foster development of outstanding scientists
  - enable scientists to expand their potential and make important scientific contributions

- **K Kiosk**: Information about NIH Career Awards
  - [http://grants.nih.gov/training/careerdevelopmentawards.htm](http://grants.nih.gov/training/careerdevelopmentawards.htm)

- **Career Award Wizard**: Helps you select the right career award
  - [http://grants.nih.gov/training/kwizard/index.htm](http://grants.nih.gov/training/kwizard/index.htm)
K08 Mentored Clinical Scientist Award
K23 Mentored Patient-Oriented Award

Overview:

- **K08**: Supports individuals with a clinical doctoral degree for career development in biomedical, behavioral research and translational research.

- **K23**: Supports career development of investigators who have made a commitment to patient-oriented research.

- Majority of awardees are MDs and MD/PhDs.

Program Features:

- **Duration**: 3 to 5 years

- **Salary Support**: Up to legislative cap (varies by Institute/Center) – Most common salary cap is $75,000

- **Research Support**: up to $50,000/year (varies by Institute/Center)

- Institute and Center contacts and policies: See Funding Opportunity Announcement
Overview:

- Facilitates the transition of investigators from mentored to independent stage of career.
- Typically, transition award for Postdocs moving to Assistant Professor.

Two Phases:

- Phase 1: May or may not be affiliated with an institution. Some IC’s require NIH Intramural experience.
- Phase 2: Assistant professor with own lab and little to no teaching or administrative responsibilities.

Program Features:

- **Duration**: 2 years mentored (Intramural), followed by 3 years independent.
- **Salary Support**: Up to legislative cap (varies by Institute/Center)
  - None during Intramural phase.
- **Research Support**: up to $50,000/year (varies by Institute/Center)
  - None during Intramural phase.
- Institute and Center contacts and policies: See Funding Opportunity Announcement.
K99/R00 Pathway to Independence Award

Overview:
- No citizenship/green card requirement
- Transition award for postdocs moving to Assistant Professor (tenure track or equivalent)
- Facilitate a timely transition from mentored postdoctoral research to stable independent investigator.
- Supported by almost all ICs with variations

Program Features:
- K99 Phase
  - Mentored Phase: Up to 2 years
  - Research Support: Up to $90,000/year (most Institutes & Centers provide more funds)
- R00 Phase
  - Independent Phase: Up to 3 years; 75% effort
  - Research Support: $249,000/year

Institute and Center contacts and policies: See Funding Opportunity Announcement
Research Career Program Awards - K Series

Administrative Issues:

Read the Funding Opportunity Announcements (FOAs)!
Common Features: Eligibility

Who can Apply?

- Doctoral Degree
  K08, K23, K24 require clinical degree
- US Citizen, Non-Citizen National, Permanent Resident
  (except K99/R00)

Duration?

- Typically three, four, or five years
- Entry level awards require a mentor
- K99 phase of the K99/R00 generally 2 years
Common Features: Appointment & Effort

Appointment?

- Must have a full-time appointment at applicant organization
- Any minimum effort requirement must be covered by that appointment

Level of Effort?

- Full-time research effort required
  (9 person months, 75% effort)
Common Features: Costs

Salary/fringe benefits?
- Salaries capped between $75,000 and legislatively mandated cap (currently $179,700)
- Fringe benefits are over & above any salary cap
- Salary supplementation OK, but must be with non-Federal funds and not require extra duties that would interfere with K activities
- NOT ALLOWED: salary for admin(secretarial or mentor

Research/development costs (supplies/other)?
- Generally $25,000 to $50,000

F&A Costs (Indirects – Duke Cut)? Only 8%
Ins and Outs of NIH Career Development Awards

- Research Career Program Awards - K Series

- Grant Submission and Peer Review:
  - Process
  - Scoring
  - Criteria

- Strategy for Success

Slides adapted from: - Drs. Alan Willard, Henry Khachaturian, Milton Hernandez, Marcia Hahn and NIH Web pages
NIH Grant Process

1. Great Idea
2. Consult With Others
3. Write an Organized Proposal
4. Understand Review
Details of the NIH Review Process

1. PI / Institution Submits application
2. Scientific Review Group
   - Assigns IRG (CSR or IC)
   - Evaluates Scientific Merit
3. Institute or Center
   - Evaluates Relevance
4. Advisory Council
   - Recommends Action
5. IC Director
   - Allocates Funds
6. Conduct Research
7. Revision / Resubmission
8. My Application
12-24 members

3 meetings each year.

Review 60 – 100 applications per meeting

~3 Members read and assign prelim score

Full panel streamlines

Apps are presented by ~3 readers

Full Panel Scores
NIH-Peer Review: Revised Scoring System

9-Point Rating Scale

<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Additional Guidance on Strengths/Weaknesses</th>
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</thead>
<tbody>
<tr>
<td>High</td>
<td>1</td>
<td>Exceptional</td>
<td>Exceptionally strong with essentially no weaknesses</td>
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<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td>Extremely strong with negligible weaknesses</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td>Very strong with only some minor weaknesses</td>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
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<td></td>
<td>5</td>
<td>Good</td>
<td>Strong but with at least one moderate weakness</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>Fair</td>
<td>Some strengths but with at least one major weakness</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
<td>A few strengths and a few major weaknesses</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td>Very few strengths and numerous major weaknesses</td>
</tr>
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Non-numeric score options: NR = Not Recommended for Further Consideration, DF = Deferred, AB = Abstention, CF = Conflict, NP = Not Present, ND = Not Discussed

Minor Weakness: An easily addressable weakness that does not substantially lessen impact
Moderate Weakness: A weakness that lessens impact
Major Weakness: A weakness that severely limits impact
Changes to Research Applications

- Shortened page limits
- Revised Biosketch with personal Statement and publication limits
- Modified Research Plan structure

Background and Significance

Preliminary Studies/Progress Report

Research Design and Methods

Research Strategy

Note: Follow FOA page limit requirements

What Has Not Changed!

- Need to have a good idea to answer an important question that will **SIGNIFICANTLY IMPACT** understanding/treatment of health and disease

- Reviewers need to be able to understand:
  - What you want to do?
  - Why it is important?
  - Can you do it?

- Need to align YOUR goals with funding agency goals
  - Contact the NIH Program Officer listed on the FOA
 Criteria for K Series Award Review

- **GOAL:** provide a quantitative assessment of the likelihood for the *candidate* to maintain a strong research program in the future.

- **Five scored subcomponents:**
  - Candidate
  - Career Development Plan/Goals & Objectives/ Mentoring Plan
  - Research Plan
  - Mentor(s), Consultant(s), Collaborator(s)
  - Environment and Institutional Commitment to the Candidate

- **Overall IMPACT is up to the individual reviewer**
Criteria for K Series Award Review

- Additional Review Criteria - Part of Impact Score
  - Training in the Responsible Conduct of Research
  - Protection of Human Subjects
  - Inclusion of Women, Minorities and Children
  - Vertebrate Animals
  - Biohazards

- These are important items and speak to the candidate’s commitment to being an ethical and compliant independent investigator
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- Enhancing Peer Review
- Strategy for Success

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Before You Start Writing (6 months)

- Remember that a K application is a collaboration between you and your mentor
- Put together a mentoring committee
- Draft specific aims and discuss with your mentor and committee
- Discuss your Career Development Plan with your mentor and committee
- Request STRONG Letters of Reference
- Be sure to have your committee review the application before submitting (2-4 weeks prior)
Candidate’s Qualifications

Biographical Sketch:

- **Personal Statement:** Your research experience and other qualifications for this K award.
- **Research Support:** Your/colleagues accomplishments attesting to qualifications of the research team. Don’t confuse this with “Other Support”

Candidate’s Background:

- Who are you as an investigator?
- Coordinate with information on your Biosketch
  - e.g., research and/or clinical training and experience that has prepared you for the K
- Emphasize publications
Review Criteria

Candidate:

- Quality of research, academic and/or clinical record
- Potential to develop as an independent and productive researcher
- Commitment to a research career
- Quality of the letters of reference
Candidate’s Career Goals

Career Goals and Objectives:

- Where do you want your career to be in 5-10 years?

- Have a focused goal or target and lead the reviewer to that goal with specific steps (objectives)

- You should always provide a career development timeline, including plans to apply for subsequent grant support (use tables/charts)
Candidate’s Career Plans

Career Development/Training During Award:

- Fully explain any new or enhanced research skills you will gain as a result of the K
- Stress activities that will enhance your research career, e.g., courses, techniques
- Describe any additional, non-research activities in which you expect to participate and how it relates to your research
Review Criteria

Career Development Plan/Career Goals & Objectives:

- Likelihood that plan will contribute substantially to the scientific development of candidate – Added Value

- Content, scope, phasing, and duration of the plan in the context of prior experience and stated career objectives
Mentor(s), Collaborators, Consultants

**Statements by Mentor(s), Consultant(s):**

- Each mentor must explain how he/she will contribute to the development of the candidate's research career

- Mentor(s) must provide details for any previous experience as a mentor, types (e.g., graduate students, Postdocs), numbers, and career outcomes

- Document sources / amounts of support for the candidate’s research

- Provide details on the candidate's anticipated teaching load, clinical responsibilities, etc.

- Discuss plans for transitioning the candidate to the independent investigator stage by the end of the K award period
Review Criteria

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

- Qualifications and statement by Mentor and collaborators/Consultants
Description of Institutional Environment:

- Sponsoring institution must document a strong, well-established research program related to the candidate's areas of interest.

- The statement should include the names of the mentor(s) and other relevant faculty.

- The statement should provide details of facilities and resources available for the candidate.

- Any opportunities for intellectual interactions, e.g., journal clubs, seminars, and presentations?
Institution’s Commitment

Institutional Commitment to the Candidate:

- The institution must document its commitment to the candidate’s career development independent of the K award!

- The institution must agree to provide adequate time and support to the candidate and mentor for the period of K

- The institution must provide office and laboratory space, equipment, and other resources and facilities to carry out the proposed research
Career Award Review Criteria

Environment and Institutional Commitment:

- Commitment of institution to ensure that the candidate's effort will be devoted to research (Minimum 75%)

- Adequacy of research facilities and training opportunities, including capable faculty

- Assurance that institution intends for the candidate to be an integral part of its research program
Training in Responsible Conduct of Research:

- Discuss the five components outlined in the NIH Policy: Format, Subject Matter, Faculty Participation, Duration, and Frequency.

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

Significance:

- Importance of the problem
- How will your project improve scientific knowledge, technical capability, or clinical practice?
- How will the field be impacted if the proposed aims are achieved?

Innovation:

- How will your proposed research may challenge current paradigms?
- Present any novel theoretical concepts, approaches, methodologies, or interventions
- Describe advantage over existing approaches
Research Strategy

Approach:

- Describe and discuss the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project.

- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.

- Discuss predicted outcomes based on your hypothesis and preliminary work.
Review Criteria

Research Plan:

- Scientific and technical merit of the research question, design and methodology
- Relevance of the proposed research to the candidate’s career objectives
- Appropriateness of the research plan to the stage of research development and as a vehicle for developing the research skills described in the career development plan
A Few Tips

Make Life Easy for Reviewers:

- Write clearly and concisely
- Less is More!
- Use graphics as much as possible
- Label all materials clearly
- Edit and proofread

Know These Review Problems and Solutions:

- Write a compelling argument for why your career will be enhanced by receiving a K award
- Write to the non-expert in the field
- Experiments support your aims, and aims support your hypothesis
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Questions?

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Member NIAID/NIH AITRC Committee
K01 Mentored Research Scientist Award

Overview:

- Supports an intensive, supervised career development experience in the biomedical, behavioral, or clinical sciences leading to research independence.
- Some ICs use the K01 for individuals who propose to train in a new field or those who have had a hiatus in their research career.
- Some ICs utilize the K01 award to increase research workforce diversity.
- Primarily for PhDs or equivalent research doctoral degrees.

Program Features:

- **Duration:** 3 to 5 years
- **Salary Support:** Up to legislative cap (varies by Institute/Center) – Most common salary cap is $75,000
- **Research Support:** Up to $50,000/year (varies by Institute/Center)

Institute and Center contacts and policies: See Funding Opportunity Announcement
K02 Independent Scientist Award

Overview:

- To foster the development of outstanding scientists and enable them to expand their potential to make significant contributions to their field of research.

- For newly independent scientists who can demonstrate the need for a period of intensive research focus as a means of enhancing their research careers.

- Must have independent grant support as Principal Investigator (e.g. R01).

- Mix of PhDs and MDs.

- Relatively few applicants.

Program Features:

- **Duration:** 3 to 5 years

- **Salary Support:** Up to legislative cap (varies by Institute/Center) – Most common salary cap is $75,000

- **Research Support:** Most Institutes/Centers do not provide research costs

  - Institute and Center contacts and policies: See Funding Opportunity Announcement
Overview:

- Support for mid-career health-professional doctorates or equivalent who are typically at the Associate Professor level or the equivalent for protected time to devote to
  - patient-oriented research
  - act as research mentor primarily for clinical residents, clinical fellows and/or junior clinical faculty.
- Typically Associate Professors, but can continue to support those promoted to full professor.
- Typically MDs.

Program Features:

- **Duration:** 3 to 5 years
- **Salary Support:** Most Institutes and Centers provide salary up to the legislative cap
- **Research Support:** Most Institutes and Centers provide up to $50,000/year

Institute and Center contacts and policies: See Funding Opportunity Announcement
K25 Mentored Quantitative Research Award

Overview:

- For investigators whose quantitative science and engineering research has thus far not been focused primarily on questions of health and disease.
- Supports a period of supervised study and research for productive professionals with quantitative (e.g., mathematics, statistics, economics, computer science, imaging science, informatics, physics, chemistry) and engineering backgrounds to integrate their expertise with NIH-relevant research.

Program Features:

- **Duration:** 3 to 5 years
- **Salary Support:** Up to legislative cap (varies by Institute/Center)
- **Research Support:** up to $50,000/year (varies by Institute/Center)

- Institute and Center contacts and policies: See Funding Opportunity Announcement