K Awards and R01 grants

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K vs. R Awards: Impact and Scores

**Overall Impact** = Your score (range 10-90, lower is better)

*K proposal*: Considering the candidate's (and sponsor’s) qualifications and previous research experience, evaluate the proposed training experience as it relates to preparation for an independent research career

*R proposal*: Assess the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following five core review criteria, and additional review criteria (as applicable for the project proposed)

*K awards fund the scientist not necessarily the science*
K Awards: Advantages and Disadvantages

**Potential Advantages**
- Competition is limited to peers at similar career stages
- Allows further training and mentoring
- Provides up to 75% protected time to pursue your research and training
- Creates a funding track record
- Allows critical preliminary data supporting independence to be generated

**Potential Disadvantages**
- Limited funds to carry out actual research
- Requires institutional support (may be much greater than small indirect costs)
- 75% time requirement may limit other activities
- Requires qualified mentors that may not be readily available
Research Career Development Awards

- **F30** - Predoctoral NRSA for MD/PhDs
- **F31** - Predoctoral NRSA - research degree
- **F99/K00** - Predoctoral to Postdoctoral Fellow Transition Award
- **K08** (K23) - Mentored Clinical Scientist Research CDA (M.D.)
- **K22** (K01, K25) - NCI Transition Career Development Award (Ph.D.)
- **K99/R00** - Pathway to Independence Award (Ph.D., M.D.)

*K01, K08, K22 – NCI Career Development Awards to Promote Diversity*
The Pathway to Independence Award (K99/R00)  
PA-19-129/ PA-19-130

- **Objective:** To help outstanding postdoctoral researchers complete needed, mentored career development and transition in a timely manner to independent, tenure-track or equivalent faculty positions.

- **Eligibility:**
  - U.S. citizens and non-U.S. citizens (@domestic institutions)
  - Less than 4 years of postdoctoral research training
  - MDs: Time spent in clinical training is not counted towards K99/R00 eligibility
  - Cannot have held an independent faculty or tenure-track position

- **Research:** all areas of cancer research

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The Pathway to Independence Award (K99/R00)

- **Mentored Phase (K99) (1 - 2 years):**
  - Supports postdoctoral research training & career development. Salary: up to $100,000/year; Research Support: $30,000/year
  - **Tenure-track Assistant Professor Position (or Equivalent)**

- **Independent Scientist Phase (R00) (up to 3 years):**
  - Supports independent research project. Allowable Costs: Salary, fringe benefits, research support: $249K/year (total cost)

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K99: Applications, Awards and Success Rates

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Parent K99 Awardee Profiles

Typically ~4 years post-degree

<table>
<thead>
<tr>
<th>Degree</th>
<th>Number of Publications</th>
<th>First Author Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD/PhD</td>
<td>2-9 10-14 15+</td>
<td>2-5 6-9 10+</td>
</tr>
</tbody>
</table>

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35th Anniversary Annual Meeting & Pre-Conference Programs

#SITC2020
The NCI Transition Career Development Award (K22)  
PAR-18-467

- Objective: facilitates the transition of investigators in mentored, non-independent cancer research positions to independent faculty cancer research positions. The K22 provides protected time for the initial 3 years of the first independent tenure-track faculty position.

- Eligibility:
  - U.S. citizens and Permanent Residents (@domestic institutions)
  - 2-8 years of postdoctoral research training
  - Cannot have held an independent faculty or tenure-track position

- Research: all areas of cancer research
The NCI Transition Career Development Award (K22)

Postdoc/ Clinical Fellow

K22 Application

Letter of Intent
To Commit Funds

12 months

Review

Tenure-track Assistant Professor

K22 Award

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K22: Applications, Awards and Success Rates

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Applications</th>
<th>Awards</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>140</td>
<td>12</td>
<td>16%</td>
</tr>
<tr>
<td>2016</td>
<td>120</td>
<td>18</td>
<td>19%</td>
</tr>
<tr>
<td>2017</td>
<td>120</td>
<td>18</td>
<td>16%</td>
</tr>
<tr>
<td>2018</td>
<td>140</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>2019(*) estimate</td>
<td>180</td>
<td>20</td>
<td>18%</td>
</tr>
</tbody>
</table>

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K22 Awardee Profiles

Degree Number of Publications Career Stage

PhD
MD/PhD
1-9
10-14
15+
Postdoc
Instructor
Research Assistant
Professor
Other

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Mentored Clinical Scientist Research CDA (K08)  
PA-19-116/ PA-19-117

- Objective: Provides support and “protected time” to non-tenured clinician scientists at the early career stage for an intensive, mentored research career development in basic, translational, and/or patient-oriented cancer-focused research.

- Eligibility:
  - U.S. citizens and Permanent Residents
  - NCI requires the candidate to have an active clinical license to practice in the United States
  - 75% effort required for all specialties, including urologic surgeons
  - NCI: salary base up to $189,600 + fringe benefits and $50,000 in research support

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K08: Applications, Awards and Success Rates

Applications / Awards vs Success Rate from 2015 to 2019

- Applications: 23%, 37%, 33%, 35%, 36%
- Awards: 0%, 13%, 15%, 25%, 35%
- Success Rate: 100%, 120%, 140%, 160%

Fiscal Year: 2015, 2016, 2017, 2018, 2019

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K08 Awardee Profiles

**Degree**
- MD
- MD/PhD

**Number of Publications**
- 1-5
- 6-10
- 11+

**Career Stage**
- Postdoc
- Instructor
- Research Assistant
- Professor
- Other

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Application sections and page limits

- Candidate’s Background
- Career Goals and Objectives
- Plan for Career Development
- Research Strategy
- Plans and Statements of Mentor and Co-mentor(s)
- Letters of Support
- Environment & Institutional Commitment
- Biosketch

- 12 pages
- 6 pages
- 6 pages
- 1 & 1 page
- 5 pages
# Review criteria

<table>
<thead>
<tr>
<th>Career Development Grants (K Awards)</th>
<th>Investigator Initiated Grants (R-series)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review Criteria</strong></td>
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</tr>
<tr>
<td>• Overall Impact</td>
<td>• Overall Impact</td>
</tr>
<tr>
<td>• Candidate</td>
<td>• Significance</td>
</tr>
<tr>
<td>• Career development plan</td>
<td>• Approach</td>
</tr>
<tr>
<td>• Career goals and objectives</td>
<td>• Innovation</td>
</tr>
<tr>
<td>• Career development activities</td>
<td>• Investigator</td>
</tr>
<tr>
<td>• Research Plan (see ➔)</td>
<td>• Environment</td>
</tr>
<tr>
<td>• Mentor(s), consultants, collaborators</td>
<td>• Focus on specific research</td>
</tr>
<tr>
<td>• Environment &amp; Institutional commitment</td>
<td></td>
</tr>
<tr>
<td>• Focus is on training potential</td>
<td></td>
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</tbody>
</table>

• Scores from 1 (good) to 9 (bad)
• One final score given for **Overall Impact**
Candidate’s Background

• Explain key career choices (e.g., to pursue specific training or undertake particular research projects)
• Provide evidence of long-standing commitment to research by citing past research
• Highlight productivity (publications and recent data)
• Describe any formal research training (e.g., KL2, MPH)
• Explain any gaps in training

• **TIPS**
  • Begin by stating your long-term research career goals
  • Try to build a convincing story that your past endeavors have been consistent with your current goals
  • If not, explain why your goals have changed
Career Goals and Objectives

• Describe your long-term research and career goals

• Identify the few remaining deficits in your training that prevent you from achieving your goals to be an independent researcher

• Be specific about your deficiencies (e.g., qualitative research methods, biostatistics, bioinformatics)

• Highlight studies in the research plan that will require additional training and/or experience and describe how they will serve as a platform to exercise your new skills

• These “deficits” in your training/experience should be the focus of your training plan

• Describe how you plan will differentiate you from your mentor and lead to research independence
Career Development Activities

• List the specific training areas you will pursue to gain the new skills needed to overcome your “deficits” and achieve career goals.

• Explain why additional training and mentored research experience in these areas is critical to achieving your short-term and long-term career development goals.

• Provide details how you will gain this training (specific courses, individualized tutorials, or practical experience gained from conducting the research in the proposal).
Mentors, Co-Mentors, and Collaborators

- The primary mentor should be a senior investigator with a track-record of NIH funding at your institution
  - Better if history as an actual PI (R01, P01, U01, SPORE - not early stage K, co-investigator)
  - Even better if currently funded
- The primary mentor’s letter should include
  - Qualifications in the research area proposed by the candidate
  - Previous experience (success) guiding trainees to independence
  - The nature and extent of the supervision that will occur during the award period
    - How progress will be monitored (committee meetings)
    - List of specific milestones during the K award
  - Resources available to support your training and research
- Co-mentors complement the primary mentor’s strengths (justify)
- Each mentor needs play a specific role in your training
Institutional Environment

• Letter from department chair
  • Write a draft with your division head/program leader

• Describe the research facilities and educational opportunities at your institution that are related to the career development training and research plans
  • Include relevance of each component to your career development plan

• Evaluation criteria
  • Need evidence of commitment to the scientific development of the candidate and assurances that the institution expects the candidate to be “an integral part of its research program.”
  • Applicant institution’s commitment to protect at least 75% of the candidate’s effort for proposed career development activities
Research Plan for a K award

• The research plan is a training vehicle
  • Well integrated with your career development training plan

• The research plan is a means to achieve independence
  • The research plan should be viewed as a precursor for a subsequent R01

• Mentored K awards provide limited funding
  • Appropriate and feasible research plan since the budget available in a mentored K award is limited
K vs. R: New Investigator R01s

- New Investigator: Not previously a PI on any PHS-supported award
  - Except small R-series (R03, R15, R21) and all K awards
- Early Stage Investigators (ESI): New investigators who are also:
  - Within 10 years of completing terminal research degree
  - Within 10 years of completing medical residency (or equivalent)
  - Extensions: injury, birth
- Breaks for ESIs
  - ESI R01s reviewed as a separate group at the beginning of the meeting
  - Reviewers reminded to place more emphasis on training and research potential and less on preliminary data and track record
  - Expedited review for revision (if within 5-10% of payline) – earlier summary statement, resubmit in 4-6 weeks (saves 4 months)
  - First competitive renewal - payline may be higher
- Applies to R01 applications (and DP2)
  - TIP
    - Apply for a R01 as soon as you can, especially if considering a R21
Success Rates – New vs. Established Investigators

Early stage investigator R01s
- Gaps between new and established investigators have narrowed (A)
- Most awards to experienced investigators go to those in the top percentiles (B2), whereas funded proposal for ESIs are much more spread out (B3)
- Don’t fall into the R21 trap. Success rates for early investigators (FY2019)
  - ESI R01 = 16%
  - R21 (no ESI) = 9%
Take Home Points

• Develop a realistic plan and strategy
  • Apply for the appropriate awards (check with specific Institute)
  • Give yourself plenty of time - It will take longer than you think it will
• Build the best team of mentors and collaborators
• Seek the assistance of experienced grant writers, reviewers, and NIH staff
• Nail your Specific Aims
• Publishing is tremendously helpful
• Seriously consider writing a R01 if you have the (published) data

• Remember the big picture – Why you love science and want to become an independent investigator
• Good luck!