Division of Hematology & Oncology: Career Development and Research Funding/Grantsmanship for Clinical Fellows

September 11, 2017

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Course: “Funding and Grantsmanship for Research and Career Development Activities”

http://grantscourse.columbia.edu/
**ACD Physician-Scientist Workforce**

**Working Group Reports**

- Physician-Scientist Workforce Working Group Report, June 2014 (PDF – 6.2MB)
- Executive Summary of the Physician-Scientist Workforce Working Group Report (June 2014) (PDF – 408KB)
- Physician Scientist Workforce Working Group Presentation at the ACD meeting on June 6, 2014 (PDF – 1.65MB)

[https://acd.od.nih.gov/working-groups/psw.html](https://acd.od.nih.gov/working-groups/psw.html)
Topics to be Discussed

- Funding Agencies
  - Government
    - Federal: National Institutes of Health, Dept. of Defense
  - Non-Government: Voluntary Health Organizations, Professional Societies, Foundations, Industry

- Types of Awards
  - Grants, Contracts, Cooperative agreements,
    - e.g. Research grants, fellowships, career development awards

- Identifying Funding

- Approaches for Competitive Applications
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- **Identifying Funding**

- **Approaches for Competitive Applications**
Federal Agencies

- Dept. of Agriculture
- Dept. of Defense
  - Congressionally Directed Medical Research Programs (CDMRP)
- Dept. of Education
- Dept. of Energy
- Dept. of Health & Human Services
  - National Institutes of Health
- Dept. of Homeland Security
- Dept. of Justice
- Environmental Protection Agency
- National Aeronautics & Space Administration
- National Science Foundation
Food and Drug Administration

Centers for Medicare & Medicaid Services

Centers for Disease Control and Prevention

Substance Abuse and Mental Health Services Administration

National Institutes of Health

Health Resources and Services Administration

Agency for Healthcare Research and Quality

Agency for Toxic Substances and Disease Registry

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications

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National Institutes of Health

Adapted from: NIH (DRG) - Peer Review of NIH Research Grants Applications

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DoD Congressionally Directed Medical Research Programs (CDMRP)

1992-2017: $11.9 Billion (appropriations)
1992-2015: 14,829 grants/contracts awarded

- Breast Cancer: $3.4061 B
- Prostate Cancer: $1.62 B
- Peer Reviewed Cancer: $.26 B

http://cdmrp.army.mil/about/fundinghistory.shtml
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## DoD Congressionally Directed Medical Research Programs (CDMRP)

### FY17 Peer Reviewed Cancer Research Program (PRCRP)

#### Synopsis of FY17 PRCRP Award Mechanisms

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Release Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Development Award</td>
<td>June 12, 2017</td>
</tr>
<tr>
<td>Idea Award with Special Focus</td>
<td>May 22, 2017</td>
</tr>
<tr>
<td>Translational Team Science Award</td>
<td>May 22, 2017</td>
</tr>
</tbody>
</table>

For more information, visit [CDMRP](http://cdmrp.army.mil/funding/prcrp) and [Grants Course](http://grantscourse.columbia.edu).
DoD Congressionally Directed Medical Research Programs (CDMRP)

Funding announcements typically have “Topic Areas”, one of which must be addressed in the application, as well as one of the “Military Relevance Focus Areas”.

- Bladder cancer
- Brain cancer *(new for FY17)*
- Colorectal cancer
- Immunotherapy*
- Listeria-based regimens for cancer
- Liver cancer
- Lymphoma
- Melanoma and other skin cancers
- Mesothelioma
- Neuroblastoma
- Pancreatic cancer
- Pediatric brain tumors
- Stomach cancer
- Cancer in children, adolescents, and young adults† *(new for FY17)*

Peer Reviewed Cancer Research Program (PRCRP) – FY2017

http://cdmrp.army.mil/
Topics to be Discussed

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  - **Government**
    - Federal: National Institutes of Health, Dept. of Defense
    - Non-Government: Voluntary Health Organizations, Professional Societies, Foundations, Industry

- **Types of Awards**
  - Grants, Contracts, Cooperative agreements,
    - e.g. Research grants, fellowships, career development awards

- **Identifying Funding**

- **Approaches for Competitive Applications**

Types of Awards

- Individual fellowships
- Training grants
- Career transition awards
- Career development awards
- Research grants
- Program Projects
- Administrative supplements
- Cooperative agreements
- Institutional Clinical & Translational Science Award (CTSA)
- Subcontracts
- Contracts
- Loan Repayment Program

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Types of Awards

- Individual fellowships
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- Cooperative agreements
- Institutional Clinical & Translational Science Award (CTSA)
- Subcontracts
- Contracts
- Loan Repayment Program

Not All Funding Opportunities Are the Same

- **Different mission statements**
  - Fellowships (F’s)/Training grants (T’s)
  - Career development (K’s)/Scholar awards
  - Research project (R’s)

- **Different funding**
  - Stipend vs. Salary/Fringe benefits
  - Pilot awards vs. Comprehensive research costs

- **Different time frames**
  - Not renewable: e.g. 5 years (K’s), 3 years (F’s), 2 years (T’s)
  - Renewable: 4 years–5 years (R01) each competitive period

Timeline of NIH Funding for Junior Investigators

- Medical School
- Internship/Residency
- Fellowship – Research Years
- Instructor/Assistant Professor

- Short term Training
- Research Support
- Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

Year-long Enhancement Programs
MD/PhD Fellowship or Institutional T32

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Post-doc:
Institutional Training Grant (NIH-T32)

- Post-docs selected by institution
- Research training in specific area
- Defined number of slots
- Stipend, health fees, tuition, travel

Division’s T32: “Molecular Oncology Training Program”
Post-doc: Individual Fellowship

- Supports specific individual
- Stipend, health fees, tuition, travel
- NIH: F32

Review criteria:
- Individual fellow
- Mentor
- Research project
- Research environment
Post-doc Fellowships (F32s)
Applications, awards, and success rates

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Post-doc: Individual Fellowship

- Voluntary Health Organizations, Foundations, Professional Societies -

- **American Cancer Society**
  - Postdoctoral Fellowships

- **American Philosophical Society**
  - Daland Fellowships in Clinical Investigation

- **American Society of Clinical Oncology/Conquer Cancer Foundation**
  - Young Investigator Award

- **Damon Runyon Cancer Research Foundation**
  - Damon Runyon Fellowship Award

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Year-long Enhancement Programs MD/PhD Fellowship or Institutional T32

Career Transition Awards

Pathway to Independence Award

- Career Transition Award *(K99/R00)*
- No citizenship requirement

Applicants must:
- Have earned a clinical or research doctorate
- Have *no more than 4 years of research experience* since completing the requirements of the doctoral degree
- Have not been the principal investigator of an NIH research grant (e.g., R01, R03, R21), career development award (e.g., K01, K07, K08, K23, K25), other peer-reviewed NIH or non-NIH research grant over $100,000 direct costs per year, or have been a project leader on a sub-project of a program project (P01) or a center (P50) grant.
1-2 years as a mentored **K award** for “post-docs”
- Funding level is Institute-specific
  - Salary and Research Support
- 75% effort

3 years as a **Research award** for independent investigators
- Total/year: =$249,000 (salary and research expenses)
  - D.C. + institution’s I.C. rate
- Must have an independent research position
The purpose of the NIH Pathway to Independence Award (K99/R00) program is to increase and maintain a strong cohort of new and talented, NIH-supported, independent investigators. This program is designed to facilitate a timely transition of outstanding postdoctoral researchers with a research and/or clinical doctorate degree from mentored, postdoctoral research positions to independent, tenure-track or equivalent faculty positions. The program will provide independent NIH research support during this transition in order to help awardees to launch competitive, independent research careers.

Prospective candidates are encouraged to contact the relevant NIH staff for IC-specific programmatic and budgetary information: Table of IC-Specific Information, Requirements and Staff Contacts.
NIH should establish a new physician-scientist-specific granting mechanism to facilitate the transition from training to independence. This program should be similar to the K99/R00 program whose funding currently goes almost exclusively to individuals holding a PhD degree. This new grant program could serve either as a replacement or transition from existing K Awards for physician scientists, and should provide a longer period of support, potentially lengthening the R00 phase to 5 years (with an interim staff review at year 3). This new grant series, as well as K and all other training awards, should rigorously enforce protected time of at least 75 percent effort and provide sufficient salary support to make that possible.
Notice of Reissuance of the NIH Pathway to Independence Award (Parent K99/R00)

Notice Number: NOT-OD-16-049

Key Dates
Release Date: January 8, 2016

Implementation
In response to the Physician Scientist Workforce Working Group recommendations, NIH is reissuing the K99/R00 FOA to provide additional information for physician-scientists who may wish to apply for this program. Specifically:

- **Section I. Funding Opportunity Description:** A separate section has been added under "Additional Information for Physician-Scientists" to further clarify features of K99/R00 program suited to physician scientists, and to provide guidance to applicants with respect to career stage and timing of the application.
- **Section III. Eligibility Information:** A separate section has been added under "Physician-Scientists in positions not designated as postdoctoral positions" to provide additional guidance on the differences between independence in clinical responsibilities and independence in research. In addition, more specific guidance is provided under "Level of Effort" and "Mentor(s)" sections.
- **Section VI. Award Administration Information:** Under the section "Transition to the Independent Phase" additional guidance is provided regarding institutional commitment to the awardee during the R00 phase of the award and beyond.

Additional Information for Physician-Scientists

For the purposes of this program, physician-scientists include individuals with an MD, DO, DDS/DMD, DVM/VMD, or nurses with research doctoral degrees who devote the majority of their time to biomedical research. The K99/R00 is intended for those physician-scientists who already have substantial research training and are dedicated to initiating a strong, research-intensive career as physician-scientists. The K99/R00 program is designed to facilitate a timely transition of outstanding physician-scientists from mentored, research positions to independent, tenure-track or equivalent faculty positions, and to provide independent NIH research support during the transition. **Individuals who need a longer period of mentored career development before they are prepared to begin the transition to research independence should consider the K08 or K23 program (see: K Kiosk).**
Research Career Development Awards

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Career Transition Awards

**BWF: Career Awards for Medical Scientists**

- To support physician-scientists during the last years of a mentored postdoctoral/fellowship position and the beginning years of an independent faculty position.

- Candidates must hold an M.D., D.O., D.D.S., or D.V.M. degree

- 75% effort to research-related activities

- Funding: $700,000 over five years
  - **Postdoctoral/Fellowship Portion**: Years 1 and 2
    Annual Total: $95,000
  - **Faculty Portion**: Years 3-5
    Annual Total: $170,000

Timeline of NIH Funding for Junior Investigators

Medical School

Short term Training

Internship/Residency

Research Support

Fellowship – Research Years

Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

Instructor/Assistant Professor

Year-long Enhancement Programs

MD/PhD Fellowship or Institutional T32

Career Transition Awards

Individual Mentored K Career Development Award
Research Career Programs (K)

- Provides predominantly salary support
- Minimum requirements for the amount of effort that must be devoted to research and career development (e.g. 75%, some exceptions to 50%)
- Up to 5 years
- Specified salary levels
- US citizen/permanent resident.
- Can reduce effort to 50% in last 2 years if PI of NIH research grant
Mentored Clinical Scientist Development Award (K08)

- Support to develop outstanding independent clinician research scientists
- Basic and translational science

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Mentored Patient-Oriented Research Career Development Award (K23)

- **Patient-oriented research:** Research conducted with human subjects (or on material of human origin) for which an investigator directly interacts with human subjects

- **Research areas:** (1) Mechanisms of human disease, (2) Therapeutic interventions, (3) Clinical trials, and (4) Development of new technologies

Notice of NCI’s Withdrawal from Participation in PA-16-198 "Mentored Patient-Oriented Research Career Development Award (Parent K23)"

The purpose of this Notice is to inform applicants that effective May 9, 2017, NCI will no longer be participating in PA-16-198, "Mentored Patient-Oriented Research Career Development Award (Parent K23)."

Eligible clinician scientists who wish to apply for a research career development award in cancer-focused patient-oriented research should instead submit applications to:

- PA-16-191, Mentored Clinical Scientist Research Career Development Award (Parent K08);
- PA-16-193, NIH Pathway to Independence Award (Parent K99/R00); or
- PAR-16-293, The NCI Transition Career Development Award (K22)

NCI will support training in Patient-Oriented Research through K08 Awards and increase K08 Salary and Research Support

The purpose of this Notice is to inform applicants that, starting with new applications due on June 12, 2017, NCI K08 Career Development Awards will support training in Basic, Translational, and Patient-Oriented Cancer Research, as well as combinations of Basic, Translational, and Patient-Oriented Research.

Salary support for these new K08 awards will be provided up to the legislative salary cap (https://grants.nih.gov/grants/policy/salcap_summary.htm). Research development support for these new K08 awards will be increased up to $50,000/year.

https://grants.nih.gov/grants/guide/notice-files/NOT-CA-17-043.html
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Cancer Prevention, Control, Behavioral, and Population Sciences
Career Development Award (K07)

- NCI program
- Support individuals with health professional or science doctoral degrees who are not fully established investigators

Please note: The K07 program announcement, PAR-16-284, will expire on January 8, 2018, and will not be reissued. The last due dates for K07 applications are October 12, 2017, for new applications and November 13, 2017, for resubmission applications. The last due date to submit a new non-AIDS application and to also be able to resubmit that application if it did not receive a fundable score was February 13, 2017. See also the K07 FAQs.

https://grants.nih.gov/grants/guide/notice-files/NOT-CA-17-043.html
NCI Transition Career Development Award (K22)

- NCI program
- “facilitate the transition of investigators in mentored, non-independent cancer research positions to independent faculty cancer research positions”
- “salary and research support for the initial 3 years of the first independent tenure-track faculty position, or its equivalent”

Mentored Research Scientist Development Award (K01)

Not all NIH Institutes participate in program. Participating Institutes may use for different purposes.

- Train in a new field
- Specific research areas
- Hiatus in research career
- Increase research workforce diversity
Mentored Research Scientist Development Awards (K01)

- **National Cancer Institute**: Underrepresented faculty
- **National Hunam Genome Research Institute**:
  - (a) Genomics
  - (b) Ethical, legal and social issues (ELSI)
- **National Library of Medicine**:
  - Biomedical Informatics
- **Fogarty International Center**:
  - International Research Scientist Development Award (IRSDA)
### NCI K08 Application Success Rate

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity Code</th>
<th>NIH Institute / Center</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate²</th>
<th>Total Funding³</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>K08</td>
<td>NCI</td>
<td>77</td>
<td>11</td>
<td>14%</td>
<td>$1,497,379</td>
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<tr>
<td>2008</td>
<td>K08</td>
<td>NCI</td>
<td>66</td>
<td>21</td>
<td>32%</td>
<td>$2,857,239</td>
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<tr>
<td>2009</td>
<td>K08</td>
<td>NCI</td>
<td>58</td>
<td>15</td>
<td>26%</td>
<td>$2,398,346</td>
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<tr>
<td>2010</td>
<td>K08</td>
<td>NCI</td>
<td>71</td>
<td>22</td>
<td>31%</td>
<td>$3,610,750</td>
</tr>
<tr>
<td>2011</td>
<td>K08</td>
<td>NCI</td>
<td>77</td>
<td>29</td>
<td>38%</td>
<td>$4,699,737</td>
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<tr>
<td>2012</td>
<td>K08</td>
<td>NCI</td>
<td>54</td>
<td>22</td>
<td>41%</td>
<td>$3,464,862</td>
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<tr>
<td>2013</td>
<td>K08</td>
<td>NCI</td>
<td>65</td>
<td>16</td>
<td>25%</td>
<td>$2,667,850</td>
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<tr>
<td>2014</td>
<td>K08</td>
<td>NCI</td>
<td>67</td>
<td>18</td>
<td>27%</td>
<td>$2,971,884</td>
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<tr>
<td>2015</td>
<td>K08</td>
<td>NCI</td>
<td>72</td>
<td>18</td>
<td>25%</td>
<td>$3,067,832</td>
</tr>
<tr>
<td>2016</td>
<td>K08</td>
<td>NCI</td>
<td>64</td>
<td>20</td>
<td>31.3%</td>
<td>$3,392,677</td>
</tr>
</tbody>
</table>


- **AHRQ K08**: Mentored **Clinical Scientist**
  Research Career Development Award for individuals with a clinical doctoral degree or Ph.D./other doctoral degree in a clinical discipline

- **AHRQ K01**: Mentored **Research Scientist**
  Research Career Development Award - for individuals with a research doctoral degree

- Health Services Research -
- Quality,
- Safety,
- Efficiency, and
- Effectiveness of health care

Research Career Development/Scholar Programs

- **American Cancer Society**
  - Research Scholar Grant
  - Mentored Research Scholar Grant

- **American Society of Clinical Oncology - Conquer Cancer Foundation**
  - Career Development Award

- **Damon Runyon Cancer Research Foundation**
  - Clinical Investigator Award
  - Damon Runyon-Rachleff Innovation Award
Research Career Development/Scholar Programs

- Doris Duke Charitable Foundation
  - Clinical Scientist Development Award
- Robert Wood Johnson Foundation
  - Harold Amos Medical Faculty Development Program
- American Society of Hematology
  - ASH-Harold Amos Medical Faculty Development Program
- Susan G. Komen
  - Career Catalyst Research Grant

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Timeline of NIH Funding for Junior Investigators

1. **Short term Training**
   - Medical School

2. **Research Support**
   - Internship/Residency

3. **Fellowship – Research Years**
   - Fellowship – Research Years
     - Individual Post-doc Fellowship or Institutional T32 Post-doc Training Grant slot

4. **Instructor/Assistant Professor**
   - Instructor/Assistant Professor
     - Institutional K12 Career Development Slot

- **Year-long Enhancement Programs**
  - MD/PhD Fellowship or Institutional T32

- **Career Transition Awards**

- **Individual Mentored K Career Development Award**

Mentored Clinical Scientist Development Program Award (K12)

- Support to an institution for the career development experiences of clinicians leading to research independence.

- Institutions recruit and select candidates into their programs

- Candidates must meet the same criteria as for the individual mentored clinical scientist development award.
CTSA Awards:
A Home for Clinical and Translational Science

Source: Zerhouni (NIH) [9/06]
Mentored Clinical Scientist Development Program Award (KL2)

- CTSA - Clinical and Translational Scientist Award
- CUMC TRANSFORM Scholars Mentored Career Development program
  [Training and Nurturing Scientists for Research that is Multidisciplinary]

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CTSA Awards: A Home for Clinical and Translational Science

Clinical Research Ethics
Biomedical Informatics
Clinical Resources
Biostatistics
Regulatory Support
Trial Design
Advanced Degree-Granting Programs
Participant & Community Involvement

Source: Zerhouni (NIH) [9/06]
Research-Oriented Masters Degree Programs

- Comprehensive courses in clinical research/
  “Patient-Oriented Research”
  - Biostatistics, epidemiology, study design,
    bioethics, legal and regulatory issues
- For the career development of clinical investigators

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CU Irving Institute/CTSA Funding Programs

- **TRANSFORM TL1 Postdoctoral Training Program:** Two-year mentored training program combining integrated didactics and research related to precision medicine.

- **TRANSFORM KL2 Program:** Scholars Mentored Career Development program

- **Irving Scholars:** Florence and Herbert Irving Clinical Research Career Awards - $60,000/year for 3 years

CU Irving Institute/CTSA
Funding Programs

- **Irving Institute/CTO Pilot Awards:** $50,000 awards for P&S junior faculty to conduct pilot studies leading to future independent funding

- **Imaging Pilot Awards:** Funding for junior investigators: magnetic resonance imaging (MRI), optical imaging, PET tomography, single photon emission computed tomography/computed tomography (SPECT/CT), and ultrasound

- **Health Practice Research Pilot Awards:** For junior investigators to pursue an informatics-based project in an operational clinical setting (w/ the Dept.of Biomedical Informatics)

CU Irving Institute/CTSA Funding Programs

- **Collaborative and Multidisciplinary Pilot Research Awards (CaMPR):** Two-phase program that provides planning and start-up funding to newly-configured investigative teams to support the planning of novel, cross disciplinary projects.

- **CaMPR-BASIC Awards:** Two-phase program that provides funding to form a new collaborative team consisting of two principal investigators at the Assistant Professor level: one from a Basic Science department and one from a Clinical department.

CU Irving Institute/CTSA Funding Programs

- **Translational Therapeutics Awards (TRx):** Accelerator program in drug discovery that and provides access to Entrepreneurs and the pharmaceutical industry to advance novel therapeutics from the lab towards the path of commercialization and clinical implementation.

- **Personalized Medicine Pilot Awards:** For research focused on approaches to tailor medical care (prevention, diagnosis, and/or treatment) to the individual patient. Studies may include the use of biomarkers, genomic data, aggregated clinical data, and/or patient reported data to develop personalized medical care.

Reach for the First R01 Course: Participants receive five free hours of biostatistical consulting, access to CTSA resources, two expert pre-reviews on an early draft of their R01 application, and bi-monthly, closely-monitored meetings to ensure structure and timeliness in completing the tasks required to successfully submit a first R01 application.
CUMC Research Training/ Didactic Programs

- **Master of Science – Patient-Oriented Research (POR):** Mailman SPH 2-year, 30-credit program providing quantitative training as well as critical thinking skills and practical strategies for clinical and translational research.

- **Columbia Summer Research Institute (CSRI):** 5-week (10 credit) program to obtain fundamental skills in research design and statistical analysis for patient oriented research.

- **Epidemiology and Population Health Summer Institute at Columbia University (EPIC):** Dept. of Epidemiology's week-long, non-credit courses to obtain advanced skills in statistical software and analysis, data visualization, modeling, and focused epidemiological topics.

NIH Career Development Support to Independent Research Funding

K01/K08/K23 → R01
K12 K23 → R01
K12 K23 → R01
K01/K08/K23 → R01
K12 → R01

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R01 Research Award

Independent Investigator

Funds research project
- Salaries of PI and other research personnel
- Supplies, reagents, etc
- Animal costs
- Patient care costs
- Core facilities
- Page charges for publications

Multi-Year (4yrs – 5yrs)
Renewable (e.g. original grant + 2 renewals = 15yrs)

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Timeline of NIH Funding for Junior Investigators

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- NIH Loan Repayment Program

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Instructor/Assistant Professor
- Career Transition Awards
- Individual Mentored K Career Development Award

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NIH’s Extramural Loan Repayment Program

http://www.lrp.nih.gov/

- Up to $35,000/year towards educational loan debt
- Conduct qualified research activities for at least 50% of professional effort (or 20 hours per week) for 2 years
- Qualifying educational loan debt equals or exceeds 20% of the applicant's institutional base salary
NIH’s Extramural Loan Repayment Program

- May competitively apply for one-year renewal
- Repayments represent taxable income and are paid in addition to loan

Eligibility:

- U.S. citizen/Permanent residence
- Recipient of M.D., Ph.D., D.D.S. D.M.D., or other specified equivalent doctoral degree

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NIH’s Extramural Loan Repayment Program

Extramural Programs

- Clinical Research
- Pediatric Research
- Health Disparities Research
- Clinical Researchers from Disadvantaged Backgrounds
- Contraception and Infertility Research

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### Program Overview

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<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<td>Number of Applications</td>
<td>788</td>
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<tr>
<td>Number of Awards</td>
<td>391</td>
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<tr>
<td>Success Rate</td>
<td>50%</td>
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<tr>
<td>Mean Award</td>
<td>$69,281</td>
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<td></td>
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<tr>
<td>Mean Age of Awardees</td>
<td>36 Years</td>
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<tr>
<td>Total Funding</td>
<td>$27,088,837</td>
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</table>
6. NIH should expand Loan Repayment Programs and the amount of loans forgiven should be increased to more realistically reflect the debt burden of current trainees. This program should also be made available to all students pursuing biomedical physician-scientist researcher careers, regardless of particular research area or clinical specialty.
Faculty Loan Repayment Program

- “Pursuing a career as a faculty member at a health professions school…”
- Loan payment assistance up to $40,000…
- From a disadvantaged background, based on environmental and/or economic factors”
National Health Service Corps (NHSC)

- “Primary care medical, dental and mental/behavioral health clinicians…
- Up to $50,000 to repay their health profession student loans…
- Two-year commitment to work at an approved NHSC site in a high-need, underserved area”
Topics to be Discussed

- **Funding Agencies**
  - Government
    - Federal: National Institutes of Health, Dept. of Defense
    - Non-Government: Voluntary Health Organizations, Professional Societies, Foundations, Industry
  
- **Types of Awards**
  - Grants, Contracts, Cooperative agreements,
  - e.g. Research grants, fellowships, career development awards

- **Identifying Funding**

- **Approaches for Competitive Applications**
How to Find Funding Opportunities

- Networking
- Speak to colleagues who are in a similar field
- Speak to colleagues who have been on governmental or private agency review panels
- Speak to colleagues who are on (advisory) boards of private agencies
- Acknowledgement section of publications, oral/poster presentations, press releases, etc.

General Resources

- Grants.gov
  - Database and application system for Federal grants

- FedBizOpps (Federal Business Opportunities)
  - Single point-of-entry for Federal contracts
General Resources

- **Foundation Center**
  - [http://foundationcenter.org/](http://foundationcenter.org/)
  - [http://foundationcenter.org/newyork/](http://foundationcenter.org/newyork/)

- **SPIN funding database**
  - [https://www.infoed.columbia.edu/](https://www.infoed.columbia.edu/)
  - e-mail alerts matching research area(s) of interest
- National Institutes of Health

- Tips for Writing Grant Applications
  - [http://grantscourse.columbia.edu/writing.htm](http://grantscourse.columbia.edu/writing.htm)
Other Sources of Information

- Sponsor publications/website/social media which describe research/programmatic interests (e.g. newsletters, strategic plans, annual reports)
- Sponsor e-mail alert modules
  - NIH
      - Able to save queries and have “ongoing” results e-mailed as funding alerts
Training

Courses: Proposal Writing Workshop and Bootcamp

Webinars

Self-Paced eLearning

The Foundation Directory Online

- 100,000 Grantmakers
- 3.4 million grants
- Tax statements (990’s) showing previous awards
- Access via Columbia University
  - http://www.columbia.edu/cgi-bin/cul/resolve?clio3328966
<table>
<thead>
<tr>
<th>Grantmaker Name</th>
<th>City, State / Country</th>
<th>Total Assets</th>
<th>Total Giving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Memorial Foundation, Carl Victor, The</td>
<td>Palo Alto, CA</td>
<td>$2,075,566,631</td>
<td>$95,744,392</td>
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<tr>
<td>Dana Farber Cancer Institute, Inc.</td>
<td>Boston, MA</td>
<td>$1,790,428,005</td>
<td>$26,833,850</td>
</tr>
</tbody>
</table>
Type of Grantmaker

- Community foundation (2049)
- Company-sponsored foundation (3343)
- Corporate giving program (1831)
- Governmental Organization (174)
- Governmentally-linked Foundation (107)
- Independent foundation (94620)
- Non-Governmental Organization (36)
- Operating foundation (5221)
- Other (1)
- Public charity (32684)

Geographic Focus

Grantmaker Name

Keyword Search
At A Glance

THE SIDNEY KIMMEL FOUNDATION
1900 Market St.
Philadelphia, PA United States
Telephone: (215) 665-2079
Fax: (215) 701-2257
E-mail: mkamens@cozen.com
URL: www.kimmel.org

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PROGRAM AREA(S)

The grantmaker has identified the following area(s) of interest:

GRANTS TO INDIVIDUALS PROGRAM

Research grants to physicians and young investigators for the study of cancer and translational science.

KIMMEL SCHOLAR AWARD

Each year the Kimmel Foundation expects to select up to ten grant recipients who will receive $100,000 per year for two years. Qualified applicants must hold an M.D., Ph.D. or equivalent graduate degree and must perform research in an American nonprofit institution during the period of Kimmel Foundation support. The foundation is seeking accomplished young investigators dedicated to a career in cancer research. Applications are limited to those who achieved the equivalent rank of Assistant Professor on or after July, 2011. Physicians who have both clinical and research responsibility are eligible if appointed on or after July, 2010. These awards are designed for researchers who do not yet have their own R01 funding. Applicants will be judged on the basis of quality of prior work, research proposed and letters of support. Funding of awards will be subject to execution of binding agreements setting forth terms and conditions under which scholarships will be provided.

KIMMEL TRANSLATIONAL SCIENCE AWARD

The foundation provides five additional awards specifically for physicians engaged in translational science. Eligibility includes those with M.D. or equivalent degrees, who have achieved the rank of Assistant Professor on or after July, 2010. Candidates must not hold R01 funding for the laboratory component of their cancer research. Applicants must demonstrate a significant personal involvement in the laboratory component of the translational project described. The translational aspect may involve either animal or human studies.

Learn more about the information displayed in Forms 990 and 990-PF, as well as processing errors announced by the IRS.
Topics to be Discussed

- Funding Agencies
  - Government
    - Federal: National Institutes of Health, Dept. of Defense
    - Non-Government: Voluntary Health Organizations, Professional Societies, Foundations, Industry
  - Types of Awards
    - Grants, Contracts, Cooperative agreements,
      - e.g. Research grants, fellowships, career development awards
- Identifying Funding
- Approaches for Competitive Applications
Approaches for Competitive Applications

- **Identify Funding**
- Prepare to Write the Grant Application
- Complete the Grant Application
Identify Funding

- Identify appropriate funding agencies
  - Government
  - Non-government

- Identify appropriate funding mechanisms
  - Research
  - Training

- Create a calendar of application deadlines for identified funding programs
Approaches for Competitive Applications

- Identify Funding
- Prepare to Write the Grant Application
- Complete the Grant Application
It’s not the will to win, but the will to prepare to win that makes the difference.

Bear Bryant, University of Alabama
Prepare to Complete the Grant Application

- Speak with Agency Program Officer
- Speak with colleagues who are/were awardees
- Review funded applications if possible
- Review agency’s review criteria
- Identify what will make the application more competitive
  - Research and/or career development arrangements
  - Access to core facilities/research resources
- Strengthen “Preliminary Work/ Pilot Data”
- Who will write confidential letters of reference?

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Research and Career Development Arrangements

- Multiple Principle Investigators (research awards)
- Multiple Mentors (mentored awards)
- Advisors (mentored awards)
- Co-investigators/Collaborations
- Subcontracts to other institutions
- Multidisciplinary/Interdisciplinary

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Prepare to Complete the Grant Application

- Identify and meet with Co-investigators, Collaborators, Consultants, Advisors
  - Identify roles and responsibilities
  - Administrative requirements (e.g. if other countries/institutions are involved)

- Identify necessary core facilities and other research resources

- Meet with research administrators

- Human subjects, lab animals and any other regulatory issues?

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Approaches for Competitive Applications

- Identify Funding
- Prepare to Write the Grant Application
- Complete the Grant Application
Complete the Grant Application

- Review the application instructions
- Identify the different components
- Create a checklist
- Create an outline
  - Content, Length of section (*vis a vis* page limits)
- Identify and delegate responsibilities for the different components
  - Technical/Scientific
  - Administrative – e.g. budget
  - Regulatory
  - Draft letters of collaboration/support

Complete the Grant Application

- Confirm page limits for each component
- Create a schedule for any required meetings
- Determine:
  - Shared computer drive/folders
  - Naming of files (dates?)
  - Track changes?
  - Font, margin, format of literature citation
- Set a **firm** time-line for each responsibility
  - Writing milestones
  - Absolute deadline date for final compilation

Complete the Grant Application

- Read instructions
- Never assume that reviewers “will know what you mean”
- Refer to literature thoroughly and thoughtfully
- Explicitly state the rationale of the proposed investigation (“the hypothesis of my study is…”)
- Discuss limitations and potential “challenges” and how these will be addressed (e.g., “alternate approaches”)
- Include well-designed tables and figures
- Present an organized, lucid write-up (use an outline)
- Ask colleagues to review and comment
Complete the Grant Application

- Read instructions
- Never assume that reviewers “will know what you mean”
- Refer to literature thoroughly and thoughtfully
- Explicitly state the rationale of the proposed investigation (“the hypothesis of my study is…”) 
- Discuss limitations and potential “challenges” and how these will be addressed (e.g., “alternate approaches”)
- **Include well-designed tables and figures**
- Present an organized, lucid write-up (use an outline)
- Ask colleagues to review and comment
Include Well-Designed Tables and Figures

- Include explanatory caption with the figure (not buried in text)
- Not overly complicated
- Informative, even if printed in black and white
- Easy for the reviewers to read

Tips:
- Bold label in text (e.g., Fig. 4) so it’s easier for reviewers to locate relevant text for individual Figure
- Try to have Figure and relevant text on the same page
## Timeline for Specific Aims and Benchmarks/Milestones of Research Progress

<table>
<thead>
<tr>
<th>Benchmarks/ Milestones</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Specific Aim 1a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of Specific Aim 1b</td>
<td></td>
<td></td>
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<tr>
<td>Summary of Specific Aim 2a</td>
<td></td>
<td></td>
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<tr>
<td>Summary of Specific Aim 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of Specific Aim 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Anticipate Questions and Answer them before they are asked

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Not everything that can be counted counts.
Not everything that counts can be counted.

Research Plan Section
3. Specific Aims
4. *Research Strategy

Candidate Section
2. Candidate Information and Goals for Career Development

Quote Investigator suggests crediting sociologist William Bruce Cameron
http://quoteinvestigator.com/2010/05/26/everything-counts-einstein/

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Investigator

- Competent
- Enthusiastic
- Thorough
- Professional
Personal Statement/
Candidate’s Background

When describing a previous research experience:

- What was the hypothesis/scientific question?
- Why was the study important?
- What were the findings and conclusions?
- What were your role and responsibilities?
- What did you learn and accomplish?
  - “Intellectual aspects”
  - Do not focus on technical aspects
- Cite any resulting publications
- Describe any honors/awards and conference/workshop presentations

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Possible Problems Specific for Mentored Fellowship Awards

**Mentor**

- Too many other responsibilities (e.g. administrative, clinical)
- Too many other mentees (e.g. students, post-docs)
- Not appropriate scientifically
- Too junior
- Limited experience as a mentor
- Limited funds to support proposed research

Possible Problems Specific for Mentored Fellowship Awards

Institution

- Limited scientific/technical resources
- Limited career development opportunities
- Limited opportunities for career advancement

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Elements of a Good Proposal

- Feasible
- Relevant
- Unique
- Innovative
- Clear
- Brief
- Consistent
Common Problems with Grant Applications from New Investigators

- Does not address/follow funding agency’s mission, specific instructions, budget limits, etc.
- Overly ambitious
- Not independent of previous mentor’s research
- Fishing expedition
- Not hypothesis driven
- Descriptive, not mechanistic project
- Unfocussed
- No or insufficient preliminary data
- Unrealistic budget
- Methodologies beyond the expertise of investigator or research team
NIH: one round of applications
Pink Sheet: Reviewers' Comments
Bell Curve of Reviewer’s Grant Applications

- Definitely do not fund
- Definitely fund

Poor Statistics
Research Resources not Adequately Described
Career Development/Research Training Plan not Comprehensive
All Components of the Application are as Strong as Possible
Good Luck!